

Student Teachers' Beliefs about Teaching and Their Sense of Self-Efficacy: A Descriptive and Comparative Analysis *

Oğuz GÜRBÜZTÜRK
S. Nihat ŞAD
İnönü University, Faculty of Education

Abstract

This study aims at investigating the student teachers' traditional versus constructivist educational beliefs and their sense of self-efficacy by some variables: gender, grade, and department. Also it is intended to examine the association between them. The population of the study is 3.817 (1.822 female, 1.955 male) student teachers in Faculty of Education at İnönü University during the first semester of 2007-2008 academic year. The sample of the study comprises 411 students chosen using proportional stratified sampling technique. Participants were given "Teachers Belief Survey" and "Teachers' Sense of Efficacy Scale". The data obtained were analyzed using descriptive statistical techniques, t-test, ANOVA, Kruskal Wallis, LSD, Mann Whitney U and Pearson correlation. The analysis revealed that participants' professional self-efficacy levels were moderately over average and they had both constructivist and traditional beliefs, the former being moderately more dominant. The comparisons between independent groups (gender, grade, and department) gave some results partly consistent with the relevant literature. Also a positive correlation was found between constructivist teacher beliefs and self-efficacy beliefs about student engagement, and between traditional teacher beliefs and self-efficacy beliefs about class management, instruction, and overall self-efficacy.

Keywords: self-efficacy, teacher beliefs, traditional education, constructivist education.

In a general sense, the term *belief* can be defined as "an individual's judgment of truth or falsity of a proposition, a judgment that can only be inferred from a collective understanding of what human being say, intend, and do" (Pajares, 1992, p.316). In-service or pre-service teachers can have some beliefs about their teaching (e.g. their educational philosophy, teaching strategies, methods and techniques etc.). These beliefs can be nourished from different sources. Teachers can generally model their previous teachers whom they have observed for years (Cheng et al., 2009; Gürbüzürk, Duruhan & Şad, 2009; Lortie, 1975). And more pedagogically, teachers are expected to form such beliefs during their education at university. Considering that pre-service and in-service teachers' beliefs about teaching are rather resistant to change (Duru, 2006; Richardson, 1997), there needs to be highly effective teacher training programs to form favorable teaching beliefs (e.g. constructivist beliefs) or to reshape the pre-existing unfavorable traditional ones.

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Constructivist approach is today getting integrated in teaching and teacher training curricula more and more (Arslan, 2007; Prawat, 1992; Yapıcı & Leblebici, 2007; Yurdakul, 2005). For the Turkish context, new programs (e.g. Turkish, Math, Social Studies, and Science and Technology) developed in accordance with constructivism were introduced recently (Arslan, 2007; Yapıcı & Leblebici, 2007). Similarly, new curricula introduced in teacher training departments at higher education mainly aims to raise constructivist teachers for the ministry of education (Board of Higher Education, 2007). Constructivism has its basic theoretical scope and principles in John Dewey's educational philosophy; works of gestaltist scholars like Bartlett and Bauer; and works of prominent educational theorists like Vygotsky, Piaget, and Bruner (Duman, 2007). Constructivism represents a paradigm shift from education based on traditional behaviorism to education based on cognitive theory (Gagnon & Collay, 2006; Prawat, 1992). Constructivist education considers it central to develop the students' subjective thinking, judging, organizing, and interpreting their personal experiences in the social context, thus letting them construct learning themselves (Airasian & Walsh, 1997; Arslan, 2007; Brooks & Brooks, 1999; Cornu & Peters, 2005; Savaş, 2007; Scheurman, 1998; Yurdakul, 2005; Vygotsky, 1978). Constructivist classroom procedures lead students "to identify the subjectivity and biases of existing interpretations and to arrive at their own conclusions" (Scheurman, 1998, p.6). Founder of social constructivism, Vygotsky argues that learning is a social endeavor. Vygotsky's socio-cultural theory defines social interaction as a fundamental agent in the development of cognition (Rachel, 2002). According to Vygotsky learning takes place with participation in social or culturally embedded experiences and the learner learn by social interactions, which take place in meaningful contexts (Rachel, 2002). Based on such a more learner-centered educational context, constructivism re-defines the teachers' traditional role. A constructivist teacher is not the transferor of the knowledge anymore, but she is a guide supporting students' learning (Brooks & Brooks, 1999), which Bruner calls *scaffolding*. Scaffolding requires a more knowledgeable one (e.g. teacher, parents or a peer) to provide scaffolds or supports to facilitate the learner's development (Brewster, Ellis & Girard, 2002, p.19), on the condition that learner is in the zone of proximal development (ZPD). Vygotsky (1978) defines ZPD as "*the distance between the child's actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers*" (p. 86). It is regarded as important for pre-service and in-service teachers to reconstruct their teacher beliefs so as to conduct constructivist teaching from a learner's perspective (Woolley, Benjamin & Woolley, 2004).

Contrary to the constructivist teacher beliefs, teachers may have some traditional beliefs about teaching. These traditional beliefs are sometimes referred to as behaviorist ones due to the important influence of behaviorist learning theory in education during the first half of 20th century (Woolley et al., 2004). Throughout the 20th century, constructivism-based cognitive psychology represented by Dewey, Piaget, and Vygotsky has competed with more behaviorist approaches represented by Skinner, Bereiter, and their followers (as cited in Woolley et al., 2004). These traditional behaviorist beliefs base learning process mainly on stimuli-effect-reinforcement

continuum (Brooks & Brooks, 1999; Senemoğlu, 2005). With a rather teacher-centered instructional approach, “teachers first set behavioral goals, then determine appropriate reinforcers, select procedures for changing behaviors, implement the procedures, and record the results... finally, they evaluate progress and revise as necessary” (Duru, 2006, p. 25). A teacher with such traditional beliefs about teaching takes all the students as one, disregarding the individual differences, is rather dependent to the course book, and uses the traditional assessment methods (e.g. essays, multiple-choice tests, oral exams etc.) (Brooks & Brooks, 1999). Below is a comparative list of principles characterizing constructivist and traditional teacher beliefs (Ackerman, 1995; Airasian & Walsh, 1997; Arslan, 2007; Brooks & Brooks, 1999; Cornu & Peters, 2005; Duman, 2007; Erdem & Demirel: 2002; Prawat, 1992; Savaş, 2007; Scheurman, 1998; Yapıcı & Leblebicier, 2007; Yurdakul, 2005; Vygotsky, 1978):

Table 1
A comparison of traditional and constructivist teacher beliefs

Traditional teacher beliefs	Constructivist teacher beliefs
Main aim is to transmit knowledge and make students memorize things (rote learning)	Main aim is to develop critical thinking, creative thinking, and problem solving skills in students
Content is determined by the teacher and different content areas are taught separately.	Students' ideas are taken into consideration in selecting the content. Lesson contents are integrated with each other and with the real life.
Teaching profession is mainly a technical job.	Teaching profession is an intellectual and ethical effort which helps students perceive the world surrounding them by improving their skills to make critical interpretations about different points of views and their social, cultural, economical and political foundations, and which focuses
Learning is a result of development.	Development is learning itself.
Teacher is responsible for dividing the absolutely correct knowledge into meaningful units and transmitting these units to the students effectively.	Teacher is responsible to facilitate students' learning. She is not only interested in what students learn, but also in how they learn. She enables them become autonomous learners.
Teacher knows everything, but students know a little. Teacher knows the best for the students.	Teacher allows the students to evaluate their own progress. Teachers are open to learn new things from their students.
Students do not actively get involved in lessons.	Students are encouraged to become aware of their capacity to construct the reality, make decisions, and express their ideas and feelings.
Measurement and evaluation is done with the main focus on the product (output) using classical methods.	Measurement and evaluation mainly focuses on improving the process using formative achievement tests, observation forms, activity reports, project and performance tasks, concept maps and self-evaluation forms, peer evaluation forms etc.
Parents do not involve in their children's education sufficiently.	Parents are active partners of teachers both in and out of the school.

