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Self-Efficacy and Critical Thinking Dispositions as Predictors of Success in School Practicum

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ABSTRACT

A growing body of literature supports the relation between students' sense of self-efficacy and their academic performance. Similarly, there are studies indicating a relationship between critical thinking dispositions and academic performance. The purpose of the present study is to examine in what degree the teacher candidates' sense of self-efficacy and critical thinking dispositions predict their success in school practicum course. A total of 104 subjects (23 male, 81 female) participated in the study. Data related to teacher candidates' sense self-efficacy was collected using Teachers' Sense of Self-Efficacy Scale (Çapa, Çakıroğlu & Sarıkaya, 2005). Teacher candidates' critical thinking dispositions were collected using the Turkish version of California Critical Thinking Dispositions Inventory (CCTDI) which was adapted into Turkish by Kökdemir (2003). As for the success in school practicum course, teacher candidates' grades awarded by their school practicum supervisors were used. Statistically significant correlation was found between the self-efficacy and critical dispositions scores, and between critical thinking disposition scores and school practicum grades of the participants. The results of the regression analysis showed that teacher candidates' critical thinking dispositions scores predict their success in school practicum course. However, contrary to the expectations, their senses of self-efficacy scores do not predict their success in the same course.

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Keywords:
self-efficacy, critical thinking dispositions, school practicum, teacher certificate, teacher candidate

Introduction

In order to assure success in any system, the fundamental elements of the system should act together. As teachers are active, thinking decision-makers who play a central role in shaping classroom event, they become vital elements of the system bringing about educational success (Hargreaves & Fullan, 1992; Suwandee, 1995). This is true of education in general and language education in particular. With the impetus arising from the field of psychology, which has shown how knowledge and beliefs exert a strong influence on teacher action, understanding teacher cognition has become central to the process of understanding teaching (Borg, 2006). Thus, it is not surprising that a growing body of research has addressed the issue of successful language teacher characteristics, and the ways language teacher education programs can induce the enhancement of such features (see for example, Freeman, 1989; Brosh, 1996; Cotterall, 1999; Crandall, 2000; Elizabeth, May & Chee, 2008). Some of the previous studies in the field adhered significance to professional qualities such as language proficiency and managing skills, still some have sought to yield a broader conception of teacher success and investigated the impact of language teachers' various cognitive, affective and personality characteristics on their teaching practices and professional success. Among those

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investigated, one can refer to EFL teachers' emotions (Darby, 2008), emotional intelligences (Moafian & Ghanizadeh, 2009), self-efficacy (Chácon, 2005; Tschannen-Moran & Johnson, 2011), and critical thinking ability (Birjandi & Bagherkazemi, 2010). These studies in the field of language teaching concern with the relation between different variables and success separately, and each of these variables has been reported to act as a potential predictor of success. In the field of educational research, a number of researchers have recently attempted to combine these different variables such as self-efficacy, critical thinking and study strategies, within one model of learning (Fenollar, Román & Cuestas, 2007; Phan, 2008). Such integration merges the intentions to determine variables enhancing students' academic success, as well as to explain the associations between these variables. Thus, moving with a similar intention, in this study we explored the predictive relations between self-efficacy, critical thinking dispositions of teacher candidates and their success in school practicum.

Background to the Study

Two main strands of research shape the framework of this study: self-efficacy and critical thinking dispositions. Previous research in areas concerning self-efficacy and critical thinking dispositions indicate close relation between and contribution of these two variables in the prediction of students' academic performance. Self-efficacy, central to social cognition, acts as a determinant and mediator of education–psychological variables and performance outcomes (Pajares, 1996; Schunk, 1991). Self-efficacy is defined as belief in one's capability to execute required courses of action, govern one's choice of behaviors and aspirations, and the mobilization and maintenance of effort (Bandura, 1986, 1997; Schunk, 2000).

Unlike other expectancy beliefs, however, self-efficacy is sensitive to contextual factors, and hence judgments of self-efficacy are more task and domain specific (Pajares, 1996). For this reason, it has been suggested to be assessed at the optimal level of specificity that corresponds to the criterial task being assessed and the domain of functioning being analyzed (Bandura, 1986; Pajares, 1996). Since the study was conducted with teacher candidates, following the suggestion, the researchers investigated TSE.

