



# TEACHER EFFICACY SCALE: THE STUDY OF VALIDITY AND RELIABILITY AND PRESERVICE CLASSROOM TEACHERS' SELF EFFICACY BELIEFS

(ÖĞRETMEN ÖZ-YETERLİK ÖLÇEĞİNİN GEÇERLİK VE GÜVENİRLİK  
ÇALIŞMASI VE SINIF ÖĞRETMENİ ADAYLARININ ÖZ YETERLİK  
İNANÇLARI)

**Yusuf CERİT<sup>1</sup>**

## ABSTRACT

The purpose of the present study was to explore the validity and reliability of the Turkish version of the Teacher Efficacy scale (TES) developed by Gibson and Dembo, and the differences among the beginning and ending pre-service classroom teachers' self-efficacy beliefs. Data in this study were collected from a total number of 405 preservice classroom teachers. Descriptive statistics, principal component with varimax factor analysis, and t test were used to explore the data analyses. Results revealed that Gibson and Dembo' two-factor TES may not be a valid tool to evaluate efficacy beliefs of preservice classroom teachers in Turkey.

**Keywords:** Self-efficacy, teacher self-efficacy, preservice teachers.

## ÖZ

Bu çalışmanın amacı Gibson and Dembo'nun öğretmen öz-yeterlik ölçeğinin Türkçe'ye uyarlanması ve sınıf öğretmeni adaylarının yeterlik inançlarını incelemektir. Bu çalışmada veriler 130 birinci ve 275 son sınıf öğrencilerinden elde edilmiştir. Verilerin analizinde varimax temel bileşenler factor analizi, aritmetik ortalama ve t test kullanılmıştır. Bu çalışmada Gibson ve Dembo'nun TES ölçeğinin Türkiye'de hizmet öncesi sınıf öğretmenlerinin yeterlik inançlarını ölçmek için geçerli ve güvenilir bir araç olmadığı ve birinci sınıf öğrencileri ile dördüncü sınıf öğrencilerinin görüşleri arasında farklılık olmadığını bulunmuştur.

**Anahtar sözcükler:** Öz yeterlik, öğretmen öz yeterliği, öğretmen adayları.

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<sup>1</sup> Asist. Prof. Dr. , Abant İzzet Baysal University, Faculty of Education. E-mail: cerit\_y@ibu.edu.tr

## INTRODUCTION

Teachers' actions and behaviors are related to their beliefs, perceptions, assumptions and motivational levels. That's why; research on teachers' beliefs is of vital importance in organizing teaching and defining ways of understanding. One of the important beliefs considered to be significantly effective in students and teachers outcomes is teachers' feelings of efficacy (Chaco'n, 2005). Teachers' beliefs in their abilities to instruct students and influence student performance are very strong indicators of instructional effectiveness (Bandura, 1997). Bandura (1977) suggests that efficacious individuals hold the control of the events affecting their lives and display such behaviors allowing them to realize the desired outcomes (cited Witcher et.al., 2002). For teachers, this notion may mean that efficacious teachers display behaviors which may contribute to perform educational activities in class and learning by students. Therefore, teachers' self-efficacy beliefs which may positively affect classroom activities of teachers have been an interesting subject for education researchers.

Preservice teachers' beliefs and attitudes affect the way they learn to teach, and their perceptions, judgments, decision-making and actions in the classroom (Johnston, 1992). In this sense, teacher training effectiveness can be considered according to the development of student teachers' cognitive structure of teaching competence, a significant part of which is founded on a personal sense of teaching efficacy (Yeung and Watkins, 2000). Additionally, since a resistance against change is observed as the self-efficacy belief arises (Woolfolk Hoy and Spero, 2005), this issue was investigated on pre-service teachers in several studies. Determining the level of pre-service teachers' self-efficacy belief may contribute to foresee how they will behave during in-service training based on self-efficacy feelings. Also, it may be important in terms of the efficiency of teacher training programs in determining the effectiveness level of teacher training on pre-service teachers' self-efficacy beliefs. However, in Turkey, in-service teachers' or pre-service teachers' self-efficacy beliefs were analyzed from special fields such as computer (Akkoyunlu and Orhan, 2003), science (Bıkmaz, 2002), geography (Karadeniz, 2005), and biology (Gerçek, Yılmaz, Köseoğlu, and Soran, 2006). Although a few were conducted in Turkey on pre-service classroom teachers' self-efficacy beliefs (Akdağ and Walter, 2005; Kahyaoğlu and Yangın, 2007), there is no research using Gibson ve Dembo's (1984) TES in Turkey on the pre-service classroom teachers' self-efficacy beliefs. This study also aims to adapt Gibson and Dembo's TES scale, which is commonly used in scaling teachers' self-efficacy, into Turkish. That's why, pre-service classroom teachers' self-efficacy beliefs were examined by the use of Gibson and Dembo's (1984) TES scale in this study.