Teachers' Self efficacy beliefs

It also seems important to investigate to what extent the student teachers raised through constructivist approach consider themselves as efficient in teaching. At this point, self-efficacy should be taken into consideration. Bandura (1986) defines self-efficacy in his social cognitive theory as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). In other words, self-efficacy refers to one's beliefs about his/her capacity to overcome the prospective challenges (Çakır, 2007; Senemoğlu, 2005). Thus, self-efficacy should not be confused with the actual capabilities. Yet, Bandura (1994) argues that a strong sense of efficacy enhances human accomplishment and personal well-being in many ways. When people have stronger perceived self-efficacy beliefs, their efforts are more vigorous and persistent thanks to more active coping efforts (Bandura & Adams 1977). But high self-efficacy can be a dangerous, since people with high self-efficacy "may feel little need to invest much preparatory effort" (Bandura, 1986, p. 394).

The self-efficacy beliefs can be nourished from different sources including 1) through mastery experiences, both successes or failures, 2) through the vicarious experiences provided by social models, 3) Social persuasion (including verbal persuasions), and 4) somatic and emotional states such as fear reactions, fatigue, aches, pains etc (Bandura, 1986; Çakır, 2007, p. 419; Pajares, 2002; Senemoğlu, 2005, p. 231).

Self-efficacy has proven to be a more consistent predictor of behavioral outcomes than have any other motivational constructs (Pajares, 1996). Self-efficacy is reported as an important variable in researches about goal attainment, academic achievement, problem solving, professional development and teacher training; and researches report significant associations between self-efficacy and cited-variables (Pajares, 1996, 2002).

In educational contexts, there is increasing evidence that teachers' sense of self-efficacy plays a key role in influencing important academic outcomes (Klassen et al., 2009). In terms of teaching profession, self-efficacy is defined as teachers' beliefs in their capacity to influence students performance (Asthon, 1984); or "the judgment of his or her (a teacher) capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (as cited in Tschannen-Moran & Woolfolk-Hoy, 2001, p. 783). However, as mentioned earlier, self-efficacy should not be confused with the actual professional competency of a teacher (Goddard, Hoy & Woolfolk-Hoy, 2004). Relevant literature (Akkoyunlu, Orhan, & Umay, 2005; Bandura, 1993; Bümen, 2009; Caprara, Barbaranelli, Steca, & Malone, 2006; Goddard et al, 2004; Küçükyılmaz & Duran, 2006; Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk-Hoy, 2001; Wan, 2005; Wolters & Daugherty, 2007) report that higher self-efficacy beliefs in teachers are linked with higher desire, ambition, and performance to use the successful strategies, methods and techniques in their classes; higher motivation and self-esteem in engaging the students; higher knowledge about their subject fields; more student-centered teaching practices; and a

more successful classroom management thanks to more systematic and planned work by the teacher.

This relation between higher self-efficiency beliefs and successful use of instructional strategies, student engagement and class management skills reasonably implies that pre-service teachers should be better raised with high self-efficacy beliefs. Given the fact that current teacher training literature and the curricula favor constructivist approach, it was found worth investigating how the self-efficacy beliefs of the student teachers are associated with the constructivist teacher beliefs vs. traditional teacher beliefs. In other words, it needs to be researched to what extent the curricular changes in educational faculties are able to raise modern constructivist teachers who are refined from traditional educational beliefs and provided with high professional self-efficacy beliefs.

To this end, the purpose of this study was first to determine the teacher beliefs (constructivist versus traditional education) and professional self-efficacy beliefs of the student teachers studying at the Faculty of Education. Next, it was intended to figure out possible differences between these belief sets of the student teachers in terms of their gender, grade, and department. Finally, the association between student teachers' self-efficacy beliefs and teacher beliefs was inquired.

METHOD

The population of this survey study was 3.817 (1.822 female, 1955 male) student teachers studying at the Faculty of Education at İnönü University, Malatya. The sample of the study comprised 450 students chosen through proportional stratified sampling technique during the second semester of 2007-2008 academic year. Though all of the participants were given "*Teachers Belief Survey*" and "*Teachers' Sense of Efficacy Scale*", only 411 were considered proper for analysis due to incomplete or miscompleted forms. The composition of the 411 participants is as follows: 219 females and 192 males; 76 first graders, 101 second grader, 107 third grader and 127 seniors; and 20 at Physical Education (PE) department, 18 at Computer Technologies Teaching (CTT) department, 72 at Class Teaching (CT) department, 49 at English Language Teaching (ELT) department, 35 at Preschool Teaching (PT) department, 18 at Music Education (ME) department, 12 at Art Teaching (AT) department, 42 at Social Studies Teaching (SST) department, 46 at Turkish Language Teaching (TLT) department, 61 Science Teaching (ST) department, and 38 Elementary Maths Teaching (EMT) department.

Instruments

Teachers' Sense of Efficacy Scale. The data about the student teachers' self-efficacy beliefs about teaching were collected using *Teachers' Sense of Efficacy Scale* originally developed by Tschannen-Moran and Hoy (2001), and adapted into Turkish by Çapa, Çakiroğlu, & Sarıkaya (2005) in a study on 628 pre-service teachers from six different universities from four major cities in Turkey. This 9-point (ranging between 1-

nothing and 9-a great deal) Likert scale has a three-factor structure with 24 items, 8 items in each factor: *Student engagement (SE)*, *Classroom Management (CM)*, and *Instructional Strategies (IS)*. Items in SE subscale are supposed to determine student teachers' beliefs in their efficacy to encourage and motivate students in the learning process (e.g. "9. How much can you do to help your students value learning?"); items in CM subscale are supposed to determine student teachers' beliefs in their efficacy to prevent or control the unwanted behaviors in the classroom (e.g. 13. How much can you do to get children to follow classroom rules?"); and items in IS subscale are supposed to determine the student teachers belief in their efficacy to use different instruction and evaluation methods (e.g. "20. To what extent can you provide an alternative explanation or example when students are confused?"). The earlier Turkish adaptation study of the scale yielded valid and reliable results. The coefficient alpha values for the Turkish preservice teachers were .82 for SE, .86 for IS, .84 for CM, and .93 for total (Çapa et al., 2005). All items were contributing to the reliability with high item-total correlations. In this study the reliability of the scale was retested with Cronbach Alpha, which revealed reliable results, as well: .77 for SE, .81 for CM, .81 for IS, and .90 for the entire scale.

Teachers Belief Survey. Data about the teacher beliefs [Constructive Teaching (CT) and Traditional Teaching (TT)] of the student teachers were collected using "*Teachers Belief Survey*" developed by Woolley et al. (2004) and adapted into Turkish by the researchers after having permission via e-mail correspondence. The original scale was developed based on quantitative data obtained from 61 pre-service and 137 in-service teachers. Later its validity ($df = 186$, $\chi^2 = 43.79$, $RMSEA = .066$, $NFI = .76$, $NNFI = .78$, $CFI = .81$, $GFI = .91$, $AGFI = .88$) and reliability (Cronbach Alpha values: .78 for TT, .73 for CT, and .52 for Traditional Class Management, which was excluded in this study) proofs were obtained in a study on 896 pre-service teachers (Woolley et. al., 2004). The main function of this Likert type scale with 21 items and 6-point grading ranging from 1-Strongly Disagree to 6- Strongly Agree is to distinguish between the respondents' beliefs about constructivist and traditional education.

Same scale was adapted into Turkish before by Duru (2006) in her doctoral dissertation where she used only 17 items which included the TT and CT subscales. Duru (2006) obtained a two-factor structure in her study with 290 participants, but had to discard 5 items with low factor loadings ($<.30$). Finally she produced a scale with internal consistency coefficients of .65 for CT and .61 for TT. Yet, a comparison between the original and Turkish scales by the researchers revealed some translation and expression problems in those items discarded (items 1, 12, 14, 15, and 17). Therefore, the corrections in translation and expression were done properly by the subject experts and a professional translator, preserving most of the other items as adapted by Duru (2006) and finally all of the 17 items were subjected to exploratory factor analysis based on the data from a pilot group of 318 student teachers.

