

Prospective Teachers' Conceptions of Assessment and Efficacy Beliefs: Values and Practices

Öğretmen Adaylarının Değerlendirmeye İlişkin Görüşleri ve Yeterlik İnançları: Değerler ve Uygulamalar

Altay EREN*

Abant İzzet Baysal Üniversitesi

Abstract

The aim of this study was to examine whether prospective teachers' efficacy beliefs played significant mediating roles in the relationships between their assessment-related values and practices. A total of 423 prospective teachers voluntarily participated in the study. Results of the present study showed that the relationships between prospective teachers' values and practices were partly, but significantly, mediated by their efficacy beliefs in terms of their conceptions of making learning explicit and promoting learning autonomy. Furthermore, results also showed that the relationships between prospective teachers' efficacy beliefs and conceptions of performance orientation were non-significant in terms of their values and practices. Based on the results of the present study, it was suggested that prospective teachers' conceptions of assessment should be considered together with their efficacy beliefs during teacher education process.

Keywords: Prospective Teachers; Assessment; Beliefs; Teacher Education

Öz

Bu çalışmanın amacı, öğretmen adaylarının yeterlik inançlarının değerlendirmeyle ilgili değerleri ve uygulamaları arasındaki ilişkilerde anlamlı arabuluculuk rolleri oynayıp oynamadığının incelenmesidir. Toplam 423 öğretmen adayı çalışmaya gönüllü olarak katılmıştır. Çalışmadan elde edilen sonuçlar, öğretmen adaylarının hem öğrenmeyi belirgin hale getirmeye, hem de öğrenme sürecinde otonomi sağlamaya yönelik olarak ifade ettikleri değerler ve uygulamalara ilişkin görüşleri arasındaki ilişkilerin yeterlik inançları tarafından kısmen, ancak anlamlı düzeyde düzenlenmekte olduğunu göstermiştir. Ayrıca, çalışmadan elde edilen sonuçlar, öğretmen adaylarının yeterlik inançları ve performans odaklı görüşleri arasındaki ilişkinin anlamlı olmadığını da ortaya koymuştur. Çalışmanın sonuçlarından hareketle, öğretmen adaylarının değerlendirmeyle ilişkin görüşlerinin öğretmen eğitimi sürecinde yeterlik inançlarıyla birlikte dikkate alınması önerilmiştir.

Anahtar Sözcükler: Öğretmen adayları, değerlendirme, inançlar; öğretmen eğitimi.

Introduction

Although recent studies on teachers' and prospective teachers' (hereafter PTs) conceptions of assessment revealed that these conceptions differ in terms of what they believed as ideal (i.e., values) and their actual teaching-related behaviors (i.e., practice) in the classroom (James & Pedder, 2006; Wang, Kao, & Lin, 2010; Winterbottom et al., 2008), the mediating roles of possible factors that have potential to bridge the gap between their assessment-related values and practices were not investigated in a single study to date. Indeed, there are only two studies in which one of these potential factors was speculated in terms of teachers' (Dixon & Haigh, 2009) and PTs' (Yaylı, 2008) assessment-related values and practices, that is, the efficacy beliefs (hereafter EBs).

*Associate Prof. Dr. Altay EREN, Abant İzzet Baysal University, Department of Educational Sciences, eren_a@ibu.edu.tr

However, to examine the mediating roles of PTs' EBs in the relationships between their assessment-related values and practices is important for at least two crucial reasons. First, one of the most important criticisms directed at teacher education programs is their "purported inadequacy in enabling PTs to bridge the theory-practice gap" (Allen, 2009: p. 647), signifying that the results of the current study may provide a relevant framework for curricular attempts that aim to bridge the mentioned gap between theory and practice in teacher education. Second, it has long been acknowledged that conceptions of assessment and EBs are significant predictors of teachers'/PTs' classroom-related behaviors (e.g., Brown, 2004; Henson, 2002; Ng, Nicholas, & Williams, 2010; Woolfolk Hoy & Spero, 2005). This means that it is important to examine PTs' conceptions of assessment together with their EBs in order to broaden our current understanding with regard to factors underlying PTs' teaching-related behaviors which significantly affect student learning and achievement (World Bank, 2013). Therefore, this study aims to examine whether PTs' EBs play significant mediating roles in the relationships between their assessment-related values (i.e., independent variables) and practices (i.e., dependent variables). In line with this aim, one research question is formulated as follows: 'Do PTs' efficacy beliefs significantly mediate the relationships between their assessment-related values and practices?'

Conceptions of Assessment

The concept of assessment has long been investigated in different lines of research and along with diverse conceptualizations (see, e.g., Astin & Antonio, 2012). To review the extensive literature on 'assessment' and its diverse conceptualizations is beyond the scope of this study. Specifically, the present study has focused on the most relevant and recent conceptualization of assessment; namely, 'assessment for learning' and 'assessment of learning'. Likewise, researchers recently have begun to use these concepts in order to examine the difference between summative assessment and formative assessment more accurately (e.g., Black & Wiliam, 1998; Dann, 2002; Gordon, 2008; Hargreaves, 2007; Perrenoud, 1998). In the assessment for learning, the explicit purpose is to use assessment as part of instructional process to promote student learning and motivation whereas, in the assessment of learning, the main purpose is to use assessment for grading and reporting (James & Pedder, 2006). Few studies examined the mentioned conceptions in terms of teachers' and PTs' values and practices (Birgin & Baki, 2009; Dixon & Haigh, 2009; Wang et al., 2010; Winterbottom et al., 2008; Yaylı, 2008).

