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RESEARCH ARTICLE

Pre-service teachers' beliefs about the teaching profession, curriculum orientations, and personal responsibility

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Abstract

Working with 743 pre-service teachers from Turkey, the present study examined the relationships between beliefs about the teaching profession, curriculum orientations, and sense of personal responsibility, with the intention of exploring the mediating roles of curriculum orientations. Latent-factor correlation analysis and structural equation modelling analyses were conducted to analyse the data. The results showed that beliefs about expertise and difficulty in the teaching profession were significantly related to curriculum orientations. The results also demonstrated that humanistic and social reconstruction curriculum orientations played mediating roles in the relationships between beliefs about the teaching profession (i.e., expertise and difficulty) and sense of personal responsibility for student achievement and relationships with students. The results suggest that pre-service teachers' beliefs about the teaching profession, curriculum orientations, and sense of personal responsibility for the diverse and challenging aspects of the teaching profession should be interpreted based on the mediating roles of their curriculum orientations.

Keywords Beliefs · Curriculum · Responsibility · Teacher

Introduction

Establishing valid and reliable professional standards for the teaching profession to increase teaching and teacher quality is an international issue that occupies teacher educators, curriculum specialists, and policy makers from a diverse range of countries such as the United States, the United Kingdom, Australia, New Zealand, and many European countries (Eurydice 2015; Tuinamuana 2011). This issue has been mostly considered together with 'test-based accountability' through which schools and teachers are being held increasingly accountable for student outcomes as measured by standardised knowledge tests (Feng et al. 2018; Patrick and Mantzicopoulos 2016). Although the professional standards may vary from one country to another, they put the responsibility on teachers for student outcomes at the heart of test-based accountability (Linn 2006) without taking into account teachers' sense of personal responsibility for student outcomes such as student achievement. Thus, it indicates that current accountability movements almost entirely underline the importance of 'assigned responsibility' (Lauermann 2014; Lauermann and Karabenick 2013) instead of 'felt responsibility' (Hackman and Oldham 1976).

Such emphasis is problematic because it excludes the 'teacher' as a person who has feelings for their own teaching and student outcomes (Eren 2014). Although teachers understand the importance of 'assigned responsibility', many of them also perceive the emphasis on standardised test scores in accountability systems as unfair (Jones and Egley 2004) and demotivating (Herman 2007; Olivant 2015). Furthermore, assuming that teachers eagerly adopt responsibility for student outcomes, may cause them to neglect important variables that potentially associate with teachers' sense of personal responsibility. In turn, this may narrow the framework which forms the basis of current accountability movements aiming to increase teaching and teacher quality (Hout and Elliott 2011). Thus, as Lauermann and Karabenick (2014) recently argued, "a greater insight is needed regarding the conditions under which teachers are willing to assume personal responsibility for their students and for their own teaching" (p. 116).

Intriguingly, there appears to be less research on teachers' sense of personal responsibility for student outcomes (e.g., Lauermann 2014; Lauermann and Karabenick 2014). Research on pre-service teachers' (PTs) sense of personal

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responsibility is even more limited (e.g., Eren 2014, 2015; Lauermann and Karabenick 2013; Silverman 2010). However, examining PTs' sense of personal responsibility may inform current educational and curricular reforms that adopt 'test-based accountability' because, by gaining a deeper insight into the PTs' sense of personal responsibility, policy makers, teacher educators, and teacher education program developers better understand whether teachers are eager to adopt responsibility for diverse student outcomes (e.g., student achievement) at the initial phase of their teaching career (i.e., teacher education). Hence, the present study focuses on PTs' beliefs about the teaching profession (henceforth beliefs about teaching) and curriculum orientations as the potential associates of their sense of personal responsibility.

Although previous studies provide valuable insights into the roles of PTs' beliefs in their teaching practices, classroom behaviours, and interactions with and support for students, they do not provide evidence on how PTs' beliefs about teaching and curriculum orientations relate to their sense of personal responsibility. To investigate the roles of beliefs about teaching and curriculum orientations in PTs' sense of personal responsibility may shed light on the factors influencing PTs' willingness to adopt responsibility for the diverse and challenging aspects of the teaching profession. In turn, this may contribute to current curricular attempts targeting to increase teaching and teacher quality in terms of the premises of 'teacher accountability' (OECD 2011; World Bank 2013). It is not only necessary but also reasonable to examine the relationships between beliefs about teaching, curriculum orientations, and sense of personal responsibility for at least three reasons.