The data obtained from the pilot group were primarily tested with Kaiser-Meyer-Olkin (KMO) and Bartlett tests for suitability for factor analysis. As the results were found satisfactory (KMO=, 717 and Bartlett Test of Sphericity=1246,99, $p=,00$), the construct validity of the instrument was analyzed using principal components analysis.

The factor analysis on 17 items revealed a two-factor structure, as it was in the original scale and in the Turkish version previously adapted by Duru (2006). The two-factor solution accounted for the 35,164 % of the variance [CT= 20,568%, TT= 14,596%]. The instrument was found adequately reliable with internal consistency coefficients of .765 for CT and .633 for TT. Furthermore, the items (1, 12, 14, 15, and 17) excluded in Duru's (2006) study due to low factor loadings were observed to have loadings over .30 after revising the translation and the expression, thus included into the instrument (see Appendix 1 for the factor loadings, item-total correlations, mean values, standard deviations, internal consistency coefficients, eigenvalues, and rates of factors' accounting for the variance). It should be noted that Turkish translations of the items other than the ones excluded in Duru (2006) (i.e. items 1, 12, 14, 15, and 17) were preserved to a great extent.

Data Analysis

For the analysis first the results from Levene's Test for Equality of Variances, which tests the homogeneity of the data, were examined. Accordingly, when the group variances were found homogeneous, t-test was used to test attitudinal differences by gender, and One-Way ANOVA was used to test the attitudinal differences by grade and department. On the other hand, when variances were not homogeneous, Mann Whitney U test was used instead of t-test, and Kruskal Wallis-H test was used instead of One-Way ANOVA analysis (Crichton, 1998, p.209; Kasuya, 2001; Sheskin, 2003). In analyzing and interpreting the data, statistically significance levels of 0.05 and 0.01 were used. Some of the indicators used in analysis and interpretation of the data are presented in Table 2 below.

Table 2
Some of the indicators used in the analysis of the data

Name of the scale or subscale	Number of items	Minimum and maximum possible scores
Self-efficacy SE	8	8-72
Self-efficacy CM	8	8-72
Self-efficacy IS	8	8-72
Total	24	24-216
CT beliefs	10	10-60
TT beliefs	7	7-42

FINDINGS AND RESULTS

Professional Self-Efficacy Levels of the Student Teachers

The minimum and maximum possible scores from self efficacy scale are 24-216, and 8-72 for each sub-scale (see Table 2). The mean score all participants obtained was found 161,72 (SE=53.00, CM=54.20, and IS=54,52). Given that the mean value for the scale is 120 (40 for each subscale), the student teachers' sense of self efficacy can be

said to be over average and favorably positive. The mean scores from the subscales, on the other hand, are close to each other, which seems to be a result of high correlation between the subscales (Tschannen-Moran and Hoy, 2001; Çapa et al., 2005).

The individual item with the highest score ($\bar{x}=7,23$) in the scale was the 10th item (IS). Accordingly, a total of 75,91 % of the student teachers' answers to the question "How much can you gauge student comprehension of what you have taught?" ranged between "7-Quite a bit" and "9-A great deal". This was followed by 6th item (SE) ($\bar{x}=7,16$) and 20th item (IS) ($\bar{x}=7,16$). A total of 73,47 % of the student teachers' answers to the question "6. How much can you do to get students to believe they can do well in school work?" ranged between "7-Quite a bit" and "9-A great deal". Similarly, the answers of 72,75 % of them to the question "20. To what extent can you provide an alternative explanation or example when students are confused?" ranged between "7-Quite a bit" and "9-A great deal".

All items in the scale had mean scores over "5-Some influence", which means participants believe they are more than moderately efficient. There are, however, some items for which participants believe they are relatively less efficient: 1st item (SE) ($\bar{x}=5,82$), 17th item (IS) ($\bar{x}=6,07$), and 16th item (CM) ($\bar{x}=6,18$). As a matter of fact, 5,6 % of all student teachers' answers to the question "1. How much can you do to get through to the most difficult students?" ranged between "1-Nothing" and "3-Very little". Similarly 9,25 % of them had answers to "17. How much can you do to adjust your lessons to the proper level for individual students?" ranging between "1-Nothing" and "3-Very little". Finally, 5,35 % of them gave answers to "16. How well can you establish a classroom management system with each group of students?" ranging between "1-Nothing" and "3-Very little". It is remarkable that these three items with the lowest scores are concerned particularly with considering the students' individual differences.

Teacher Beliefs of the Student Teachers

The mean score regarding constructivist teacher beliefs was found 48,82 in total, and 4,88 in terms of 6-point scale. Given that the lowest and highest possible scores from this subscale are 10-60 (with 35 as the mean), the student teachers' constructivist beliefs can be said to be favorably positive as it is over the mean value. The same is also true for traditional teacher beliefs subscale, which had a mean score of 29,02 (with the minimum and maximum possible scores ranging between 7-42 and the mean score being 24,5) in total and 4,14 in terms of 6-point scale. Yet, a comparison between TT and CT beliefs reveals that student teachers hold CT beliefs ($\bar{x}=4,88$) more than TT beliefs ($\bar{x}=4,14$). Pajares (1992) suggests that teachers' beliefs have a rather complex nature as being simultaneously affected by many factors and cannot be distinguished definitely as traditional or constructivist. Duru (2006) also found in her study with 290 participating student teachers that they had a mixed structure of both TT and CT beliefs, with the latter being superior over the former. Similarly, Saban (as cited in Duru, 2006)

found that most of the Turkish student teachers tended to have both traditional and constructivist approaches.

A descriptive analysis of the student teachers' responses to the *Teachers Belief Survey* revealed the statements approved the most and the least in both subscales. Accordingly, among the constructivist items, participants agreed on the 9th item the most ($\bar{x}=5,60$): 70 % of them stated that they strongly agree on "involving students in evaluating their own work and setting their own goals." The next item agreed on the most ($\bar{x}=5,33$) was the 1st one: "Expanding on students' ideas is an effective way to build the curriculum." Based on this finding, it can be inferred that the constructivist beliefs of the student teachers are primarily concentrated on actively involving the student teachers in learning process. The constructivist items participants agreed on relatively the least, on the other hand, were 13th one ($\bar{x}=4,22$): "I believe in inviting parents to volunteer in or visit the classroom almost anytime" and the 6th one ($\bar{x}=4,40$): "I believe that an essential part of a teacher's role is supporting a student's family when problems are interfering with a student's learning." Duru (2006) also found that student teachers tend to believe in the importance of such direct interaction with the parents relatively less.

The item with the highest score ($\bar{x}=4,69$) in the TT beliefs subscale was the 12th one stating "For assessment purposes, it is important to know what students can do independently." On the other hand, student teachers scored the 5th item the least ($\bar{x}=3,67$) which stated that "student grades should be based primarily on homework, quizzes, and tests." Given that the participants also had a higher mean score for the 15th item ($\bar{x}=4,71$) in the CT beliefs subscale stating that "students should be assessed informally through observations and conferences", it can be suggested that participants have constructivist tendency especially and consistently in terms of evaluation.

Student Teachers' Self-Efficacy Beliefs by Gender Variable

The results of the t test analysis for gender variable are given in table 3.

Table 3
The results of t test analysis of student teachers' self-efficacy beliefs by gender

Sub-scale	Gender	n	\bar{X}	Sd	df	t	p
SE	Male	192	51,88	7,87	409	2,974	,00*
	Female	219	53,99	6,56			
CM	Male	192	53,93	8,25	409	,642	,52
	Female	219	54,43	7,71			
IS	Male	192	53,78	8,19	409	1,778	,07
	Female	219	55,16	7,53			
Total	Male	192	159,59	20,97	409	2,027	,04*
	Female	219	163,59	19,06			

p<.05

It was observed that male and female participants' self-efficacy levels differed significantly for the IS subscale ($t=2,974$, $p<0.05$) and the scale in general ($t=2,027$, $p<0.05$). Thus female participants were found to have significantly higher SE ($\bar{x}=53,99$) and total self-efficacy ($\bar{x}=163,59$) scores than those of male participants ($\bar{x}_{(SE)}=51,88$ and $\bar{x}_{(Total)}=159,59$). In a previous study Tabak, Akyıldız, & Yıldız (2003) also found higher levels of self-efficacy beliefs among female teachers than their male colleagues. In another study on class teachers' self efficacy beliefs about science education, Hamurcu (2006) found a significant difference in favor of female teachers. There are, however, studies finding that teachers' or students teachers' self-efficacy beliefs do not differ significantly in terms of gender (Coşgun & Ilgar, 2004; Çakır et al., 2006; Çubukçu, 2008; Üstüner et al., 2009; Vardarlı, 2005).