James and Pedder (2006), for example, examined the underlying factors of teachers' conceptions of assessment, and found that these conceptions can be explained through three meaningful dimensions: Making Learning Explicit (MLE) (i.e., eliciting, clarifying, and responding to evidence of learning and working with students to develop a positive learning orientation), Promoting Learning Autonomy (PLA) (i.e., widening scope for students to take on greater independence over their learning objectives and the assessment of their own and each other's work), and Performance Orientation (PO) (i.e., concerning to help students comply with performance goals prescribed by the curriculum through closed questioning and measured by marks and grades) (James & Pedder, 2006). The dimensions of MLE and PLA are associated with the assessment for learning, whereas PO dimension is associated with the assessment of learning (James & Pedder, 2006). Importantly, the teachers in James and Pedder's (2006) study reported that they implemented the PLA in student assessment lower than they valued it, whereas they reported that they implemented the PO in student assessment higher than they valued it, indicating a dissonance between their values and practices.

Based on a sample of PTs from England, Winterbottom et al. (2008) examined PTs' assessment-related values and practices, and found that the PTs valued MLE and PLA more than they implemented it in their teaching, whereas they implemented PO more than they valued it. They also reported that PTs' values were considerably related to their practices, suggesting a consonance between their values and practices. Wang et al. (2010) examined the Taiwanese PTs' conceptions about assessment in terms of science learning and the extent that these conceptions were coherent with their views of learning science, and found that a fair proportion of the

Taiwanese PTs reflected a traditional view of learning, but held a more constructivist view about the methods of assessment. Birgin and Baki (2009) examined Turkish primary school teachers' proficiency perceptions about assessment methods, and found that the teachers perceived themselves most proficient in traditional assessment methods such as multiple-choice and true-false questions, whereas they did not perceive themselves as proficient in learner-centered assessment methods such as portfolio and peer assessment.

Teacher Efficacy

Teacher efficacy can be defined as the teachers' beliefs in their capabilities to bring about valued educational/instructional outcomes and to affect student performance in a positive manner (Labone, 2004). Considerable research showed that teachers' EBs linked to important variables such as student motivation and achievement (Ashton & Webb, 1982; Brophy, 1979; Demirtaş, Cömert, & Özer, 2011; Ross, 1992), teachers' persistence, attitudes towards the teaching profession, enthusiasm and self-esteem (Gibson & Dembo, 1984; Huang, Liu, & Shiomi, 2007; Milner & Woolfolk Hoy, 2003), taking responsibility in student learning (Guskey & Passaro, 1994), engaging in activities that promote the development of competencies (Morin & Welsh, 1991), and children's language and literacy gains (Guo, Piasta, Justice, & Kaderavek, 2010). Furthermore, teachers with high efficacy are likely to use more learner-centered instructional methods than teacher-centered instructional methods in educational settings such as classrooms, as well as to adopt student autonomy more than those teachers with low efficacy (Deemer, 2004; Swars, 2005; Tschannen Moran & Woolfolk Hoy, 2007; Woolfolk, Rosoff, & Hoy, 1990).

Recently, using a qualitative research method, Yaylı (2008) demonstrated that the Turkish PTs highly valued the theories that they learned in the university (e.g., constructivism), but they were not sure that they could implement the theories in their practicum process. Yaylı (2008) argued that the mentioned dissonance between Turkish PTs' assessment-related values and practices may be due to the several important reasons such as prospective teacher-mentor teacher tension, EBs, and supervisor-mentor teacher dichotomy. More recently, Dixon and Haigh (2009) investigated the effects of involvement in a professional learning project on changes in four New Zealand mathematics teachers' conceptions of assessment in a qualitative manner, and found that the effect of involvement in the mentioned project on changes in teachers' understanding of assessment *for* learning were significant and affirmative. Of particular importance, these researchers speculated that those positive changes in teachers' understanding on assessment *for* learning may be explained through the mediating role of their EBs. Although the mediating role of EBs in the relationship between teachers'/PTs' assessment-related values and practices was not examined empirically in these studies, they provide a rationale to investigate the mediating role of EBs in the mentioned relationship.

Method

Participants

A total of 423 PTs (283 female), majoring in Science Teaching (n = 101), Social Studies Teaching (n = 114), English Language Teaching (n = 106), and Primary School Teaching (n = 102) domains at a large state university located in the North-West of the Black Sea Region in Turkey, voluntarily participated in the study. The sample consisted of 95 first-year, 106 second-year, 107 third-year, and 115 fourth-year PTs. Participants ranged in age from 17 to 35 years (M = 20.47, SD = 1.67).