## **THEORETICAL FRAMEWORK**

### **Teachers' self-efficacy beliefs**

A teacher's self-efficacy belief is defined as "a teacher's judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated." (Tschannen Moran and Woolfolk Hoy, 2001: 783). The concept of teacher's self-efficacy refers to teachers' beliefs in their capabilities to positively affect students' learning and success (Denzine et.al., 2005).

One of the scales used in evaluating teachers' self-efficacy beliefs is Gibson and Dembo's TES scale. The study by Gibson and Dembo (1984) on the concept of teachers' self-efficacy belief and the other studies revealed that it consisted of two factors (Hoy and Woolfolk, 1993; Rowe, 2000; Torre Cruz and Aries, 2007). The first dimension represented the teacher's sense of general teaching efficacy (GTE). This dimension reflected the belief that teacher's ability to bring about desired outcomes is limited by factors external to the teacher such as home environment and family background. The second dimension represented the teacher's sense of personal teaching efficacy (PTE), reflected a teacher's belief in their ability to bring about positive student and learning outcomes (Gibson and Dembo, 1984).

The studies carried out on teachers' efficacy as a significant factor underlying learning and teaching focused on the relationship between teachers' behaviors and student outcomes. Research has shown that teacher efficacy, or the extent to which a teacher believes he or she is capable of producing effects on student performance, has positive effects on teacher effort and persistence in the face of difficulties (Gibson and Dembo, 1984; Podell and Soodak, 1993), implementing new instructional practices (Evers, Brouwers and Tomic, 2002; Ghaith and Yaghi, 1997), students' academic achievement and success at school (Caprara, Barbaranelli, Steca, and Malone, 2006; Ross, 1992). Teachers' self-efficacy beliefs have a crucial role on their performance and motivation (Tschannen Moran and Woolfolk Hoy, 2001). Teachers' self-efficacy beliefs would be related to the effort teachers invest in teaching, the goals they set, their persistence when things do not go smoothly and their resilience in the face of setbacks (Tschannen Moran, Woolfolk Hoy, and Hoy, 1998). Teachers with high expectations will work hard, apply management strategies stimulating student autonomy, deal with the needs of low ability students very closely and thus teachers' efficacy contribute to success as teachers will change students' ability perception (Ross and Gray, 2006). Based on the results of the above-mentioned study, it can be said that teachers' high self-efficacy beliefs is a factor which positively affects students' learning and thus quality of teaching.

### **Validity of teachers' self-efficacy belief scale**

The concept of teachers' self-efficacy beliefs has been explored in many countries. The first study on this concept was carried out and the scale used to evaluate teachers' self-efficacy beliefs was developed in the USA. One of these studies is the scale developed by Gibson and Dembo (1984) to evaluate teachers' self-efficacy beliefs. Gibson and Dembo's (1984) scale on teachers' self-efficacy beliefs was commonly used to determine the self-efficacy beliefs of both pre-service and in-service teachers and to research the relationship of self-efficacy beliefs with various educational variables.