Teacher's self-efficacy. Teachers' actions and behaviors are related to their beliefs, perceptions, assumptions and motivational levels (Chaco'n, 2005). Bandura (1997) considers teacher's beliefs in his/her abilities to instruct students and influence student performance as strong indicators of instructional effectiveness. One of the important beliefs assumed to be significantly effective in student outcomes is teacher's feeling of efficacy (Chaco'n, 2005). Teacher's self-efficacy (henceforth TSE) is defined as teacher's belief in his abilities to influence students' performance (Ashton, 1984; Bandura, 1997). It is a construct which is considered to be closely related to students' achievement. Bandura (1997) states that teachers' sense of efficacy can potentially influence both the kind of environment that they create and the instructional practices introduced in the classroom.

Findings from previous studies indicated that teachers with higher self-efficacy are more willing in their classrooms (Gibson & Dembo, 1984; Tuckman & Sexton, 1990); are more successful in classroom management (Saklofske, Michayluk & Randhawa, 1988; Woolfolk & Hoy, 1990) and that they create a warmer classroom atmosphere (Fritz, Miller-Heyl, Kreutzer & MacPhee, 1995). TSE beliefs have also been shown to be related to variables such as student motivation and achievement (Moore & Esselman, 1992), school effectiveness (Hoy & Woolfolk, 1993), teachers' adoption of innovations (Fuchs, Fuchs, & Bishop, 1992), teachers' classroom management strategies (Woolfolk, Rosoff & Hoy, 1990), time allotted to teaching certain subjects and teachers' referrals of students to special education (Soodak & Podell, 1993).

Previous studies suggest that field experience can have an influence on the beliefs and attitudes of teachers (Allen, 2003). Gurvitch and Metzler (2009) argued that authentic field experiences differ from the course work in their influence on pre-service teachers' practice levels as well as their teaching efficacy beliefs. Hoy (2000) demonstrated that pre-service teachers had strong teaching efficacy throughout their course work and prior to the formal student teaching experience. Thus, this study investigated the teacher candidates' professional self-efficacy in order to see whether this construct predict their success in school practicum course or not.

Critical thinking dispositions. The second characteristic investigated in the study is critical thinking dispositions (henceforth CTD). The issue has recently gained attention in research related to student attitudes and achievement (Jenkins, 1998). CTDs are defined as approaches to life that contribute to critical thinking (Facione, 1990). Critical thinking, on the other hand, is defined as a cognitive process, a purposeful self-regulatory judgment with two components: cognitive skills (interpretation, analysis, inference, evaluation, explanation and self-regulation) and a motivational component (the disposition toward critical thinking). Critical thinking is believed to be dependent upon a person's disposition to use it (Paul, 1992). Disposition is defined as consistent willingness, motivation, inclination and an intention to be engaged in critical thinking while reflecting, making decisions and solving problems (Facione, Sanchez, Facione & Gainen, 1995).

A student's disposition to think critically is a necessary precondition for critical thinking, and it greatly affects critical thinking capability. Though disposition is not a skill, it remains to be determined whether a stronger tendency towards cognitive maturity predicts greater skill at making mature judgments. Hence, the cultivation of dispositions is particularly important to insure the use of critical thinking skills outside the instructional setting. The usage, of course, requires a measure of maturity, and personal development. Facione (1998) describes the disposition toward critical thinking as the "consistent internal motivation to engage problems and make decisions by using critical thinking" (p. 5), and concluded that "educational and professional success required nurturing one's consistent internal motivation to think as well as developing one's thinking skills" (p. 16).

Relation between self-efficacy, critical thinking dispositions and success. Existing evidence suggest that self-efficacy plays a potent role in human agency. Self-efficacy has been shown to be a mediator and determinant of mathematics, science, reading and writing performance outcomes (Pajares, Britner & Valiante, 2000; Pajares & Johnson, 1996; Pajares & Kranzler, 1995; Pajares & Schunk, 2001; Pajares & Valiante, 1997; Schunk & Rice, 1992). Research also highlights that self-efficacy mediates various motivational effects on academic performance such as self-regulatory beliefs, gender and aptitude (Pajares & Johnson, 1996; Pajares & Kranzler, 1995; Pajares & Valiante, 1997). Similarly, other research studies indicated that self-efficacy acts as a determinant between critical thinking (Phan, 2007) and academic performance (Pajares & Johnson, 1996; Pajares & Kranzler, 1995).