Research Instruments

Based on the back-translation method, all items in the research instruments were translated into Turkish by the researcher with the assistance of two lecturers in the foreign languages

department of the university where the present study was carried out. The consensus rate on the items of the scales was quite high (91%). Disagreements were resolved through the discussion of the items. Factor structures of the research instruments were also validated through Confirmatory Factor Analyses (CFAs) in the present study (see data analyses and preliminary analyses sections).

Teachers' Classroom Assessment Scale

The Staff Questionnaire (SQ), originally developed by James and Pedder (2006), was used to assess PTs' conceptions of assessment in terms of their values and practices. The SQ was designed to assess teachers' conceptions of classroom assessment, professional learning, and school management. The section of conceptions of classroom assessment was used due to the scope of the present study. This section of the SQ (henceforth Teachers' Classroom Assessment Scale, TCAS) contains three factors: MLE (10 items: e.g., students' learning objectives are discussed with students in ways they understand), PLA (5 items: e.g., students are given opportunities to assess one another's work), and PO (6 items: e.g., assessment of students' work consists primarily of marks and grades).

In the TCAS, all items were linked to 'about you' concept under the topic of 'this school now' for the practice section, while, for the value section, they were linked to 'about your values' concept in relation to the question of 'how important are your assessment practices for creating opportunities for students to learn?' Teachers rated their practices on a 4-point scale ranging from never true to mostly true, whereas they rated their values on a 4-point scale ranging from not at all important to crucial. Given the sample of this study consisted of PTs, small modifications were made in order to consider participants' lack of experiences in actual teaching and assessment processes. For the value section, all items in the TCAS were linked to the heading of 'I believe that they are important' whereas for the practice section, these items were linked to the heading of 'I believe that they are applicable'. The response formats of the value and practice sections of the TCAS were also modified in order to both enable PTs to rate their practices based on their beliefs about practice and equalize the response range of the value section to the response range of practice section. Therefore, in the present study, the 5-point Likert type response format, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), was used for both value and practice sections of the TCAS.

Teacher Efficacy Scale

The short form of Ohio State Teacher Efficacy Scale (OSTES), originally developed by Tschannen Moran and Woolfolk Hoy (2001), was used to assess PTs' EBs both because it has widely been used in the relevant research and it was developed as a tool for researchers interested to assess the construct of EBs (see, e.g., Klassen et al., 2009). The OSTES consists of three factors: efficacy for instructional strategies (4 items: e.g., to what extent can you use a variety of assessment strategies?), efficacy for classroom management (4 items: e.g., how much can you do to get children to follow classroom rules?), and efficacy for student engagement (4 items: e.g., how much can you do to help your students value learning?). Tschannen Moran and Woolfolk Hoy (2001) suggested that one-factor structure is more appropriate to assess PTs' EBs because subscales may have little meaning for PTs who have lacked of actual teaching experiences. Thus, the second-order factor of the OSTES (i.e., EBs) was considered in the present study. As in the original scale, a 9-point response format, ranging from 1 (nothing) to 9 (a great deal), was used in the current study.

Procedure

The data were collected by the researcher during the autumn semester of the 2009/2010 academic year. The TCAS and OSTES were presented to the participants respectively during one of the regular class hours. The administration process lasted approximately 25 min; 15 min for the TCAS and 10 min for the OSTES.

Data Analyses

Before addressing the research question, a series of preliminary analyses was conducted. First, using the Maximum Likelihood (ML) method of estimation from AMOS 7 (Arbuckle, 2006), Confirmatory Factor Analyses (CFAs) were conducted in order to check whether the factor structures of TCAS and OSTES were replicated in the present sample. The χ^2/df ratio ($\chi^2/df \leq 3$), Comparative Fit Index ($CFI \geq .90$), Non-Normed Fit Index ($NNFI \geq .90$), and Root Mean Square Error of Approximation ($RMSEA \leq .08$) were used to assess the data fit (Bollen & Curran, 2006; Byrne, 2001). Second, for both value and the practice sections of the TCAS, two separate Multivariate Analyses of Covariance (MANCOVAs) were conducted to check the effects of gender, age (as a covariate), year of study, and fields of study on the MLE, PLA, and PO subscales. Following the MANCOVAs, a series of Analyses of Variance (ANOVAs) was conducted in order to check the univariate effects on dependents (Tabachnick & Fidell, 2007). Third, an Analysis of Covariance (ANCOVA) was conducted to examine the effects of the demographic variables on EBs. The results revealed that the effects of demographic variables on dependents were non-significant. Therefore, the demographic variables were not considered in the present study.

Finally, both variable-level analyses (i.e., paired samples t-test and correlation analyses) and person-level analyses based on the Reliable Change Index (RCI) were conducted in order to explore the dissonance and consonance between PTs' assessment-related values and practices, which were reported in the previous studies (e.g., Winterbottom et al., 2008). Although the present study did not aim to examine the dissonance and consonance between PTs' values and practices, these analyses were important because the dissonance and consonance between assessment-related values and practices may artificially restrain or increase the mediating roles of EBs.