As teacher's efficacy beliefs scale is examined in increasingly varied cultural settings, questions about the adequacy and robustness of the scale across different national boundaries are beginning to emerge (Ares et al., 1999; Lin and Gorrell, 2001; Lin, Gorrell, and Taylor, 2002; Wertheim and Leyser, 2002). For this reason, there was a need to form a valid scale to evaluate teachers' self-efficacy beliefs. To this end, the researchers have particularly examined the nature of structure of pre-service teacher efficacy beliefs extensively in the United States, and in other countries. Especially the studies carried out outside the United States yielded results inconsistent with the two-factor structure common in literature of teachers' self-efficacy beliefs. For example, in the study conducted by Browsers and Tomic (2003), it was founded that two-factor of Gibson and Dembo's Teacher Efficacy Scale is not suitable for obtaining precise and valid information about teacher efficacy beliefs. Emmer and Hickman (1991) used a modified form of the Gibson and Dembo scale to generate a series of items to assess teacher efficacy in classroom management and to determine teacher's beliefs in the influence of external factors on student behavior. Factor analyses indicated that the items formed three subscales, reflecting that teacher efficacy in classroom management is different from general teaching efficacy and personal teaching efficacy. The study conducted by Deemer and Minke (1999), identified investigation of the factor structure of the TES, the principal axis factoring analysis specifying four factors and two factors for TES showed that four and two factors did not adequately represent the data. Finally, they suggest that teacher efficacy, as measured by the TES, is actually undimensional. In Turkey, Diken (2004) adapted a version of Gibson and Dembo's (1984) scale developed by Guskey and Passaro (1994). 5 items were removed from the 21-item scale because of inconsistency reasons. Teachers' self-efficacy scale consisted of 16 items and two independent dimensions while individual self-efficacy consisted of 7 items and general teaching efficacy consisted of 9 items.

Some studies conducted outside USA (e.g. Lin and Gorrell, 2001; Wertheim and Leyser, 2002) have shown that pre-service teachers vary in the degree to which they believe themselves to be efficacious in their teaching. These studies suggested that the teacher efficacy concept is more

differentiated in some countries and strongly influenced by the unique features of cultures.

Gibson and Dembo's (1984) scale was extensively used in evaluating teachers' self-efficacy beliefs. Since Gibson and Dembo's (1984) scale was developed in the USA, there was a need for testing the employability in evaluating teachers' self-efficacy in different cultural environments. In order to ensure this, some studies were carried out in different countries on the validity of this scale in evaluating teachers' self-efficacy beliefs. In some studies carried out in different countries, it was found that Gibson and Dembo's scale wouldn't be able to be assessed within the dimensions of teachers' self-efficacy scale and some items were not consistent with different cultures (e.g. Brouwers and Tomic, 2003; Lin and Gorrell, 2001). In Turkey, Diken (2004) adapted a version of Gibson and Dembo's (1984) scale developed by Guskey and Passaro (1994), and Yılmaz and Çokulu-Bokeoglu (2008) adapted a version of Gibson and Dembo's TES developed by Woolfolk and Hoy (1990). However, no study was carried out on the validity and reliability of Gibson and Dembo's (1984) 16-item scale to adapt to Turkish. Teachers' self-efficacy beliefs are influenced by the environment they live in, social and cultural backgrounds, and the characteristic of the education programs. For this reason, taking into account that it is necessary to survey the validity of this scale in countries with different cultural structures and teacher training programs, the validity and reliability of Gibson and Dembo's teacher's self-efficacy beliefs scale was examined in this study. Based on this, the primary purpose of this study was to explore what the structure validity and reliability level of pre-service teachers' self-efficacy belief is. Additionally, due to the fact that teachers' self-efficacy beliefs differentiate in different cultural environments, the secondary purpose of the study was to examine the self-efficacy level of pre-service classroom teachers.

### **The relationship between education level of pre-service teachers and their self-efficacy beliefs**

Some of the most powerful influences on the development of teacher's sense of efficacy are experiences during student teaching and the induction year (Mulholland and Wallace, 2001). Bandura's theory of self-efficacy suggests that efficacy may be most malleable early in learning, thus the first years of teaching could be critical to the long-term development of teacher efficacy (Woolfolk Hoy and Spero, 2005). Pre-service teachers' self-efficacy beliefs are related with the level they attend teacher training programs. For example, in a study carried out by Lin and Gorrell (2001), Gibson and Dembo scale was used and it was found that it could consist of 4 factors. It was also found that the items within these factors changed according to the education level of students. According to the results of this study, 4 items of personal teaching efficacy factor were included in the comments of the beginning group

while the same items were not included by the ending level group. The items constituting the outcome efficacy factor were included in the items within the personal teaching efficacy dimension in Gibson and Dembo's study. Factor 3, general teaching efficacy, consisted of 4 items in both groups. Factor 4, family background and family support, consisted of 3 items in the ending group; yet, these items were mentioned in individual teaching efficacy dimension in the beginning group.