First, the effects of thoughts/beliefs on emotions have long been acknowledged in diverse appraisal theories of emotions (e.g., Lazarus 1991) which postulate that emotions are stimulated and differentiated on the basis of individuals' subjective evaluations of the personal significance regarding a situation, object, or event on numerous criteria (Scherer 1999). Accordingly, emotions and/or feelings arise from "how the individual believes the world to be, how events are believed to have come about, and what implications events are believed to have" (Frijda et al. 2000, p. 1). Although several studies suggest that emotions/feelings affect thoughts/beliefs (e.g., Frijda et al. 2000), recent studies favour the premises of appraisal theories (e.g., Clore and Ortony 2008; Moors 2013). Hence, in the present study, PTs' beliefs about teaching were determined as independent variables whereas the four aspects of their sense of personal responsibility were determined as outcome variables (see 'theoretical framework' section for conceptual explanations regarding the research variables).

Second, leaving alone similar teaching related beliefs (e.g., beliefs about teaching and curriculum orientations), even diverse beliefs (e.g., beliefs about physical reality and religious and/or political beliefs) may exist within the same belief system (Green 1971; Nespor 1987; Rokeach 1968). This means that it is reasonable to examine the roles of PTs' beliefs about teaching together with curriculum orientations in their sense of personal responsibility.

Third, previous studies also highlight the possibility that the relationships between PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility may not be straightforward (Eren 2014; Matteucci and Guglielmi 2014). Specifically, previous studies showed that the mediating effects of teaching related variables (e.g., career choice satisfaction, academic optimism) were notable in the relationships between teachers'/PTs' professional engagement and sense of personal responsibility. This indicates that the relationships between PTs' beliefs about teaching and sense of personal responsibility can be better explained by considering both direct and indirect effects of beliefs about teaching on their sense of personal responsibility through curriculum orientations.

Indeed, PTs' curriculum orientations would act as a filtration system through which their beliefs about teaching relate to their sense of personal responsibility. At this point, one may argue that the reverse would also be true. However, PTs' beliefs about teaching are mainly shaped by long-lived self-reflections that take place during the many years spent at school (Lortie 1975). Hence, these beliefs would be more distal predictors of PTs' sense of personal responsibility than curriculum orientations because, in contrast to beliefs about teaching, curriculum orientations are mostly formed during teacher education through pedagogical courses (e.g., teaching principles and methods) and practicum experiences (de Vries et al. 2015). Therefore, possible mediating roles of curriculum orientations in the relationships between beliefs about teaching and sense of personal responsibility were also examined in the current study.

Specifically, the present study aimed to examine the relationships between PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility, with the intention of exploring the possible mediating roles of curriculum orientations. In line with this aim, two research questions were formulated as follows: (1) Do PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility significantly relate to each other? (2) Do PTs' curriculum orientations play significant mediating roles in the relationships between their beliefs about teaching and sense of personal responsibility?

Theoretical framework

Beliefs about the teaching profession

PTs' beliefs about teaching can be described based on their beliefs about expertise, difficulty, social status, salary, and social dissuasion and examined as parts of a larger framework

entitled the Factors Influencing Teaching (FIT) Choice Framework (Watt and Richardson 2007). For example, Watt et al. (2012) examined the diversity in PTs' motivations and beliefs regarding the teaching profession based on culturally diverse samples. The results showed that PTs from Australia, Germany, and the United States similarly believed that teaching is a demanding profession and requires expert knowledge. Also, PTs reported that they were moderately encouraged to pursue careers other than teaching. However, PTs' beliefs about salary and social status significantly differed from each other across these samples. Specifically, PTs from the United States and Australia highly believed that the teaching profession has high social status, yet it is low paid; whereas PTs from Germany believed that the teaching profession has low social status, yet it is well paid. Similarly, Fokkens-Bruinsma and Canrinus (2012) demonstrated that, when compared to expertise and difficulty, Dutch PTs did not highly value the salary and social status of the teaching profession.