For the research question, three separate analyses were conducted in order to examine the mediating roles of PTs' EBs in the relationships between their assessment-related values and practices. First, a correlation analysis was conducted in order to examine the relationships between PTs' EBs and conceptions of assessment. Second, based on the results of correlation analysis, multiple regression analyses were conducted in order to explore the mediating roles of EBs in the relationships between PTs' assessment-related values and practices. Sobel (1982) tests were also conducted to validate the importance of the mediating roles of EBs (Baron & Kenny, 1986; Preacher & Hayes, 2004). Finally, based on the results of regression analyses and using the ML method from AMOS 7 (Arbuckle, 2006), a Structural Equation Modeling (SEM) analysis was conducted in order to investigate the mediating roles of EBs in the relationships between assessment-related values and practices in terms of fit indices.

Results

Preliminary Analyses

The CFA results demonstrated that the three-factor TCAS model with 21 indicators fit to the data well in terms of both value ($\chi^2(186)= 349.03, p < .001; \chi^2/df = 1.88; CFI = .95; NNFI = .94; RMSEA = .05$) and practice sections ($\chi^2(186)= 434.35, p < .001; \chi^2/df = 2.34; CFI = .94; NNFI = .93; RMSEA = .06$). For the value section, parameter estimations ranged from .34 to .87 ($p < .001$) whereas, for the practice section, parameter estimations ranged from .59 to .83 ($p < .001$). For the value section of the TCAS, internal reliabilities were .85, .82, and .88 for the MLE, PLA, and PO subscales respectively. For the practice section of the TCAS, internal reliabilities were .90, .86, and .84 for the MLE, PLA, and PO subscales respectively. The CFA results also demonstrated that the one-factor OSTES model had good fit to data ($\chi^2(51)= 158.31, p < .001; \chi^2/df = 3.10; CFI = .96; NNFI = .95; RMSEA = .07$). The parameter estimations ranged from .63 to .85 ($p < .001$). The internal reliability of the OSTES was computed as .91 in the present study.

The Dissonance and Consonance between Assessment-Related Values and Practices

With coefficients ranging from .30 to .35, the assessment-related values were moderately and positively associated with assessment-related practices (see Table 1).

Table 1

Zero-Order Correlations

Variable	1	2	3
Making learning explicit	.30***	.58***	.03
Providing learning autonomy	.47***	.30***	.02
Performance orientation	-.03	.01	.35***

*** $p < .001$

Note: Coefficients of practices were shown above the diagonal whereas coefficients of values were displayed below the diagonal. The relationships between value and practice-related conceptions were depicted in bold.

There were also significant differences between PTs' assessment-related values and practices (see Table 2). Specifically, the PTs significantly valued MLE and PLA more than they practiced it, whereas they significantly practiced PO more than they valued it. These differences were substantial in terms of the magnitudes of effect sizes (Cohen, 1992).

Table 2

Summary of the Paired Samples t-Test

Variable	Value M (SD)	Practice M (SD)	t(422)	Cohen's d
Making learning explicit	43.52(4.92)	38.05(7.41)	14.91***	.89
Promoting learning autonomy	21.29(2.99)	18.46(3.94)	14.03***	.82
Performance orientation	19.19(5.32)	20.47(4.69)	-4.58***	-.26

*** $p < .001$

The RCI analyses were conducted to examine whether the variable-level dissonance and consonance between PTs' assessment-related values and practices were also evident in the person-level. The RCI was measured by dividing the difference in value and practice scores by the standard error of the difference score (Jacobsen & Truax, 1991). Additionally, "based on the values smaller than -1.96 or larger than 1.96, which are unlikely to occur by chance and are thus considered indicative of reliable change, RCI allows individuals to be categorized as showing a significant decrease, a significant increase, and no-change" (Fryer & Elliot, 2007: 702). Thus, based on the RCI, the MLE, PLA, and PO subscales were categorized. Accordingly, the decrease concept refers to those PTs whose assessment-related values are higher than their practices (i.e., important but not applicable), whereas the increase concept refers to those PTs whose assessment-related practices higher than their values (i.e., not important but applicable). The concept of no-change, however, refers to those PTs whose assessment-related values are consistent with their practices (see Table 3).

Table 3

The Reliable Changes in Assessment-Related Values and Practices

Variable	Decrease	Increase	No-change	$\chi^2(2)$
	f (%)	f (%)	f (%)	
Making learning explicit	318 (75.2)	47 (11.1)	58 (13.7)	333.7***
Promoting learning autonomy	268 (63.4)	44 (10.4)	111(26.2)	187.5***
Performance orientation	147 (34.8)	206 (48.7)	70 (16.5)	65.97***

*** $p < .001$

As shown in Table 3, the dissonance and consonance between PTs' assessment-related values and practices were significant, signifying that it makes sense to check the artificial effects of changes and stabilities in PTs' values and practices on their EBS. Thus, based on the RCI variables (i.e., independent variables) and the PTs' EBs (i.e., dependent variable) an ANOVA was conducted. ANOVA results showed that the effects of those dissonance and consonance between PTs' values and practices on their EBs were non-significant in terms of their conceptions about MLE ($F(2,396) = 2.99, p > .05, \eta^2_p = .02$), PLA ($F(2,396) = .82, p > .05, \eta^2_p = .00$), and PO ($F(2,396) = .38, p > .05, \eta^2_p = .00$). These results indicate that the relationships between the research variables cannot be attributed to artificial effects of those changes and/or stabilities on EBs.