Gorrell and Hwang' (1995) study of beginning and ending preservice students in South Korea showed higher levels of personal teaching efficacy beliefs among ending students than beginning students, even though they did not differ from beginning to end in their responses to the general teaching efficacy. Lin, Gorrell and Taylor (2002) found significant differences between Taiwanese and U.S. preservice teacher's efficacy beliefs at the beginning and ending levels. In addition, Woolfolk Hoy and Spero (2005) found significant differences for the GTE and PTE scale between the beginning and the end of student teaching. For measures both PTE and GTE, the changes from the beginning of the teacher program to the end of student teaching represent significant increases in efficacy. However, Romi and Leyser (2006) conducted teacher self-efficacy of Israeli preservice teachers. They reported no significant differences of the PTE and GTE scale scores among students in their first, second, third and fourth years of study. Wertheim and Leyser (2002) found no difference between the 1st, 2nd and 3rd grade students' opinions about PTE and GTE. Accordingly, the results concerning if pre-service teachers' self-efficacy beliefs change in line with the education level are complicated. In Turkey, where a different culture prevails, determining how pre-service teachers' self-efficacy beliefs are influenced by education level may contribute to the related literature. In this respect, tertiary purpose of this study was to examine the differences between beginning and ending pre-service classroom teachers' self-efficacy beliefs.

## METHOD

### Participant

The sample of this study consisted of 200 beginning-level and 312 ending-level, totally 512 pre-service classroom teachers studying in Faculty of Education of a university in Western Black Sea Region of Turkey. The scale was handed over to all pre-service classroom teachers. However, the questionnaire was completed by 130 beginning-level and 275 ending-level pre-service classroom teachers. Of pre-service classroom teachers, 61% are female and 39% are male. 88.4% of the samples are at the age of 18 to 23.

### Measures

Teacher efficacy scale was used to examine preservice classroom teachers' sense of efficacy. TES was developed by Gibson and Dembo (1984).

The TES was the first significant attempt to empirically develop a data collection instrument to tap into this potentially powerful variable in teachers. The result of Gibson and Dembo's study was a 16-item instrument consisting of two uncorrelated subscales; personal teaching efficacy (nine items) and general teaching efficacy (seven items). The items of TES were measured on a five-point likert-type scale from strongly disagree to strongly agree. The TES has subsequently become the predominate instrument in the study of teacher efficacy.

TES was translated in Turkish by two translators whose native language was English. It was translated back by two university instructor of language and linguistic whose native language was Turkish and whose second language was English. These versions were compared with the original. It is shown that these translations are similar.

TES reliability was evaluated using Cronbach's alpha. The internal consistency estimates for the beginning group were .56, .54, and .55 for the PTE, GTE and PKE, respectively. For the ending group it was .56, .54 and .57 for the PTE, GTE and PKE, respectively.

### **Data analysis**

For the structure validity of the scale, principal axis factor analysis with varimax rotations was performed via SPSS 13 program. Factor analysis was conducted separately for the beginning and ending group. The obtained results were tested for consistency of the model with structural equity by the use of LISREL 8. Criteria for the fit of three-factor model of TES were chi square > .05, GFI (Goodness of Fit Index) > .90, AGFI (Adjusted Goodness of Fit Index) > .90, RMSEA (Root Mean Square of Approximation) < .08, CFI (Comparative Fit Index) > .90 (Simsek, 2007).

The difference among the opinions of beginning-level and ending-level pre-service classroom teachers was tested through t test.

## **RESULTS**

### **Factor analysis and reliability of the 'Teacher Efficacy Scale'**

In this study, explanatory factor analysis was made for beginning-level and ending-level pre-service teachers by the use of principal component with varimax rotations in TES scale. The compliance of the data with factor analysis was tested by the use of Kaiser-Meyer-Olkin (KMO) and Barlett Test of Sphericity. The KMO Measures of sampling adequacy was high for two of the groups- for the beginning group, .727; for the ending group, .770. The Barlett Test of Sphericity was significant for two of the groups:  $X^2$ : 376.512,  $p$ : .000 for the beginning group;  $X^2$ : 888.333,  $p$ : .000 for the ending group. These results indicated that factor analysis was suitable for each of the two groups. The results of the factor analysis revealed that teachers' self-efficacy beliefs scale yielded three factors for the beginning and ending pre-service

classroom teachers. However, since the load value of item 16 was lower than .30 for both beginning and ending group, it was removed from the scale. The factor analysis was conducted to 15-item TES and replicating the three-factor structure yielded for both groups.