Although studies on CTDs are few in number, empirical evidence supports a relationship between critical thinking dispositions and academic success. In their study Facione and Facione (1997) found critical thinking disposition to correlate with nursing students' ACT and SAT verbal scores. Some other studies have also found small yet consistent correlations between critical thinking disposition and GPA in both community college students (Bers, McGowan & Rubin, 1996) and 4-year university students (Giancarlo & Facione 2001; Pintrich, Smith, Garcia & McKeachie, 1993).

Context of the Study

This study was conducted with English language teacher candidates enrolled in English Language Teacher Certificate program. In Turkey, since 1998-1999 academic year the number of teachers needed by Ministry of National Education (MoNE) have been supplied via two different programs. One is the regular teacher education programs offered by Education Faculties all over the country. The other is the Teacher Certification programs run by different universities. These programs have been launched in order to compensate the teacher shortage in various fields such as maths, science and English language, resulting from the introduction of eight year uninterrupted compulsory education introduced in 1998. These programs are open to the graduates of Faculty of Science and Letters who aim at becoming teachers. These certificate programs tend to contain formal modular course work supplemented by on-site school practicum experiences and the development of a teaching portfolio.

In the case of English language teachers, MoNE announced that upon successful completion of this program, graduates of Language Departments such as English Language and Literature, American Culture and Literature, Spontaneous Translation Department and English Linguistics Department earn the right to be appointed as language teachers in schools connected to MoNE (decision no. 119, dated 12.07.2004, http://www.meb.gov.tr/bilgiedinme/SSS.html).

Investigating this group of teacher candidates and gathering information about them is very important for several reasons. The first reason is that this group of teacher candidates meets with pedagogical courses after graduating from a higher education institution only for two semesters. When compared to the period spend at school by the graduates of faculty of education this period is only one fourth of the previous. Within such a short period it is not always easy to observe and determine their cognitive and affective characteristics. Knowing their cognitive, affective and personality characteristics may help us to make accurate predictions about their teaching practices and professional success. For this study we investigated two different variables in relation to school practicum course performance, since various studies suggest that field experience can have an influence on the beliefs and attitudes of teachers (Allen, 2003). It is also argued that authentic field experience differs from the course work in their influence on teacher candidates' practice levels as well as their teaching efficacy beliefs (Gurvitch & Metzler, 2009). As Bandura (1981) argues, self-efficacy for teaching can be enhanced through modeling, and school practicum course gives them the chance of developing experience via observing teaching skills being modeled by someone else. Hence, for this specific group of teacher candidates we consider school practicum course as vitally important. The second reason is that investigating their professional self-efficacy beliefs might be used as feedback for the program, and thus certain changes might be offered for future certificate programs. Finally, their CTDs might give us clue about how far they can support their pupils' critical thinking skills.

Within this frame, the present study aims to examine in what degree the teacher candidates' sense of self-efficacy and CTDs predict their success in school practicum course. This study sought to find answers to the following research questions:

(1) In what degree do the teacher candidates' sense of self-efficacy and critical thinking dispositions predict their success in school practicum course?

(2) Are there differences in teachers' self-efficacy beliefs and critical thinking dispositions according to gender?

Method

Participants

The universe of this research constitutes 210 teacher candidates enrolled in English Language Teaching Certificate program run by Yıldız Technical University, Lifelong Learning Center, Turkey. The universe was divided into two groups. The study was carried out with 104 teacher candidates (81 female, 23 male). The participants correspond to 50% of the universe. The study was conducted with one of the groups. The participants in the study were coming from four different majors. Of the participants 44 were (43%) English Language and Literature, 15 (14%) were American Culture and Literature, 19 (18%) were English Linguistics and 23 (22%) were Spontaneous Translation graduates.

Procedure

This study employed descriptive methodology. At the beginning of the spring semester of 2010-2011 academic year, participants were asked to complete two questionnaires: *Turkish Teachers' Sense of Self-Efficacy Scale* (Çapa, Çakıroğlu & Sarıkaya, 2005), and *California Critical Thinking Dispositions Inventory* (CCTDI) developed by Facione, Sanchez and Facione (1994) and adapted into Turkish by Kökdemir (2003). The one of the researchers was the supervisor for the school practicum course. For the success in school practicum course, teacher candidates' points awarded for the school practicum by the researcher were used.