Student Teachers' Self-Efficacy Beliefs by Grade Variable

The results of F and X^2 test analyses for grade variable (Table 4) revealed that the self-efficacy beliefs of the students at different grades did not differ significantly.

Table 4.
The results of ANOVA (F) and Kruskal Wallis (X^2) Tests analysis of student teachers' self-efficacy beliefs by grade

Subscale	Grade	n	\bar{X}	Sd	X^2	F	p
SE	1 st grade	76	53,53	9,43	3,347		,34
	2 nd grade	101	51,79	7,96			
	3 rd grade	107	53,29	6,59			
	4 th grade	127	53,41	5,53			
	Total	411	53,00	7,27			
CM	1 st grade	76	55,60	8,30		1,176	,31
	2 nd grade	101	53,45	8,37			
	3 rd grade	107	54,31	8,03			
	4 th grade	127	53,85	7,31			
	Total	411	54,20	7,96			
IS	1 st grade	76	55,56	8,75	5,384		,14
	2 nd grade	101	53,04	8,42			
	3 rd grade	107	54,43	7,67			
	4 th grade	127	55,12	6,87			
	Total	411	54,51	7,86			
Scale Total	1 st grade	76	164,70	22,47		1,606	,18
	2 nd grade	101	158,29	22,09			
	3 rd grade	107	162,04	19,31			
	4 th grade	127	162,39	17,07			
	Total	411	161,72	20,05			

$p<.05$

Despite this lack of significant difference, the self-efficacy mean scores of the first graders seem to be higher than the upper grades in general, which decrease in the 2nd grade and gradually increase later on. This may indicate that the freshmen suffer a

misconception of feeling themselves as efficient before they gain the teaching formation. Furthermore, entering a university after passing the rather difficult nationwide university entrance exam might have boosted the self-confidence of the students. Yet, the following decrease, though not significant, in their self-efficacy in the 2nd grade can be interpreted as a result of realizing their inadequacy thanks to the teaching formation courses (coupled with specialization and general knowledge courses) which are then more in terms of number and weekly hours.

Student Teachers' Self-Efficacy Beliefs by Department Variable

The results of F and X² test analyses for department variable are given in table 5:

Table 5
The results of ANOVA (F) and Kruskal Wallis (X²) Tests analysis of student teachers' self-efficacy beliefs by department

Subscale	Department	n	\bar{X}	Sd	X ²	F	p	LSD or MWU
SE	1. PE	20	54,86	4,32	23,110		,01*	1>10,
	2. CTT	18	50,46	8,51				1>11,
	3. CT	72	55,16	7,13				3>2,
	4. ELT	49	52,38	6,41				3>4,
	5. PT	35	53,62	6,78				3>10,
	6. ME	18	52,34	7,76				3>11,
	7. AT	12	56,32	5,20				7>10,
	8. SST	42	53,61	6,76				7>11,
	9. TLT	46	54,29	5,90				9>10,
	10. ST	61	51,65	5,79				9>11
	11. EMT	38	48,59	11,06				
	Total	411	53,00	7,27				
CM	1. PE	20	58,43	5,03		2,902	,00*	1>2, 1>4,
	2. CTT	18	53,39	9,12				1>5, 1>10,
	3. CT	72	55,04	6,55				1>11,
	4. ELT	49	52,02	8,73				3>4, 3>10,
	5. PT	35	53,65	7,54				6>4, 6>5,
	6. ME	18	58,45	7,87				6>10,
	7. AT	12	57,08	7,20				6>11
	8. SST	42	56,11	6,93				7>4, 7>10,
	9. TLT	46	54,71	8,93				8>4, 8>10,
	10. ST	61	51,67	7,38				8>11,
	11. EMT	38	52,47	9,36				9>10
	Total	411	54,20	7,96				

Table 5 (Cont.)

Subscale	Department	n	\bar{X}	Sd	X ²	F	p	LSD or MWU
IS	1. PE	20	57,10	4,19	25,476		,00*	1>4,
	2. CTT	18	54,15	10,0				1>10,
	3. CT	72	56,56	6,88				3>4,
	4. ELT	49	52,53	6,74				3>10,
	5. PT	35	54,61	8,01				6>4,
	6. ME	18	56,72	10,6				6>10
	7. AT	12	57,92	6,89				7>4,
	8. SST	42	56,23	6,40				7>10,
	9. TLT	46	54,22	7,41				8>4,
	10. ST	61	52,03	6,80				8>10,
	11. EMT	38	52,21	11,19				9>10
Total	411	54,51	7,86					
Scale Total	1. PE	20	170,39	11,14	26,847		,00*	1>4,
	2. CTT	18	158,02	25,27				1>10,
	3. CT	72	166,78	17,95				1>11,
	4. ELT	49	156,93	19,76				3>4,
	5. PT	35	161,89	19,13				3>10,
	6. ME	18	167,52	23,44				3>11,
	7. AT	12	171,33	16,77				6>10,
	8. SST	42	165,96	16,92				7>4,
	9. TLT	46	163,23	18,87				7>10,
	10. ST	61	155,36	16,17				7>11,
	11. EMT	38	153,28	28,08				8>10,
Total	411	161,72	20,05	9>10				

p<.05

Note: Physical Education (PE), Computer Technologies Teaching (CTT), Class Teaching (CT), English Language Teaching (ELT), Preschool Teaching (PT), Music Education (ME), Art Teaching (AT), Social Studies Teaching (SST), Turkish Language Teaching (TLT), Science Teaching (ST), and Elementary Maths Teaching (EMT).

The Kruskal Wallis test (X²) used for Student Engagement subscale with non-homogenous variances revealed a significant difference between departments (X² =23,110, p<.05). Next, departments were compared in pairs by Mann Whitney U test to find the source of difference. The comparisons showed that students in PE department had significantly higher student engagement self-efficacy beliefs than students in ST and EMT departments. Similarly, students in CT department were observed to have significantly higher engagement scores than CTT, ELT, ST, and EMT students. Moreover AT and TLT students had significantly higher Student Engagement scores than ST and EMT students. A remarkable finding at Engagement dimension was that student teachers in two quantitative departments, ST and EMT, had significantly lower self-efficacy scores than student teachers in PE and AT departments, which recruit students with a special ability exam, and TLT and CT departments. Based on this finding it can be inferred that student teachers in quantitative departments may feel themselves less efficient in terms of engaging their students.

The ANOVA (F) test used for Classroom Management subscale with homogenous variances revealed significant differences between departments ($F = 2,902$, $p < .05$). The source of the difference was tested by LSD test, which showed that PE students had significantly higher self-efficacy scores in terms of Classroom Management than CTT, ELT, PT, ST, and EMT students. Moreover, CT students were found to feel themselves more efficient in managing the classroom than ELT and ST students. Also ME students were observed to have significantly higher levels of Classroom Management self-efficacy than ELT, PT, ST, and EMT. Similarly AT students were found to feel themselves more efficient in managing the classroom than ELT and ST students. SST students also think they are efficient in managing their classrooms more than ELT, ST, EMT students do. Lastly, TLT students were observed to have significantly higher classroom management self-efficacy levels than ST students. Based on these comparisons it can be concluded that while student teachers in the departments of PE, ME, and AT departments, which recruit students with a special ability exam, and more qualitative departments like TLT, SST, and partly CT believe they are more efficient in managing their classes, student teachers in quantitative departments such as ST and EMT, and student teachers in ELT department feel themselves less efficient in terms of managing their classrooms.