Correlation Analysis

Results of the correlation analysis demonstrated that the PTs' conceptions about MLE and PLA were significantly and strongly related to one another in terms of both values ($r = .47$) and practices ($r = .58$) (see Table 4). The relationships among PTs' PO, MLE ($r_{\text{value}} = -.03; r_{\text{practice}} = .03$), and PLA ($r_{\text{value}} = .01; r_{\text{practice}} = .02$) were trivial in terms of their values and practices. Notably, PTs' EBs were significantly and positively related to their conceptions about MLE ($r_{\text{value}} = .28; r_{\text{practice}} = .29$) and PLA ($r_{\text{value}} = .22; r_{\text{practice}} = .32$) in terms of their values and practices. However, the relationship between PTs' EBs and PO was quite weak in terms of both their values ($r = .08$) and practices ($r = .04$). Therefore, PTs' conceptions of PO were not included into the regression analyses.

Table 4

Summary of the Correlation Analysis

Variable	1	2	3	4	5	6	7
Making learning explicit _{value}	-						
Promoting learning autonomy _{value}	.47***	-					
Performance orientation _{value}	-.03	.01	-				
Making learning explicit _{practice}	.30***	.17**	.07	-			
Promoting learning autonomy _{practice}	.21***	.30***	.02	.58***	-		
Performance orientation _{practice}	.17**	.12*	.30***	.03	.02	-	
Efficacy beliefs	.28***	.22***	.08	.29***	.32***	.04	-

* $p < .05$; ** $p < .01$; *** $p < .001$

Regression Analyses

As shown in Table 5, the PTs' value-related conceptions of MLE and PLA significantly predicted their EBs (Model 1). In the first step of the Model 2, PTs' value-related conceptions of MLE significantly predicted their practice-related conceptions of MLE, whereas their value-related conceptions of PLA did not significantly predict practice-related conceptions of MLE. In the second step of the Model 2, PTs' EBs significantly predicted their practice-related conceptions of MLE while the effect of the value-related conceptions of MLE on practice-related conceptions of MLE remained significant. The contribution of the EBs to the model was significant ($\Delta R^2 = .04, p < .001$). Sobel (1982) test confirmed the mediating role of EBs in the relationship between value-related conceptions of MLE and practice-related conceptions of MLE ($Z = 3.05, p = .002$).

In the first step of the Model 3, the PTs' value-related conceptions of MLE did not significantly predict their practice-related conceptions of PLA, whereas their value-related conceptions of PLA significantly predicted their practice-related conceptions of PLA. In the second step of the Model 3, the PTs' EBs significantly predicted their practice-related conceptions of PLA, while the effect of the value-related conceptions of PLA on practice-related conceptions of PLA remained significant. The contribution of the EBs to the model was substantial ($\Delta R^2 = .06, p < .001$). Sobel (1982) test validated the mediating role of the EBs in the relationship between value-related conceptions of PLA and practice-related conceptions of PLA ($Z = 1.98, p = .047$).

Table 5

Summary of the Hierarchical Regression Analyses

Independent	Dependent	B	S. E.	β	t
Model 1					
Efficacy beliefs					
Making learning explicit _{value}		.60	.14	.23	4.33***
Promoting learning autonomy _{value}		.47	.23	.11	2.08*
<i>Model summary:</i> $R^2 = .09$, $F(2,420) = 20.18$, $p < .001$					
Model 2					
Step 1					
Making learning explicit _{practice}					
Making learning explicit _{value}		.43	.08	.29	5.46***
Promoting learning autonomy _{value}		.09	.13	.04	.66
<i>Model summary:</i> $R^2 = .09$, $F(2,420) = 21.52$, $p < .001$					
Step 2					
Making learning explicit _{practice}					
Making learning explicit _{value}		.36	.08	.24	4.51***
Promoting learning autonomy _{value}		.03	.13	.01	.20
Efficacy beliefs		.13	.03	.22	4.65***
<i>Model summary:</i> $R^2 = .14$, $F(3,419) = 22.25$, $p < .001$; $\Delta R^2 = .04$, $p < .001$					
Model 3					
Step 1					
Promoting learning autonomy _{practice}					
Making learning explicit _{value}		.07	.04	.08	1.56
Promoting learning autonomy _{value}		.35	.07	.27	5.07***
<i>Model summary:</i> $R^2 = .10$, $F(2,420) = 22.72$, $p < .001$					
Step 2					
Promoting learning autonomy _{practice}					
Making learning explicit _{value}		.02	.04	.02	.44
Promoting learning autonomy _{value}		.31	.07	.24	4.66***
Efficacy beliefs		.08	.01	.26	5.48***
<i>Model summary:</i> $R^2 = .16$, $F(3,419) = 26.22$, $p < .001$; $\Delta R^2 = .06$, $p < .001$					