Instruments

Turkish Teachers' Sense of Self-Efficacy Scale (TTSES). The first questionnaire used in the study was the Turkish version of *Teachers' Sense of Self-Efficacy Scale* which was developed by Tschannen-Moran and Woolfolk Hoy (2001) and adapted into Turkish by Çapa, Çakıroğlu and Sarıkaya (2005). This instrument comprises 24-item likert type scale. Students responded to each item on a 9-point scale ranging from strongly disagree (1) to strongly agree (9). Scores for each item on the TTSES were summed to obtain a composite score for self-efficacy. For the whole scale, the reliability of efficacy scores was .93. Followings are some sample items:

California Critical Thinking Dispositions Inventory (CCTDI). The second questionnaire was *California Critical Thinking Dispositions Inventory* (CCTDI) developed by Facione, Sanchez and Facione (1994). For the study the Turkish adapted version of the inventory was used (Kökdemir, 2003). The inventory is a 51-item 6-point likert scale. Participants responded to each item on a 6-point scale ranging from strongly disagree (1) to strongly agree (6). Scores for each item on the CCTDI were summed to obtain a composite score for CCTDI. Some sample items are given below:

Data Analysis

The data collected was quantitatively analyzed. The analysis involved following statistical procedures: (1) Pearson correlations analysis were conducted to examine the relationships between the TSE, CTD scores and school practicum points; (2) regression analysis was conducted to find the predictive degree of TSE and CTDs; (3) t-test analysis to find gender differences in TSE and CTD scores.

Findings

Before the regression analysis we run a correlation analysis. The results are displayed in Table 1. As seen in the table, moderate correlations were found between TSE and CTDs (r=0.5). The correlation between school practicum points and CTDs were low, yet statistically significant (r= 0.3 p=0.00). The correlation between TSE and school practicum points was not statistically significant (r= 0.11 and p= 0.23).

Table 1. Correlations between TSE, CTD and school practicum points

		TSE	CTD	SP Points
TSE	Pearson Correlation	1	.50**	.11
	Sig. (2-tailed)		.00	.23
CTD	Pearson Correlation	.50**	1	.30**
	Sig. (2-tailed)	.00		.00
SP Points	Pearson Correlation	.11	.30**	1
	Sig. (2-tailed)	.23	.00	

TSE=Teachers' Self-Efficacy CTD=Critical Thinking Dispositions SP= School Practicum

p<0.01

In order to determine in what degree the teacher candidates' sense of self-efficacy and CTDs predict their success in school practicum course, regression analysis was run as a follow up. The results are shown in Table 2.

Table 2. Regression results for TSE, CTD scores and school practicum points

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	54.7	12.4		4.4	.000
TSE	-.03	.07	-.05	-.44	.67
CTD	.16	.05	.33	3.01	.003

a. Predictors: (Constant), Teachers' self-efficacy, Critical thinking dispositions

b. Dependent Variable: School Practicum Points

$R=0.31$ $R^2= 0.09$

$F=5.27$ $p=0.007$

Regression analysis revealed that CTDs significantly predicted school practicum points (p= 0.01). However, TSE was not a statistically significant predictor of school practicum points (p= 0.66).

Independent samples t-test analysis was used to find differences, if any, in TSE beliefs and CTDs according to gender (see Table 3-4).

Table 3. Independent samples test results for TSE according to gender

Gender	Mean	Sd	Df	t	*p*
Female (n=81)	171.81	16.88	102	0.58	0.56
Male (n=23)	174.30	21.97			

$p<0.05$

Table 4. Independent samples test results for CTD according to gender

Gender	Mean	Sd	df	T	p
Female (n=81)	233.12	24.49	102	2.2	0.03
Male (n=23)	220.17	26.98			

$p<0.05$

Regarding TSE beliefs, as can be seen in Table 4, although we found difference in the mean scores in favor of males, this difference was not statistically significant (p=0.56). Table 5 shows a significant difference between females and males in CTD (p=0.03), and this difference is in favor of females. Females with high CTD were more inclined to have high scores in school practicum course.

Discussion

The intent of the study was twofold: to investigate whether teacher candidates' self-efficacy beliefs and CTDs predict their success in school practicum course, and to examine the difference, if there is any, in TSE beliefs and CTDs according to gender. Both goals were achieved, with the following major findings identified.