**Table 1. Results of CFA on Beginning and Ending Groups**

|            | Beginning preservice teachers | Ending preservice teachers |
|------------|-------------------------------|----------------------------|
| Chi-square | 149.11 (p: .00)               | 106.75 (p:.02)             |
| GFI        | .95                           | .95                        |
| AGFI       | .94                           | .93                        |
| CFI        | .92                           | .96                        |
| RMSEA      | .04                           | .03                        |

Table 1 shows the results of the confirmatory factor analysis (CFA) on the three-factor model of TES. The table shows that for the beginning ( $X^2$  : 149.11, p: .00) and ending ( $X^2$  : 106.75, p: .02) pre-service classroom teachers the chi-square was below criterion. All goodness of fit indices for three-factor model of TES indicated that the fit of the three-factor model to the data is acceptable. (for the beginning group : RMSEA: .04; CFI: .92; GFI: .95; AGFI: .94; for the ending group : RMSEA: .03; CFI: .96; GFI: .95; AGFI: .93).

The table 2 shows on which factors the items obtained from factor analysis were loaded and the factor loads. The factors were labeled as personal teaching efficacy (PTE), general teaching efficacy (GTE), and professional knowledge efficacy (PKE).

1) Factor 1 (personal teaching efficacy): Items 1, 5, 6, 7, 9 and 10 were loaded on factor 1 for both beginning-level and ending-level pre-service teachers. Items 12 and 13 found in personal teaching efficacy subscale of Gibson and Dembo (1984) were not loaded on factor 1 for beginning-level and ending-level pre-service teachers. However, item 14 found in general teaching efficacy subscale of Gibson and Dembo was loaded on factor 1 for the ending group. In light of these results, it can be said that personal teaching efficacy involves pre-service teachers' belief in having teaching abilities which will ensure students' learning in class. Taking into consideration that item 14 loaded in factor 1 for the ending group (The influences of a student's home experiences can be overcome by good teaching) emphasizes the success in in-class teaching activities, personal teaching efficacy reflects teachers' belief in having teaching abilities. Means for mean each of the loaded items indicated that the ending-level pre-service teachers had high level of confidence in exerting extra effort, in adjusting to the level of students, in find effective teaching methods, in guiding difficult students, in more effective ways of

facilitating learning, and in able to teach effectively than beginning group (see Table 3). Additionally, it was found that ending-level pre-service teachers believed that positive school experiences had a positive effect on students.

2) Factor 2 (General teaching efficacy): Items 2, 3, 8, and 11 were loaded on factor 2 for beginning-level and ending-level pre-service teachers. Item 14 was loaded on factor 2 for the beginning group, different from the ending group. The items loaded on factor 2 in this study were among the items found in general teaching subscale of Gibson and Dembo. However, four items in GTE of Gibson and Dembo were loaded for both groups while item 14 is loaded on this factor for the beginning-level group. In line with this result, it can be said that five of the items on GTE subscale of Gibson and Dembo can be used to evaluate GTE in Turkey. For the items loaded on this dimension, it was found that ending-level teachers, compared to beginning-level teachers, more believe that environmental and family characteristics such as living environment, family characteristics, effect of living environment on success and family support are effective in students' learning (see Table 3). Moreover, it was observed that the beginning group believes that school may overcome negative effects of the environment, i.e. item 14 loaded on this dimension.

**Table 2. Comparison of Factor Item Loadings Related to Pre-service Teachers' Efficacy in Different Groups<sup>a</sup>**