The Kruskal Wallis test (X^2) used for Instructional Strategies subscale with non-homogenous variances revealed a significant difference between departments ($X^2 = 25,476$, $p < .05$). Next, departments were compared in pairs by Mann Whitney U test to find the sources of differences. The comparisons showed that student teachers in PE, ME, AT, SST, and CT departments had significantly higher levels of self-efficacy in terms of using instructional strategies than those in ST and ELT. A similar difference was observed between TLT and ST in favor of the former. Based on the findings it can be concluded that the student teachers in departments which recruit students with a special ability exam (PE, ME, and AT), and SST, CT and TLT departments feel themselves more efficient in using instructional strategies than those in ST, a quantitative department, and ELT, a foreign language department.

Finally, due to non-homogenous variances, again Kruskal Wallis test (X^2) was used for a comparison of the total self-efficacy scores of the student teachers in different departments, which revealed significant differences ($X^2 = 26,847$, $p < .05$). Next, departments were compared in pairs by Mann Whitney U test to find the source of difference. The comparisons showed that student teachers in PE, CT and AT had significantly higher levels of self-efficacy beliefs than those in ELT, ST, and EMT departments. Moreover students in ME, SST, and TLT departments were found to feel themselves significantly more self-efficient in general than student ST do.

Student Teachers' Teacher Beliefs by Gender Variable

The results of the t test analysis for gender variable are given in table 6.

Table 6
The results of t test analysis of student teachers' teacher beliefs by gender

Subscale	Gender	n	\bar{X}	Sd	df	t	p
Constructivist Beliefs	Male	192	48,63	5,31	409	,622	,535
	Female	219	48,98	6,10			
Traditional Beliefs	Male	192	29,56	4,79	409	2,024	,044*
	Female	219	28,54	5,33			

p<.05

While it was observed that gender is not a mediating factor in terms of constructivist teacher beliefs, a significant difference was observed between gender groups in terms of traditional teacher beliefs in favor of male student teachers ($t_{(409)}=2,024$, $p<.05$). From this finding, it can be inferred that while both male and female student teachers are not superior over each other in terms of having constructivist beliefs, male student teachers have more traditional beliefs than female ones.

Student Teachers' Teacher Beliefs by Grade Variable

The results of F analysis for grade variable are given in table 7:

Table 7
The results of ANOVA (F) Test analysis of student teachers' teacher beliefs by grade

Subscale	Class	n	\bar{X}	S	Sd	F	p	(LSD)
Constructivist Teacher Beliefs	1 st grade	76	46,75	6,177	407	5,268	.00*	1<2
	2 nd grade	101	48,50	6,189				1<3
	3 rd grade	107	49,93	4,424				1<4
	4 th grade	127	49,38	5,817				
	Total	411	48,82	5,746				
Traditional Teacher Beliefs	1 st grade	76	31,08	4,434	407	16,533	.00*	1>3
	2 nd grade	101	30,13	5,222				1>4
	3 rd grade	107	29,31	4,516				2>4
	4 th grade	127	26,66	5,028				3>4
	Total	411	29,02	5,112				

p<.05

A significant difference was observed in ANOVA test between grades in terms of teacher beliefs ($F_{(Constructivist)}=5,268$, $p<.05$ and $F_{(Traditional)}=16,533$, $p<.05$). Next the source of the difference was tested with LSD test, which revealed that there were significant differences in constructivist teacher belief subscale between 1st and 2nd grades, 1st and 3rd grades, and 1st and 4th grades in favor of latter ones. In traditional teacher belief subscale, there were significant differences between 1st and 3rd grades, 1st and 4th grades, 2nd and 4th grades, and 3rd and 4th grades in favor of the former ones. The mean scores indicate that students have the highest level of traditional teacher beliefs

($\bar{x}=31,08$) in the first year they come to the university, and their traditional beliefs follow a gradual decrease afterwards ($\bar{x}_{(2nd\ grade)} = 30,13 > \bar{x}_{(3rd\ grade)} = 29,31 > \bar{x}_{(4th\ grade)} = 26,66$). The absence of any significant difference between 1st and 2nd graders and 2nd and 3rd graders, while there are significant differences between 2nd and 4th graders and 3rd and 4th graders in terms of traditional teacher beliefs may suggest that 2nd and 3rd grades are key classes during which student teachers' beliefs about teaching are actually formed. Accordingly, it can be inferred that pedagogical formation courses offered to students during the 2nd year, e.g. Instructional Planning and Evaluation, Instructional Principles and Methods, or during 3rd grade, e.g. Special Teaching Methodology, and other specialization and general knowledge courses are effective in decreasing the traditional teacher beliefs of the students.

As for the constructivist teacher beliefs, student teachers seem to acquire constructivist teacher beliefs gradually. While there are significant differences between 1st graders and all of the other higher grades in favor of the latter ones, no significant difference was observed between successive grades, i.e. between 2nd and 3rd grades or 3rd and 4th grades, or 2nd and 4th grades. This finding suggests that students experience a leap in the formation of their constructivist beliefs as they pass from 1st to the 2nd grade, yet this formation takes a slow pace afterwards in later years.

Student Teachers' Teacher Beliefs by Department Variable

The results of *Kruskal Wallis* (X^2) analysis for department variable are given in table 8:

Table 8
The results of Kruskal Wallis (X^2) Test analysis of student teachers' teacher beliefs by department

Sub-scale	Department	n	\bar{X}	Sd	df	X^2	P	(MWU)
Traditional teacher beliefs	1. PE	20	32,50	3,96	10	34,689	.00*	1>3, 1>4,
	2. CTT	18	29,88	4,37				1>5, 1>8,
	3. CT	72	28,73	5,14				1>9,
	4. ELT	49	25,94	4,84				1>10,
	5. PT	35	28,28	5,95				2>4, 3>4,
	6. ME	18	29,50	7,09				5>4, 7>3
	7. AT	12	31,91	3,47				7>4, 7>5,
	8. SST	42	29,92	4,26				7>10,
	9. TLT	46	29,15	5,23				8>4,
	10. ST	61	28,74	4,33				9>4,
	11. EMT	38	30,07	4,80				10>4,
Total	411	29,01	5,11	11>4				

Table 8 (Cont.)

Sub-scale	Department	n	\bar{X}	Sd	df	X ²	P	(MWU)
Constructivist teacher beliefs	1. PE	20	48,51	4,83	10	39,976	.00*	3>2, 3>6,
	2. CTT	18	46,94	4,13				3>7, 3>8,
	3. CT	72	50,49	4,78				3>9,
	4. ELT	49	51,15	4,22				3>10,
	5. PT	35	49,17	7,06				3>11,
	6. ME	18	45,20	8,21				4>1, 4>2,
	7. AT	12	47,00	4,89				4>6, 4>7,
	8. SST	42	48,98	4,41				4>8, 4>9,
	9. TLT	46	48,59	4,40				4>10,
	10. ST	61	48,66	6,68				4>11,
	11. EMT	38	46,00	6,84				5>2, 5>6,
Total	411	48,82	5,74	5>11,	10>11			

p < .05

Note: Physical Education (PE), Computer Technologies Teaching (CTT), Class Teaching (CT), English Language Teaching (ELT), Preschool Teaching (PT), Music Education (ME), Art Teaching (AT), Social Studies Teaching (SST), Turkish Language Teaching (TLT), Science Teaching (ST), and Elementary Maths Teaching (EMT).

A significant difference was observed in Kruskal Wallis test (X^2) between departments in terms of teacher beliefs ($X^2_{(Constructivist)} = 39,976$, $p < .05$ and $X^2_{(Traditional)} = 34,689$, $p < .05$). Next, departments were compared in pairs by Mann Whitney U test to find the source of difference. The comparisons showed that student teachers in PE department had significantly more traditional teaching beliefs than those in CT, ELT, PT, SST, TLT, and ST departments. Similarly student teachers in AT department had significantly higher levels of traditional teacher beliefs than those in CT, ELT, PT, and ST departments. Another significant finding in this subscale was that student ELT teachers had significantly lower level of traditional teacher beliefs than those in all of the other departments except for ME department.