The results of studies conducted in Turkey were also in line with the results of the studies above. For example, Yüce et al. (2013) showed that extrinsic reasons such as working conditions as well as the social status of the teaching profession were among the most critical factors influencing Turkish language PTs' motivations for choosing teaching as a career. Eren and Tezel (2010) examined English language PTs' motivations for choosing the teaching profession and beliefs about teaching and found that PTs highly believed that teaching is demanding and requires expert knowledge, whereas they weakly believed that teaching is a well-paid profession. Also, PTs moderately believed that the teaching profession has a high social status and was less encouraged to pursue careers other than teaching. The results of these studies suggest that beliefs about expertise, difficulty, social status, salary, and social dissuasion can be considered as reliable indicators of PTs' beliefs about teaching. Therefore, in the present study, PTs' beliefs about teaching were examined based on their beliefs about expertise, difficulty, social status, salary, and social dissuasion.

Curriculum orientations

Curriculum orientations can be described as a collective set of beliefs about curriculum elements including goals and objectives, content, teaching strategies, and instructional assessment (Cheung and Wong 2002). In earlier studies, curriculum orientations were mostly theorised based on the links between philosophical notions and the design of a curriculum without considering the interplay among teachers'/PTs' curriculum orientations (e.g., Eisner and Vallance 1974). The multidimensional and interrelated nature of curriculum orientations have only recently been considered within a comprehensive framework.

Cheung and Wong (2002) defined five curriculum orientations: academic, cognitive process, social reconstruction, humanistic, and technological, which formed the theoretical basis of the scale that they developed to assess PTs' curriculum orientations (i.e., Curriculum Orientations Inventory-COI). Academic orientation emphasises that the main function of the curriculum is to develop rational thinking and inquiry skills of students. Cognitive process orientation highlights that the major function of the curriculum is to enhance student learning by fostering their cognitive skills. Social reconstruction orientation describes the curriculum as a vehicle to develop students' critical thinking and levels of attentiveness regarding social problems; whereas humanistic orientation emphasises that the main function of the curriculum is to improve personal liberation and growth among students. Technological orientation refers to systematic curriculum planning and underlines the importance of finding an efficient means to attain a set of predetermined learning objectives (Cheung and Ng 2000).

Using the COI, considerable research showed that teachers/PTs could adopt particular curriculum orientations. For example, Ng and Cheung (2002) examined the curriculum orientations of PTs enrolled in elementary school teaching programs in Hong Kong and found that PTs strongly favoured cognitive process orientation, and to a lesser extent technological orientation. Based on the samples of elementary and secondary public school teachers from the United States, Jenkins (2009) examined teachers' curriculum orientations. The results revealed that teachers valued an humanistic, cognitive process, behavioural, academic rationalism, and social reconstruction orientations respectively. Similarly, Bay et al. (2012) demonstrated that Turkish PTs mostly valued humanistic curriculum orientation. Relevant research also showed that PTs could almost equally adopt diverse curriculum orientations. For example, Eren (2010) examined the relationships between Turkish PTs' curriculum orientations and found that their curriculum orientations were positively and strongly associated with each other.

The results of the aforementioned studies indicate that academic, cognitive process, social reconstruction, humanistic, and technological orientations can be considered as reliable representations of PTs' beliefs about curriculum elements and are relevant to their beliefs about teaching as they capture both general (e.g., beliefs about the main aims of education) and specific beliefs about the teaching profession (e.g., beliefs about effective methods for student development). Hence, in the current study, academic, cognitive process, social reconstruction, humanistic, and technological orientations were adopted to examine PTs' curriculum orientations.

Teacher sense of personal responsibility

Personal responsibility refers to an individual's sense of commitment to produce or obstruct particular outcomes or that

they should have been produced or obstructed (Lauermann and Karabenick 2011). Relevant research showed that teachers'/PTs' sense of personal responsibility for student outcomes is contextual and domain-specific. For example, Diamond et al. (2004) demonstrated that teachers' sense of personal responsibility for student learning was higher in contexts where teachers perceived students as possessing greater learning resources.

Lauermann and Karabenick (2013) recently proposed a four-factor model to capture the domain-specific nature of teachers'/PTs' sense of personal responsibility. Specifically, based on the samples of PTs and teachers from the United States, they developed a Teacher Responsibility Scale (TRS) to assess teachers' and PTs' sense of personal responsibility for the diverse aspects of the teaching profession (i.e., responsibility for student motivation, student achievement, relationships with students, and for teaching). The results revealed that teachers' and PTs' sense of personal responsibility could be reliably defined through the four-factor structure of TRS.