| Items   | Beginning pre-service teachers |       |       | Ending pre-service teachers |       |       |
|---|--------------------------------|-------|-------|-----------------------------|-------|-------|
|   | 1                              | 2     | 3     | 1                           | 2     | 3     |
| <b>Factors</b>  |                                |       |       |                             |       |       |
| <b>% of Variance</b>  | 16.49                          | 16.39 | 11.18 | 17.40                       | 16.74 | 12.60 |
| 1.Extra effort  | .713                           |       |       | .708                        |       |       |
| 2.Home environment  |                                | .448  |       |                             | .514  |       |
| 3.Family background   |                                | .504  |       |                             | .751  |       |
| 4.Guidance at home  |                                |       | .404  |                             |       | .400  |
| 5.Adjust to student   | .770                           |       |       | .673                        |       |       |
| 6.Better ways of teaching   | .670                           |       |       | .739                        |       |       |
| 7.Guide difficult children  | .493                           |       |       | .583                        |       |       |
| 8.Home environment  |                                | .652  |       |                             | .713  |       |
| 9.More effective ways of facilitating learning                    | .685                           |       |       | .770                        |       |       |
| 10.Able to teach effectively                                      | .541                           |       |       | .643                        |       |       |
| 11.Parent support   |                                | .497  |       |                             | .607  |       |
| 12.Know how to intervene  |                                |       | .562  |                             |       | .512  |
| 13.Teacher knows strategies to deal with children's misbehaviors  |                                |       | .739  |                             |       | .715  |
| 14.Positive school experience overcomes outside school experience |                                | .638  |       | .383                        |       |       |
| 15.Provide appropriate alternatives                               |                                |       | .681  |                             |       | .632  |

a Note: Percentages in parentheses are the percentage of variance accounted for. (PE) Item from Gibson and Dembo's Personal Teaching Efficacy factor. (TE) Item from Gibson and Dembo's Teaching Efficacy factor.

3) Factor 3 (Professional knowledge efficacy): Items 4, 12, 13 and 15 were loaded on factor 3 for beginning-level and ending-level pre-service teachers. Item 12, 13, and 15 in PTE subscale of Gibson and Dembo and item 4 in GTE subscale were loaded on a different dimension in this study. These items are more related to how teachers apply their professional knowledge in teaching. It was found that ending-level teachers had more confidence in guiding at home, in knowing how to intervene to help student feel successful, in providing appropriate alternatives, and in knowing strategies to deal with children's misbehaviors than beginning-level teachers (see Table 3).

**Table 3. Descriptive Statistics**

| Items   | Beginning preservice teachers |      | Ending preservice teachers |      |
|---|-------------------------------|------|----------------------------|------|
|   | Mean                          | S.D. | Mean                       | S.D. |
| 1.Extra effort  | 3.06                          | .85  | 3.37                       | .83  |
| 2.Home environment  | 2.88                          | .83  | 3.23                       | .86  |
| 3.Family background   | 2.82                          | .81  | 2.96                       | .76  |
| 4.Guidance at home  | 3.02                          | .91  | 3.49                       | .88  |
| 5.Adjust to student   | 3.71                          | .94  | 3.96                       | .81  |
| 6.Better ways of teaching   | 3.16                          | .76  | 3.36                       | .85  |
| 7.Guide difficult children  | 3.30                          | .81  | 3.49                       | .75  |
| 8.Home environment  | 3.02                          | 1.15 | 2.34                       | .94  |
| 9.More effective ways of facilitating learning                    | 3.53                          | .79  | 3.70                       | .77  |
| 10.Able to teach effectively                                      | 3.37                          | .76  | 3.61                       | .78  |
| 11.Parent support   | 2.88                          | 1.20 | 3.59                       | 1.14 |
| 12.Know how to intervene  | 3.53                          | .87  | 3.86                       | .77  |
| 13.Teacher knows strategies to deal with children's misbehaviors  | 3.58                          | .97  | 3.72                       | .76  |
| 14.Positive school experience overcomes outside school experience | 3.25                          | .83  | 3.39                       | .85  |
| 15.Provide appropriate alternatives                               | 3.71                          | 1.05 | 3.93                       | .86  |

### **Differences between beginning-level and ending-level pre-service classroom teachers**

T-test was conducted to determine differences between beginning and ending preservice classroom teachers regarding self-efficacy beliefs. Results of t test revealed statistically significant differences between beginning and ending preservice classroom teachers on PTE and PKE factors, while results revealed no significant differences on GTE factor (see Table 4). PTE and PKE

beliefs level of ending-level preservice classroom teachers had significantly higher scores than beginning-level preservice classroom teachers. Accordingly this result, it can be said that teacher training program in Turkey is effective in gaining teaching skill and ability to ensure student learning.