As for the constructivist teacher beliefs subscale, future ELT teachers ($\bar{x} = 51,15$) were found to have significantly higher scores than future PE, CTT, ME, AT, SST, TLT, ST, and EMT. Similarly, future Class teachers ($\bar{x} = 50,49$) were found to have significantly higher levels of constructivist beliefs than future CTT, ME, AT, SST, TLT, ST, and EMT teachers. Moreover, future Preschool teachers had significantly higher constructivist beliefs than CTT, ME, and EMT teachers; and future Science teachers had significantly higher constructivist scores than future elementary mathematic teachers.

Comparison of the Student Teachers' Teacher Beliefs and Self-Efficacy Beliefs

The association between teacher beliefs and self-efficacy beliefs of the future teachers was tested by estimating the Pearson correlation coefficient (r) (see Table 9).

Table 9

The relationship between student teachers' teacher beliefs and self-efficacy beliefs

Subscales	SE	CM	IS	Total self-efficacy
Constructivist teacher beliefs	,190(**)	-,009	,032	,078
Traditional teacher beliefs	,092	,139(**)	,142(**)	,144(**)

** p< .01

As it is seen in table 9, significant correlations ($p < .01$) were observed between teacher beliefs and sense of self efficacy. Constructivist teacher beliefs of the student teachers were found to be positively correlated only with Students Engagement self-efficacy, $r = .19$, $p < 0.01$. Traditional teacher beliefs, however, were found to be positively associated with the subscales of Classroom Management ($r = .139$, $p < 0.01$) and Instructional Strategies ($r = .142$, $p < 0.01$) and with the general self-efficacy beliefs ($r = .144$, $p < 0.01$). Based on these findings, it can be interpreted that as student teachers' constructivist teacher beliefs increase, their self-efficacy beliefs about engaging the students to the lesson also increase. On the other hand, as their traditional teacher beliefs increase, their general self-efficacy beliefs and self-efficacy beliefs particularly about managing their future classes and using instructional strategies also increase.

DISCUSSION AND CONCLUSION

The aim of this study was to determine and compare the teacher beliefs and self-efficacy beliefs of the student teachers attending Faculty of Education at İnönü University. Also, it was intended to analyze whether these beliefs of teachers differ by some variables including gender, grade, and department. The future teachers' professional self-efficacy beliefs were found worth investigation mainly because the previous researches suggest that higher levels of self efficacy are associated with positive teacher behaviors and student achievement. Moreover, it was considered important to analyze how the student teachers' self-efficacy beliefs are correlated with their traditional or constructivist teacher beliefs, which in turn may provide data for evaluating and developing teacher training programs in educational faculties.

The analyses showed that student teachers have professional self-efficacy beliefs moderately over average ($\bar{x} = 161,73$), with close student engagement, class management, and instructional strategies scores. In a similar study, Oğuz and Topkaya (2008) found, using the same scale, the self-efficacy scores of an equivalent group of future teachers as $\bar{x} = 158,88$, which they interpreted as high. While future teachers believe they are professionally sufficient, it is expected that they feel so because they embrace more student-centered approaches to engagement, management, and instructional strategies. As a matter of fact this was partly the case in this study, i.e. the participating student teachers were found to have constructivist teacher beliefs over average ($\bar{x} = 4,88$) and more than traditional teacher beliefs ($\bar{x} = 4,14$). Moreover, the Turkish literature also report positive teacher views about constructivist education (Çımar et. al., 2006; Işıkoğlu & Baştürk, 2007; Yapıcı and Demirdelen, 2007). However,

the traditional teacher beliefs were also considerably high making the teacher beliefs mixed in nature as stressed by Duru (2006) and Saban (as cited in Duru, 2006). Thus this mixed nature of teacher beliefs coupled with adequate level of professional self-efficacy beliefs poses the question “Which components of self-efficacy construction are associated with which type of teacher beliefs in practice?”, which was tested at the end of the study.

The relevant comparison between sense of self-efficacy and teacher beliefs revealed mixed associations. In the first place, the participants’ constructivist beliefs were positively associated with their self-efficacy beliefs about engaging their future students to learning. As constructivism is a learner-centered approach which takes individual differences into consideration, the constructivist beliefs of the student teachers can be said to fuel their self-efficacy in terms of motivating their students, attracting their attention to the lesson, enhancing their creative and critical thinking capacities. On the contrary, the opposite was true in terms of classroom management and instructional strategy use. A traditional understanding of teaching seemed to be related with student teachers’ self-efficacy beliefs regarding managing their classes and using instructional strategies. It may sound reasonable that, in the traditional teacher-centered understanding, teacher roles as authority and transmitter-of-knowledge (lecturer) can be regarded as comfortable ways of both managing the classroom and teaching the subject, thus increasing their senses of self-efficacy about classroom management and instructional strategy use. Yet, this finding implies a disagreement between Turkish context and international literature. As mentioned earlier, the relevant literature (Woolfolk and Hoy, 1990; Woolfolk et. al., 1990) suggests that there is an association between higher levels of self-efficacy beliefs and effective classroom management and effective use of instructional strategies. And here effectiveness refers to learner-centered, systematic, planned, democratic, and successful classroom management (Akkoyunlu et. al. 2006), and use of different and reasonably contextualized successful instructional strategies according to the students’ needs (Goddard et. al., 2004, Küçükylmaz and Duran, 2006). That is to say, while the general literature suggests that this effectiveness depends on a more constructivist educational approach, the association found in the present study is between higher levels of self-efficacy in terms of classroom management and instructional strategy use and a more traditional teaching approach. This disagreement with the literature is more apparent in the analysis of the self-efficacy and teacher beliefs with individual departments:

While all of the departments were found to have moderate level of professional self-efficacy beliefs, students from such departments as Physical Education, Music Education, Art Teaching and Class Teaching were superior over future ELT, Science and Elementary Maths teachers in terms of believing in their teaching efficacy. On the other hand, especially two departments with the highest self-efficacy levels, Physical Education and Music Education, were proved to have more traditional teacher beliefs. More paradoxically, the ELT students with rather low self-efficacy beliefs in general and poor classroom management and instructional strategy use self-efficacy beliefs in particular were found to have considerably higher constructivist beliefs despite their lower traditional teacher beliefs. A similar group with high levels of constructivist

beliefs but low levels of self-efficacy beliefs was that of future Preschool teachers. Student Preschool teachers might have acquired their constructivist beliefs thanks to the fact that their curriculum is based on a hands-on type of activity-based approach. Finally, in addition to future ELT and Preschool teachers, students of class teaching department also had the highest scores regarding constructivist beliefs, but something was unique with them, since Class Teaching department was the only department with high self-efficacy scores and high constructivist teacher beliefs, which is in agreement with the literature. One possible reason can be the fact that they have been trained well on the new constructivist Turkish, Math, Social Studies and Science and Technology curricula which were started to be implemented since 2006-2007 and they have developed adequate levels of self-efficacy based on constructivist teaching.

As for the gender variable of the study, female student teachers were found to trust in their capacity in engaging their future students more than their male friends do. Although there is no consistency between previous studies about the superiority of any gender (Oğuz and Topkaya, 2008), primary female in-service or pre-service teachers are likely to feel themselves more efficient because of certain cultural beliefs advocating that teaching at primary school is more suitable for female teachers (Ünal, 1998) as it is more or less like mothering a child, which sometimes causes parents to prefer female teachers. In terms of teacher beliefs, on the other hand, gender variable does not seem to be a dominating mediating factor, as both male and female participants had medium levels of both constructivist and traditional beliefs. Yet, the fact that male participants were found more traditional in this study and female student teachers were found more constructivist in Duru's (2006) study may suggest that there is a polarization with females towards constructivism and males towards traditional teaching.