Significant correlations were found between TSE and CTDs, and school practicum points and CTDs. However, we could not find a significant correlation between TSE and school practicum points. This finding is different from the findings of previous studies. In various studies conducted by Pajares and his colleagues

self-efficacy has been shown to be a mediator and determinant of performance outcomes (e.g. Pajares & Johnson, 1996; Pajares & Kranzler, 1995; Pajares & Schunk, 2001; Pajares & Valiante, 1997). The regression analysis yielded a similar result. Contrary to our expectations, TSE did not predict success in school practicum course. However, CTD turned out to be a predictor of success in the same course. This might be resulting from two main reasons. One is that different from previous studies we did not measure general self-efficacy beliefs but TSE beliefs. The second reason is that due to the nature of the course the teacher candidates need to reflect on classroom practices and thus, they need to rely more on critical thinking rather than self-efficacy. Furthermore, there are studies which indicated a relationship between CTD and academic success (Bers et al., 1996; Facione & Facione, 1997; Giancarlo & Facione 2001; Pintrich et al. 1993).

Findings related to second research question showed that females' CTDs were higher, yet TSE beliefs were lower than that of males. As mentioned afore, self-efficacy involves the confidence and belief in one's capability to execute required courses of action. When compared to male teacher candidates, females had a lower level of self-efficacy. This might be resulting from the fact that in Turkish culture the social environment contributes the development of this belief less in females. Existing studies has demonstrated cross-cultural variations in efficacy beliefs (Oettingen, 1995, Schwarzer, Bäßler, Kwiatek, Schröder & Zhang, 1997). As different cultures promote different self-efficacy appraisals, cultural variations are manifested in the social practices of familial and educational systems (Schaller, Parker & Garcia, 1998). In our culture males are still given more opportunities in every fields of social life. Thus, they find more chances for self-expression and personal development. Yet, studies in different cultural background different results can be found.

On the other hand, the difference between females and males in CTDs was in favor of females. In other words, females with high CTDs were more inclined to have high scores in school practicum course. While the role of gender in critical thinking is unclear, there have been studies looking at gender's influence on critical thinking in addition to personality (Rudd, Baker & Hoover, 2000; Walsh & Hardy, 1999). In these studies it was found that females were more open-minded and mature in their thinking, while males were more analytical. For example, in their study Walsh and Hardy (1999) reported that no gender differences were found, yet females revealed higher scores over all.

Conclusions

This research reports on the study that examined interrelationships between two major theoretical frameworks: self-efficacy and critical thinking. The tendency in educational research to amalgamate different theoretical orientations within one conceptual model to explain student success has been the preliminary motivation for this study (e.g. Elliot, McGregor, & Gable, 1999; Fenollar, et.al., 2007; Phan, 2008). In an attempt to extend this line of research to EFL teacher education, researchers in this study addressed the questions of whether the TSE beliefs and CTDs predict teacher candidates' performance in school practicum course, and whether gender differences exist. Our findings revealed that though there was a relation between TSE beliefs and CTDs, self-efficacy beliefs did not predict performance in school practicum course. Given that the participants of the study were not graduates of faculty of education, but of different majors, a single-semester school practicum might not be sufficient enough to make them feel self-efficient in the profession, and consequently this period might not be enough to increase their TSE level.

Furthermore, the predictive value of CTDs is worthy of consideration. Teachers due to the nature of their profession need to have critical thinking skills. The results indicated that their CTDs predict their performance. Contrary to the findings of previous research we found gender differences in CTDs. While the role of gender in critical thinking is unclear, our finding has shown that performance can be related to CTDs.

From the findings and the conclusions of the study several practical suggestions can be made. First critical thinking skills are important skills for teachers. In order to help teacher candidates improve their critical thinking skills both the mentors in the schools and the supervisors in the faculties can give them certain tasks and projects related to their future jobs. Secondly, mentors and supervisors should give positive feedback in order to increase the teacher candidates' sense of self-efficacy and encourage them. These

findings and conclusions also lead to several recommendations for further research.The sample for this study was purposively selected. This study should be replicated using procedures that allow a higher degree of randomization and ultimately more generalizability. Additionally, in this study a single course was used. It is recommended that this study be replicated using other content areas as the focus.

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