**Table 4. Results of t Test for Beginning and Ending Preservice Teachers**

| Factors | Beginning preservice teachers |      | Ending preservice teachers |      | t     | p    |
|---------|-------------------------------|------|----------------------------|------|-------|------|
|         | Mean                          | S.D. | Mean                       | S.D. |       |      |
| PTE     | 3.36                          | .38  | 3.55                       | .42  | 4.509 | .000 |
| GTE     | 2.97                          | .37  | 3.03                       | .46  | 1.334 | .183 |
| PKE     | 3.46                          | .53  | 3.75                       | .49  | 5.341 | .000 |

## DISCUSSION

The aim of this study is to investigate the consistency of Gibson and Dembo's scale to Turkish pre-service teacher sample and the difference between efficacy belief levels of beginning-level and ending-level groups. In this study, it was found that Gibson and Dembo's TES consisted of three factors for beginning-level and ending-level pre-service teachers. It was revealed that ending-level pre-service teachers' beliefs regarding the personal teaching efficacy and professional knowledge efficacy factors was higher scores than the beginning-level and there were significant differences between the group, while results revealed no significant differences on general teaching efficacy factor.

The results of the factor analysis suggest that the two-factors of teacher efficacy identified by Gibson and Dembo were not confirmed among Turkish beginning-level and ending-level pre-service classroom teachers. Additionally, item 16 included in Gibson and Dembo's 16-item scale was removed from the scale because of insufficient load value in this study. For this reason, Gibson and Dembo's scale consisted of 15 items in this study. As a result of the factor analysis, Gibson and Dembo's TES scale consisted of three factors in Turkish pre-service teachers' sample. In some studies, TES scale is used (Ghaith and Yaghi, 1997; Ghaith and Shaaban, 1999; Henson, 2001; Hoy and Woolfolk, 1993; Tornaki and Podell, 2005), its two-dimensional structure has been validated; but in some studies (Brouwers and Tomic, 2003; Denzine et al., 2005; Lin and Gorrell, 2001; Lin, Gorrell and Taylor, 2002; Woolfolk and Hoy, 1990) have been found inconsistencies in the two-factor structure of the

Gibson and Dembo scale, just like the result of this study. Yet, there was a difference both in the number of factors and the items loaded on the factors in these studies. The result about the factor structure obtained in studies where TES scale was used was complicated. According to the results, it is doubtful that Gibson and Dembo's two factors of TES scale is a valid instrument to evaluate teacher' efficacy beliefs. In some studies where TES scale was used (Gibson and Dembo, 1984; Henson, 2001; Romi and Leyser, 2006; Wertheim and Leyser, 2002), the reliability coefficients ranging from .68 to .79 for PTE, and .60 to .79 for GTE. These reliability coefficients high than TES scale reliability coefficient in this study. Lin and Gorrell (2001) found similar reliability for TES with the result of this study. Based on the Cronbach alpha coefficients of this study, it might be said that TES is relatively reliable. In Turkey, Diken's (2004) study using two-factor TES scale revised by Guskey and Passaro, and Yılmaz and Cokluk-Bokeoglu's (2008) study using two-factor TES scale revised by Woolfolk and Hoy (1990) showed that TES was valid and reliable to be used for in-service teachers in Turkey. Contrary to this result, as a result of this study, Gibson and Dembo's three factors of TES scale might be a valid instrument than two factors of TES to evaluate pre-service teachers' efficacy beliefs in Turkey.

In this study, personal teaching efficacy level of beginning-level and ending-level pre-service teachers had higher than the mean average level. Therefore, beginning-level and ending-level teachers believe that they had the abilities to teach students. In this study, as the items (1,6,9,10) loaded on this dimension, preservice classroom teachers believe that their efforts are effective on students' learning. Additionally, especially ending-level preservice teachers believe that they had the abilities to plan teaching and teach all students. Moreover, the level ending-level preservice teachers believe in their personal teaching efficacy was higher than the beginning group. Some studies (Witcher et.al., 2002; Woolfolk Hoy and Spero, 2005) revealed that as the education period of pre-service teachers increases, their PTE level increases as well, in compliance with the results of this study. The reason for this may be, as stated by Witcher et.al. (2002), that pre-service teachers are not completely aware of the role of external powers on students' behaviors and performance at school.