* $p < .05$; *** $p < .001$ *The SEM Analyses*

Based on the results of regression analyses, two models were created. In the first model, PTs' value-related conceptions of MLE were the exogenous variable, whereas their EBs and practice-related conceptions of MLE were the indigenous variables. The results showed that the value-related conceptions of MLE both directly ($\beta = .30$, $p < .001$) and indirectly predicted practice-

related conceptions of MLE through the EBs ($\beta = .33, p < .001$; $\beta = .22, p < .001$). This model had reasonable fit to the data ($\chi^2(438) = 1031.17, p < .001$; $\chi^2/df = 2.35$; CFI = .91; NNFI = .90; RMSEA = .06).

In the second model, PTs' value-related conceptions of PLA were the exogenous variable whereas their EBs and practice-related conceptions of PLA were the indigenous variables. The results revealed that the value-related conceptions of PLA both directly ($\beta = .30, p < .001$) and indirectly predicted practice-related conceptions of PLA through the EBs ($\beta = .22, p < .001$; $\beta = .30, p < .001$). This model had also reasonable fit to the data ($\chi^2(187) = 459.76, p < .001$; $\chi^2/df = 2.46$; CFI = .94; NNFI = .93; RMSEA = .06).

Discussion

The results of the preliminary analyses showed that both the OSTES and TCAS were valid and reliable frameworks in the present study. Furthermore, results of the multivariate analyses demonstrated that these factors were free from the effects of demographic variables. Given that the present sample did not only consist of fourth-year teacher education students, but also consisted of those in their first, second, and third year of study who had no actual practicum experiences, it can be said that this result provided additional evidence that teachers' beliefs about teaching-related issues were shaped from the beginning of the teacher education process (e.g., Pajares, 1992). Thus, it can be suggested that teacher educators should be aware of the fact that their teaching-related practices in general and assessment-related practices in particular may influence their students' conceptions of assessment even in the early years of teacher education.

More importantly, the results of the preliminary analyses revealed that the PTs' conceptions of assessment significantly differed in terms of their values and practices, indicating a dissonance between PTs' assessment-related values and practices. Specifically, PTs believed that MLE and PLA were valuable but not very applicable in educational settings, whereas they believed that the opposite was true for PO. These results were in line with the previous studies in which teachers'/PTs' conceptions of assessment were examined in terms of their values and practices (e.g., James & Pedder, 2006; Wang et al., 2010; Winterbottom et al., 2008). The mentioned dissonance between PTs' assessment-related values and practices may be due to the possible effects of school culture in Turkey which has long been based on the norms and principles of traditional teaching approaches (Akşit, 2007).

Given that the PTs in the present sample had also been exposed to the effects of traditional teaching when they were students, the dissonance between PTs' values and practices can be understood. This result is important in teacher education for at least one reason: PTs' contrasting beliefs, which demonstrate the theory-practice dichotomy previously mentioned (Yaylı, 2008), may emerge in the early periods of teacher education, and this, in turn, may affect their later teaching behaviors in a negative manner. Indeed, the negative effect of this theory-practice dichotomy has long been acknowledged in teachers' actual teaching-related behaviors and PTs' preconceived ideas about teacher education (e.g., universities teach a great deal of theories about learning and teaching, but these theories really do not matter in real school life) (Knowles & Cole, 1998). Thus, it is reasonable to say that PTs' conceptions of assessment should be considered from the beginning of teacher education process in terms of both their assessment-related values and practices. Such earlier considerations may provide a valuable reference point for those attempts that aim to establish a meaningful and practical balance between PTs' assessment-related values and practices, as well as for those curriculum reforms that aim to create student-centered learning environments (see, e.g., Chan, Tan, & Khoo, 2007).

Preliminary analyses also demonstrated that quite a few of the PTs' assessment-related values were compatible with their assessment-related practices. Given the null effect of year of study variable on the assessment-related values and practices, this result pointed out that it is possible to establish a meaningful and practical balance between PTs' assessment-related

values and practices during teacher education. Of particular relevance, the present results revealed that the relationships between PTs' assessment *for* learning-related values and practices were significantly and positively mediated by their EBs. This indicates that PTs' EBs may be a significant reference point from which to establish a meaningful and practical balance between their assessment-related values and practices in teacher education.