Finally, the findings in terms of grade variable can be considered as remarkable. Firstly, students from all grades were found to have moderate levels of self-efficacy beliefs, and time was not a mediating factor. This finding is consistent with that of a previous study on 330 pre-service teachers by Kahyaoğlu and Yangın (2007) who could not find any difference between self-efficacy beliefs of students from different grades. Secondly, a comparison of the mean scores of the students showed that 1st grades had the highest level of self-efficacy beliefs. Ideally it is expected that students' self efficacy beliefs increase as the period of training they received in the faculty increases. Thus both of these findings support the idea that self-efficacy should not be confused with actual proficiency (Goddard et al., 2004). When it comes to teacher beliefs, however, the education at the faculty proves to be effective in achieving an affective behavioral change, this time from traditional to constructivist. Thus, based on the findings it can be concluded that freshmen first coming to the educational faculty with rather traditional teaching beliefs are formed successfully through teaching formation education so as to gradually quit traditional beliefs and gain constructivist teacher beliefs. During this process, especially the 2nd and 3rd years, when teaching formation courses are intensively offered, seem to be the turning points. Beside the objectives and the contents of these courses, the teachers conducting the courses can be very effective in modeling specific teacher beliefs and constructivist or traditional practices (Lortie, 1975).

Based on the findings of this research, some implications of the findings for research and practice can be offered to shed light to the decision makers and future researchers:

- The reason(s) for the student teachers with traditional teacher beliefs (e.g. pre-service Physical Education, Music, and Art teachers) to have high professional self-efficacy beliefs should be investigated. Similarly, the reason for having highly constructivist teacher beliefs but low professional self-efficacy beliefs at the same time (as in the example of student ELT teachers) should be investigated.
- The comparison between professional self-efficacy beliefs and teacher beliefs should be expanded to include the actual success of the teachers (checking their performances in national teacher selection tests such as KPSS in Turkey).
- The self-efficacy beliefs and teacher beliefs of the teachers graduated from faculties other than faculty of education should be investigated for comparative purposes.
- In order to develop constructivist teacher beliefs among preservice teacher, activity based practices as in ELT, Preschool teaching and Class teaching programs should be boosted.

APPENDIX

The Distribution of Items into Factor, Their Factor Loadings, Item-Total Correlations, Mean Values, Standard Deviations, and Internal Consistency Coefficients

Item	I. Factor CT	II. Factor TT	Item-total correlations	\bar{X}	Sd
I Subscale. Constructivist teacher beliefs					
10.	,691		,486	5,16	0,872
11.	,651		,560	5,19	1,035
3.	,647		,572	5,03	1,099
15.	,611		,578	4,71	1,217
17.	,594		,537	4,58	1,361
9.	,559		,435	5,60	0,755
13.	,546		,564	4,22	1,423
2.	,524		,480	4,55	1,219
1.	,502		,418	5,33	0,945
6.	,359		,463	4,40	1,224
II Subscale. Traditional teacher beliefs					
7.		,743	,570	4,50	1,232
16.		,665	,586	4,08	1,163
5.		,554	,588	3,67	1,545
14.		,550	,530	3,97	1,267
8.		,497	,498	4,22	1,439
12.		,445	,447	4,69	1,198
4.		,384	,570	3,88	1,569
Internal consistency coefficient (Cronbach Alpha)	.765	.633			
Eigenvalue	3,57	2,40			
Variance accounted (%)	20,568	14,596			
Cumulative % variance	20,568	35,164			

Note: Full scale is available upon request from the second author.

REFERENCES

- Ackerman, E. (1995). Construction and tranference of meaning through form. In Leslie P. Steffe & Jerry Gale (Eds.) *Constructivism in Education* (pp.341-354). New Jersey: Lawrence Erlbaum Associates (LEA).
- Airasian, P.W. & Walsh, M.E. (1997). Constructivist cautions. *Phi Delta Kappan*, 78, 444-449.
- Akkoyunlu, B., Orhan, F. & Umay, A. (2005). Bilgisayar öğretmenleri için bilgisayar öğretmenliği özyeterlik ölçeği geliştirme çalışması [A study on developing teacher self efficacy scale for computer teachers]. *H.U. Journal of Education*, 29, 1-8.
- Arslan, M. (2007). Eğitimde yapılandırmacı yaklaşımlar [Constructivist approaches in education]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 40(1), 41-61.
- Asthan, P. T. (1984). Teacher efficacy: A motivational paradigm for effective teacher education. *Journal of Teacher Education*, 35(5), 28-32.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28, 117-48.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of Human Behavior* (pp. 71-81). New York: Academic Press.
- Bandura, A. & Adams, N.E. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research*, 1(4), 287-310
- Board of Higher Education (2007). Release about new curricula to be used in faculties of education. Retrieved May 18, 2008, from www.yok.gov.tr/egitim/ogretmen/aciklama_program.doc.
- Brewster, J., Ellis, G., & Girard, D. (2004). *The Primary English Teacher's Guide* (New Edition) England: Pearson Education Limited.
- Brooks, J. G., & Brooks, M. G. (1999). *In search for understanding: The case for constructivist classroom*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Bümen, N. (2009). İlk ve orta öğretim öğretmenlerinin özyeterlik inançlarının incelenmesi: İzmir ili örneği [Analsis of self-efficacy beliefs of primary and high school teachers: Case of İzmir]. Proceedings of 18th National Educational Sciences Congress, 1-3 October, 2009, (pp. 155-156).
- Caprara, G. V., Barbaranelli, C., Steca, P., & Malone, P. S. (2006). Teachers' self-efficacy beliefs as determinants of job satisfaction and students' academic achievement: A study at the school level. *Journal of School Psychology*, 44, 473-490.

- Cheng, May M.H., Chan, Kwok-Wai; Tang, Sylvia Y.F.; & Cheng, Annie Y.N. (2009). Pre-service teacher education students' epistemological beliefs and their conceptions of teaching. *Teaching and Teacher Education*, 25, 319-327
- Cornu, R.L. & Peters, J. (2005). Towards constructivist classrooms: the role of the reflective teacher. *Journal of Educational Enquiry*, 6(1), 50-64.
- Coşgun, S., & Ilgar, M.Z. (2004). Rehberlik ve psikolojik danışmanlık deneyimi çalışmalarının adayların özyeterlik algılarına etkisi [The effect of counseling and guidance experiences on participants' self-efficacy perceptions]. *İnönü Üniversitesi XIII. Ulusal Eğitim Bilimleri Kurultayı*.
- Crichton N.J. (1998). Statistical considerations in design and analysis. In Roe B. & Webb C., (Eds), *Research and Development in Clinical Nursing Practice*. London: Whurr.
- Çakır, M.A. (2007) Sosyal Bilişsel Öğrenme Kuramı. In A. Kaya (Ed.), *Eğitim Psikolojisi* (pp.411-438). Ankara: PegemA Yayıncılık.
- Çakır, Ö., Kan, A. & Sümbül, Ö. (2006). Öğretmenlik meslek bilgisi ve tezsiz yüksek lisans programlarının tutum ve özyeterlik açısından değerlendirilmesi [The evaluation of the teaching certificate program and the masters program without thesis with respect to students' attitudes and self-efficacy]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*. 2(1), 36-47.
- Çapa, Y., Çakıroğlu, J. ve Sarıkaya, H. (2005). Öğretmen özyeterlik ölçeği Türkçe uyarlamasının geçerlik ve güvenilirlik çalışması [Development and validation of Turkish version of teachers' sense of efficacy scale]. *Eğitim ve Bilim*, 30(137), 74-81.
- Çınar, O., Teyfur, E., & Teyfur, M. (2006) İlköğretim okulu öğretmen ve yöneticilerinin yapılandırmacı eğitim yaklaşımı ve programı hakkındaki görüşleri [Primary school teachers' and administrators' views about constructivist education approach and programs]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*. 7(11), 47-64.
- Çubukçu, F. (2008). Yabancı dil öğrenme endişesi ile özyeterlik arasındaki korelasyon üzerine bir çalışma [Study on the correlation between self efficacy and foreign language learning anxiety]. *Eğitimde Kuram ve Uygulama*, 4(1), 148-158.
- Duman, B. (2007). Eğitimde çağdaş yaklaşımlar [Contemporary Approaches in Education]. In G.Ocak (Ed.), *Öğretim İlke ve Yöntemleri* (pp.283-391). Ankara: PegemA Yayıncılık.
- Duru, S. (2006). *Pre-service elementary education teachers' beliefs about teaching and learning in Turkey*. Unpublished doctoral dissertation, Curriculum and Instruction (Elementary Education) in the School of Education, Indiana University.
- Erdem, E. & Demirel, Ö. (2002). Constructivism in curriculum development. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 23, 81-87