The GTE belief level of beginning-level and ending-level of pre-service teachers had lower than PTE and PKE factors. GTE scores of both groups show that they relatively believe that students will overcome environmental and family background in their learning. However, the ending-level group think that family support is important in students' learning. In many studies, it was found that PTE beliefs of student teachers had higher than GTE beliefs (Romi and Leyser, 2006; Wertheim and Leyser, 2002; Woolfolk Hoy and Spero, 2005; Torre Cruz and Arias, 2007). In light of these results, it can be said that teacher training programs are effective in gaining knowledge and

ability to ensure student teachers' teach students. Moreover, it is observed in literature that GTE levels of beginning-level and ending-level pre-service teachers' increase during education (Henson, 2001; Woolfolk Hoy and Spero, 2005) or GTE level decreases during education (Hoy and Woolfolk, 1990; Wertheim and Leyser, 2002). Yet, surprisingly in this study, no significant difference was found between GTE scores of beginning-level and ending-level of pre-service teachers. Family support improves meaningfully during education. Because school education is believed to be insufficient in exams for transition to qualified secondary schools and universities, additional education in private courses together with school education has become prevalent. This may ensure student teachers understand that school education is not sufficient alone in Turkey. Based on this result, it can be said that especially ending-level pre-service teachers believe that family support and cooperation with family is important in ensuring students' learning in Turkey.

Three items loaded on PKE factor are related with the fact that they believe how they will implement their professional knowledge in teaching students. These items include having the pedagogical knowledge necessary for ensuring students' learning. In this study, both beginning-level and ending-level pre-service teachers believe in their professional knowledge which will ensure students' learning. There is a meaningful difference between two groups and the efficacy level of ending-level preservice classroom teachers had higher than that of beginning-level ones. On the other hand, as for one item loaded on this factor, pre-service classroom teachers believe that students who cannot be reached by their parents shall not be reached by student teachers, which was not in compliance with items 12, 13, and 15 because these three items are more related with reaching students. According to Woolfolk Hoy and Spero (2005), the growth of knowledge during teacher education programs may strengthen and crystallize preservice teachers' efficacy beliefs. Result of this study might show that the sample of preservice classroom teachers' sense of efficacy increased during their teacher education program in the teaching profession knowledge. This result may result in that the ending level preservice classroom teachers in teacher education program completed 21 credits for teaching profession knowledge, while the beginning level preservice classroom teachers had not completed courses related to teaching profession knowledge. Based on this, it might be said that the result seems to indicate that completing teaching profession knowledge courses were a significant factor on preservice classroom teachers' efficacy beliefs.

## **CONCLUSION AND IMPLICATIONS**

The results of this study revealed various facts about teacher training program. Teacher training programs are more successful about how they will apply their professional knowledge in teaching students. However, the fact that beginning-level teachers' professional knowledge efficacy beliefs had

high should be taken into consideration. Based on this result, it can be said that the ones who want to become a teacher perceive teaching as learning information on how to perform teaching while entering teacher training programs. In conclusion, teacher training programs positively contribute in gaining the sufficient ability on how pre-service teachers apply professional knowledge.

At the same time, especially ending-level student teachers believe that their efforts will contribute students' learning. They also believe that family support is effective in students' learning. In other words, despite the fact that teachers had the ability to teach students on their own, they consider family support is important. The reason for this may be the fact that pre-service teachers feel that family support is as important as teachers in students' learning in Turkey where a collectivist culture is common (Aycaan and Kanungo, 2000). That's why, taking into consideration that student teachers believe that family support is effective as teachers in students' learning in this study, it can be said that social and cultural characteristics are effective on teachers' efficacy beliefs, as stated by Lin and Gorrell (2001). In this respect, validity and reliability of TES scale to be used in evaluating teachers' self-efficacy levels in different cultural environments should be investigated.

One of the significant findings of this study is that Gibson and Dembo's two-factor teacher self-efficacy scale may not be a valid instrument to evaluate efficacy beliefs of pre-service teachers in Turkey. Considering the limitation of carrying out this study in one university in Turkey, instrument development studies should be carried out to determine validity level of TES scale and evaluate teacher efficacy level in different universities.

The results of this study revealed that training program is relatively effective in improving and developing pre-service teachers' efficacy beliefs. It can be said that it contributes to improve the ability to plan teaching and perform teaching during teacher training program, and this improves student teachers' efficacy beliefs. However, the fact that student teachers perceived family support is effective in students' learning may show that pre-service teachers will not be able to ensure students' learning on their own. For this reason, the teacher training program should be revised to develop teaching and professional abilities to overcome student and family characteristics. Based on this result, improving student teachers' efficacy beliefs through qualified training programs is important in terms of improving self-confidence to ensure students' learning when they entrance in teaching and contributing positively to education of students.

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