The results of correlation analysis showed that the relationships among PTs' EBs, conceptions of MLE, and conceptions of PLA were positive and significant in terms of both their values and practices, whereas the relationship between PTs' EBs and conceptions of PO was not significant in terms of both values and practices. Moving one step further, results of the regression and SEM analyses have provided robust evidence that the relationships between PTs' assessment *for* learning-related values and practices were significantly mediated by their EBs. Moreover, in the present study, the mediating roles of PTs' EBs in the relationships between assessment *for* learning-related values and practices were not due to the artificial effects of the dissonance and consonance between their values and practices. These results were in line with the arguments of previous studies (Dixon & Haigh, 2009; Yaylı, 2008). To believe that learner-centered applications such as assessment *for* learning are valuable and applicable may require high EBs in order to adopt and respond effectively to the students' learning and motivational needs in an environment where they are seen as active, autonomous, and liable learners. In fact, it has long been known that teachers/PTs with high EBs are likely to adopt more student-centered approaches than teacher-centered approaches in educational settings such as classrooms (Deemer, 2004). Thus, the mediating roles of PTs' EBs in the relationships between their assessment *for* learning-related values and practices were not surprising although this was the first evidence regarding the topic.

Based on the current results, it can be claimed that the PTs' EBs can be used to establish an affirmative and practical balance between assessment *for* learning-related values and practices in the early years of their professional development (i.e., teacher education). Relevant research has demonstrated that the mastery experiences, which are the important sources of EBs (Bandura, 1997), were particularly effective on PTs' EBs (Tschannen Moran & Woolfolk Hoy, 2007). If this is the case, teacher educators may increase their students' EBs by providing meaningful and encouraging practicum experiences, containing assessment *for* learning-related practices, which, in turn, may contribute to PTs' professional identity development (Walkington, 2005). Despite their importance, the present results should be cautiously interpreted in future studies due to the limitations of the current study such as small sample size, correlational design, and obtaining the data from one university.

Directions for future studies

The present study showed that the relationships between the PTs' EBs and conceptions of assessment were significant in terms of their assessment *for* learning-related values and practices, which was in line with the results of previous research revealing that the PTs' conceptions of assessment and conceptions of teaching and learning were significantly related to each other in terms of their values and practices (Eren, 2010). Thus, in the future research, the mediating roles of PTs' EBs should be examined in terms of both their conceptions of assessment and conceptions of teaching and learning in order to broaden our understanding regarding the current topic. In the future studies, PTs' practicum experiences should also be considered in order to uncover their roles in the relationships between assessment-related values and practices.

Conclusions

Results of the present study lead to three major conclusions. First, most of the PTs in the sample believed that MLE and PLA were valuable but not much applicable in educational settings, whereas they believed that PO was not very valuable but applicable. Second, quite a few of the PTs believed that MLE, PLA and PO were both valuable and applicable in educational

settings. Finally, and more importantly, the relationships between PTs' values and practices were partly, but significantly, mediated by their EBs in terms of both their conceptions of MLE and PLA; whereas the relationship between PTs' EBs and conceptions of PO was trivial in terms of both their values and practices. Overall results of the present study suggest that PTs' conceptions of assessment should be considered together with their EBs in order to bridge the gap between assessment-related values and practices in the early years of professional development effectively.

References

- Akşit, N. (2007). Educational reform in Turkey. *International Journal of Educational Development*, 27, 129-137.
- Allen, J. M. (2009). Valuing practice over theory: How beginning teachers re-orient their practice in the transition from the university to the workplace. *Teaching and Teacher Education*, 25(5), 647-654.
- Arbuckle, J. L. (2006). *AMOS 7.0 user's guide*. Spring House, PA: Amos Development Corporation.
- Ashton, P., & Webb, R. (1982, March). *Teachers' sense of efficacy: Toward an ecological model*. Paper presented at the manual annual meeting of the AERA, New York.
- Astin, A. W., & Antonio, A. L. (2012). *Assessment for excellence*. Lanham, Maryland: Rowman & Littlefield.
- Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York, NY: Freeman.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Birgin, O., & Baki, A. (2009). An investigation of primary school teachers' proficiency perceptions about measurement and assessment methods. *Procedia-Social and Behavioral Sciences*, 1, 681-685.
- Black, P., & D. Wiliam. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy and Practice*, 5, 7-74.
- Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective*. New Jersey, NJ: Wiley-Interscience.
- Brown, G. T. L. (2004). Teachers' conceptions of assessment: Implications for policy and professional development. *Assessment in Education*, 11(3), 301-318.
- Brophy, J. (1979). Teacher behavior and its effects. *Journal of Educational Psychology*, 71, 735-750.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum.
- Chan, K. W., Tan, J., & Khoo, A. (2007). Pre-service teachers' conceptions about teaching and learning: A closer look at Singapore cultural context. *Asia-Pacific Journal of Teacher Education*, 35 (2), 181-195.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.
- Cole, A. L., & Knowles, J. G. (1998). Reforming teacher education through self-study. In A. L. Cole, R. Elijah, & J. G. Knowles (Eds.), *The heart of the matter: Teacher educators and teacher education reform*. San Francisco, CA: Caddo Gap.
- Dann, R. (2002). *Promoting assessment as learning: Improving the learning process*. London: RoutledgeFalmer.
- Deemer, S. A. (2004). Classroom goal orientation in high school classrooms: revealing links between teacher beliefs and classroom environments. *Educational Research*, 46 (1), 73-90.
- Demirtaş, H., Cömert, M., & Özer, N. (2011). Pre-service teachers' self-efficacy beliefs and attitudes