- Gagnon, G.W., & Collay, M. (2006). *Constructivist learning design: Key questions for teaching to standards*. Thousand Oaks, CA: Sage.
- Goddard, R. D., Hoy, W. K., & Woolfolk-Hoy, A. W. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, 33(3), 3-13.
- Gürbüzürk, O., Duruhan, K., & Şad, S.N. (2009). Preservice teachers' previous formal education experiences and visions about their future teaching. *Elementary Education Online-İlköğretim Online*, 8(3), 923-934.
- Hamurcu, H. (2006). Sınıf öğretmeni adaylarının fen öğretmine yönelik özyeterlik inançları [Candidate class teachers' self-efficacy beliefs about science teaching]. *Eğitim Araştırmaları*, 24, 112-122.
- Işıkoğlu, N. & Baştürk, R. (2007, November). İlköğretim öğretmenlerinin yapılandırmacı yaklaşımla ilgili öğretim stratejileri hakkındaki görüşleri. Paper presented at "New trends in education: Constructivism and teacher" symposium. Private Tevfik Fikret Schools, Ankara, 17 Nov. 2007.
- Kahyaoğlu, M., & Yangın, S. (2007). İlköğretim öğretmen adaylarının mesleki öz-yeterliklerine ilişkin görüşleri [Views of prospective teachers in elementary school teaching departments about professional self-efficacy]. *Kastamonu Eğitim Dergisi*. 15(1), 73-84.
- Kasuya, E. (2001). Commentary: Mann-Whitney U test when variances are unequal. *Animal Behavior*, 61, 1247-1249.
- Klassen, R.M., Bong, M., Usher, E.L., Chong, W.H., Huan, V.S., Wong, I.Y.F., & Georgiou, T. (2009). Exploring the validity of a teachers' self-efficacy scale in five countries. *Contemporary Educational Psychology*, 34, 67-76
- Küçükylmaz, A. & Duran, N. (2006). Sınıf öğretmeni adaylarının fen öğretimi özyeterlik inançlarının artırılabilmesi için alınacak önlemlere ilişkin görüşleri [The opinions of primary teacher candidates on taking measures to increase science teaching self-efficacy beliefs]. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*. 3(2), 1-23.
- Lortie, D. C. (1975). *School teacher: Asociological study*. Chicago: University of Chicago Press.
- Oğuz, A. & Topkaya, N. (2008). Ortaöğretim alan öğretmenliği öğrencilerinin öğretmen özyeterlik inançları ile öğretmenliğe ilişkin tutumları [Secondary school nonthesis graduate program students' teaching self-efficacy beliefs and their attitudes toward teaching]. *Akademik Bakış*, 14. Retrieved in April 05, 2008, from <http://www.akademikbakis.org/14/ozyeter.pdf>.
- Pajares, M.F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307-332.

- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66, 543-578.
- Pajares, F. (2002). *Overview of social cognitive theory and of self-efficacy*. Retrieved May 08, 2008, from <http://www.emory.edu/EDUCATION/mfp/eff.html>.
- Prawat, R.S. (1992). Teachers' beliefs about teaching and learning: A constructivist perspective. *American Journal of Education*, 100(3), 354-395.
- Rachel R. van der Stuyf (2002). Scaffolding as a Teaching Strategy. Adolescent Learning and Development. Section 0500A - Fall 2002, November 17, 2002. <http://condor.admin.cuny.cuny.edu/~group4/Van%20Der%20Stuyf/Van%20Der%20Stuyf%20Paper.doc>
- Richardson, V. (Ed.). (1997). *Constructivist teacher education: Building a world of new understandings*. Washington, DC: The Falmer Press.
- Savaş, B. (2007). Yapılandırmacı öğrenme [Constructivist learning]. In Alim Kaya (Ed.), *Eğitim Psikolojisi* (pp. 529-545). Ankara: PegemA Yayıncılık.
- Scheurman, G. (1998). From behaviorist to constructivist teaching. *Social Education*, 62(1), 6-9.
- Senemoğlu, N. (2005). *Gelişim Öğrenme ve Öğretim*. Ankara: Gazi Kitabevi.
- Sheskin, D. J. (2003). *Handbook of parametric and nonparametric statistical procedures* (3rd Ed.). Boca Raton: Chapman and Hall/CRC.
- Skaalvik, E. M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology*, 99, 611-625.
- Tabak, R. S., Akyıldız, N. & Yıldız, S. (2003). Öğretmenlerin özyeterlik algılama düzeyleri ve çevre duyarlılığı [Teachers' self-efficacy perception levels and environment awareness]. *Eğitim Araştırmaları*, 10, 134-145.
- Tschannen-Moran, M., & Woolfolk-Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805.
- Ünal, S. (1998). İlköğretim okulu yöneticilerinin okullarında motivasyonu sağlama etkinlikleri [School managers' activities to provide motivation in their schools]. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 7(15).
- Üstüner, M., Demirtaş, H., Cömert, M. & Özer, N. (2009). Secondary School Teachers' Self-Efficacy Beliefs. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 17, 1-16.
- Vardarlı, G. (2005). *Prediction of 2nd level of primary education students' general self-efficacy levels*. Unpublished master's thesis, Ege University, Izmir, Turkey.
- von Glasersfeld, E. (1995). A constructivist approach to teaching. In L. Steffe & J. Gale (Eds.), *Constructivism in Education* (pp. 3-16). Hillsdale, NJ: Lawrence Erlbaum.

- Vygotsky, L.S. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.
- Wan, C.P. (2005). Teaching efficacy beliefs of Pre-service teachers. *Jurnal IPBA / Jilid3:Bilangan 2*. Retrieved April 18, 2008, from <http://apps.emoe.gov.my/ipba/ResearchPaper/journal/article14.pdf>.
- Wolters, C. A., & Daugherty, S. G. (2007). Goal structures and teachers' sense of efficacy: Their relation and association to teaching experience and academic level. *Journal of Educational Psychology*, 99, 181–193.
- Woolley, S. L., Benjamin, W. J., & Woolley, A.W. (2004). Construct validity of a self-report measure of teacher beliefs related to constructivist and traditional approaches to teaching and learning. *Educational and Psychological Measurement*, 64(2), 319-331.
- Yapıcı, M. & Demirdelen, C. (2007). Teachers' views with regard to the primary 4th grade social sciences curriculum. *Elementary Education Online-İlköğretim Online*, 6(2), 204-212.
- Yapıcı, M. & Leblebici, N.H. (2007). Teachers' Views with Regard to New Primary School Curriculum. *Elementary Education Online-İlköğretim Online*, 6(3), 480-490.
- Yurdakul, B. (2005). Yapılandırmacılık [Constructivism]. In Özcan Demirel (Ed.), *Eğitimde Yeni Yönelimler* (pp.39-61). Ankara: PegemA Yayıncılık.

İletişim/Correspondence

Oğuz GÜRBÜZTÜRK
İnönü Üniversitesi Eğitim Fakültesi
Eğitim Bilimleri Bölümü
PK. 44280/ MALATYA, TURKEY
Tel: +90 422 377 4491
ogurbuzturk@inonu.edu.tr

S. Nihat ŞAD
İnönü Üniversitesi Eğitim Fakültesi
PK. 44280/ MALATYA, TURKEY
Tel: +90 422 377 44 97
snsad@inonu.edu.tr