- towards profession. *Eğitim ve Bilim-Education and Science*, 36(159), 96-111.
- Dixon, H., & Haigh, M. (2009). Changing mathematics teachers' conceptions of assessment and feedback. *Teacher Development*, 13(2), 173-186.
- Eren, A. (2010). Consonance and dissonance between Turkish PTs' values and practices: Conceptions about teaching, learning, and assessment. *Australian Journal of Teacher Education*, 35(3), 27-48.
- Fryer, J W., & Elliot, A. J. (2007). Stability and change in achievement goals. *Journal of Educational Psychology*, 99(4), 700-714.
- Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology*, 76(4), 569-582.
- Gordon, M. (2008). Between constructivism and connectedness. *Journal of Teacher Education*, 59, 322-331.
- Guo, Y., Piasta, S. B., Justice, L. M., & Kaderavek, J. N. (2010). Relations among preschool teachers' self-efficacy, classroom quality, and children's language and literacy gains. *Teaching and Teacher Education*, 26(4), 1094-1103.
- Guskey, T. R., & Passaro, P. D. (1994). Teacher efficacy: a study of construct dimensions. *American Educational Research Journal*, 31, 627-643.
- Hargreaves, E. (2007). The validity of collaborative assessment for learning. *Assessment in Education: Principles, Policy & Practice*, 14(2), 185-199.
- Henson, R. (2002). From adolescent angst to adulthood: Substantive implications and measurement dilemmas in the development of teacher efficacy. *Educational Psychologist*, 37(3), 137-150.
- Huang, X., Liu, M., & Shiomi, K. (2007). An analysis of the relationships between teacher efficacy, teacher self-esteem and orientations to seeking help. *Social Behavior and Personality*, 35 (5), 707-716.
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59, 12-19.
- James, M., & Pedder, D. (2006). Beyond method: Assessment and learning practices and values. *Curriculum Journal*, 17(2), 109-138.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141-151.
- Klassen, R. M., Bong, M., Usher, E., 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.
- Labone, E. (2004). Teacher efficacy: maturing the construct through research in alternative paradigms. *Teaching and Teacher Education*, 20, 341-359.
- Milner, H. R., & Woolfolk Hoy, A. (2003). A case study of African American teacher's self-efficacy, stereotype threat, and persistence. *Teaching and Teacher Education*, 19, 263-276.
- Morin, S. M., & Welsh, L. A. (1991). Teaching efficacy scale: Job analysis and theoretical issues. ERIC, ED 356206.
- Ng, W., Nicholas, H., & Williams, A. (2010). School experience influences on pre-service teachers' evolving beliefs about effective teaching. *Teaching and Teacher Education*, 26(2), 278-289.
- Pajares, M. F. (1992). Teachers' beliefs and educational research: cleaning up a messy construct. *Review of Educational Research*, 67, 302-322.
- Perrenoud, P. (1998). From formative evaluation to a controlled regulation of learning processes: Towards a wider conceptual field. *Assessment in Education*, 5(1), 85-102.

PROSPECTIVE TEACHERS' CONCEPTIONS OF ASSESSMENT AND EFFICACY BELIEFS: VALUES AND PRACTICES

31

- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717-734.
- Ross, J. A. (1992). Teacher efficacy and the effect of coaching on student achievement. *Canadian Journal of Education*, 17, 51-65.
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology 1982* (pp. 290-312). San Francisco: Jossey-Bass.
- Swars, S. L. (2005). Examining perceptions of mathematics teaching effectiveness among elementary preservice teachers with differing levels of mathematics teacher efficacy. *Journal of Instructional Psychology*, 32 (2), 139-147.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th edition). New York, NY: Pearson.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23 (6), 944-956.
- Walkington, J. (2005). Becoming a teacher: Encouraging development of teacher identity through reflective practice. *Asia-Pacific Journal of Teacher Education*, 33(1), 53-64.
- Wang, J. R., Kao, H. L., & Lin, S. W. (2010). Preservice teachers' initial conceptions about assessment of science learning: The coherence with their views of learning science. *Teaching and Teacher Education*, 26(3), 522-529.
- Winterbottom, M., Brindley, S., Taber, K. S., Fisher, L. G., & Finney, J., & Riga, F. (2008). Conceptions of assessment: Trainee teachers' practice and values. *Curriculum Journal*, 19(3), 193-213.
- Woolfolk, A. E., Rosoff, B., & Hoy, W. K. (1990). Teachers' sense of efficacy and their beliefs about managing students. *Teaching and Teacher Education*, 6, 137-148.
- Woolfolk Hoy, A., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education*, 21, 343-356.
- World Bank (2013). *Promoting excellence in Turkey's schools*. Washington, DC: World Bank Document.
- Yaylı, D. (2008). Theory-practice dichotomy in inquiry: Meanings and pre-service teacher-mentor teacher tension in Turkish literacy classrooms. *Teaching and Teacher Education*, 24(4), 889-900.