The TRS was also used to examine Italian teachers' (Matteucci and Guglielmi 2014) and Turkish PTs' sense of personal responsibility (e.g., Eren 2014). Matteucci and Guglielmi (2014) demonstrated that Italian high school teachers' work engagement was significantly influenced by their sense of personal responsibility for student motivation and achievement, even when the significant effects of their career choice satisfaction and perceptions of positive school climate were controlled. Eren (2014) showed that the four aspects of Turkish PTs' sense of personal responsibility were significantly predicted by their emotions about teaching (e.g., enjoyment) both directly and indirectly through academic optimism and dispositional hope. The results of these studies indicate that teachers'/PTs' sense of personal responsibility can be reliably investigated based on the four factors of TRS. Therefore, in the current study, the TRS was used to examine the diverse aspects of PTs' sense of personal responsibility.

Method

In the present study, explanatory correlational design was adopted to examine the relationships between the research variables in an inductive manner. The explanatory correlational design is often used when there is little or no evidence for the relationships between the research variables (Creswell 2012; Fraenkel et al. 2012; Gay et al. 2014).

Participants and context

The present study was carried out based on a sample of PTs from Turkey. Specifically, a total of 743 PTs (544 female), majoring in English language teaching ($n = 107$), mathematics teaching ($n = 139$), science teaching ($n = 163$), social studies teaching ($n = 170$), and special education teaching ($n = 164$), were conveniently sampled from the faculty of education (approximately 3000 PTs) of a large university (approximately 30,000 undergraduate students) located in the North-West of the Black Sea region of Turkey. PTs ranged in age from 18 to 29 years, with an average of 21.20 (SD = 1.41). The sample consisted of 248 second-year, 242 third-year, and 253 fourth-year PTs. The current sample did not contain first-year PTs because, at the time of data collection, they had not taken pedagogical courses (e.g., Teaching Principles and Methods) which are fundamental to gain an insight into the concept of curriculum and its elements.

Since 2003, Turkey has been participating in international student assessment programs such as Programme for International Student Assessment (PISA) in order to track students' academic progress in terms of diverse learning domains such as reading and mathematics as well as to evaluate whether the current educational/curricular attempts are sufficiently effective to achieve educational/instructional objectives. Since that date, teachers have been held accountable for better student outcomes (e.g., higher student achievement).

There are ongoing political, legal, administrative, and professional regulations aiming to secure quality assurance and accountability within the Turkish education system. Specifically, current teacher accountability policies mostly relate to teacher evaluation and inspection processes that are planned and carried out by the inspectors of the Ministry of National Education (MoNE). In addition to administrative and financial activities, inspectors of the MoNE also investigate educational and instructional activities/processes that are carried out by teachers with the ultimate goal of increasing teaching and teacher quality (Eurydice 2018). Likewise, school principals monitor and evaluate each teacher at least once a school semester in order to identify teachers' educational/instructional problems and to enhance teaching quality by assisting teachers in solving these problems effectively. Recently, a comprehensive set of generic teacher competencies have been described by the MoNE (2017) in order to determine the standards of competent teachers. These competencies capture the diverse range of knowledge, skills, and attitudes, and are considered to be possessed by all teachers regardless of their fields of study and the level they teach. As such, they currently serve as the criteria for teacher selection, development, and evaluation (MoNE 2017).

Notably, similar to other country members of the OECD such as the United States, the United Kingdom, and the Netherlands (Patrick and Mantzicopoulos 2016; van der Lans et al. 2018), teacher evaluation is perceived by the policy makers in Turkey as a crucial attempt to ensure the quality of education and is placed at the heart of current teacher accountability policies which emphasise the importance of 'assigned responsibility'. Thus, the context of the present study is highly

relevant to examine the neglected value of 'felt responsibility' regarding the prominent concerns of the teaching profession such as teacher development and teaching quality.

Research instruments

Using the maximum likelihood method of estimation from AMOS 20 (Arbuckle 2011), a series of Confirmatory Factor Analyses (CFAs) were conducted to examine whether the factor structures of the research instruments would be confirmed in the current sample. The Comparative Fit Index (CFI ≥ .90), Tucker-Lewis Index (TLI ≥ .90), Root Mean Square Error of Approximation (RMSEA ≤ .08), and Standardised Root Mean Square Residual (SRMR ≤ .08) were used to examine the data fit (Brown 2015). Cronbach's coefficient alpha was also computed to assess the internal reliability of the research instruments. All items in the below-mentioned research instruments had already been translated into Turkish in previous research studies (Eren 2010, 2014; Eren and Tezel 2010).

The beliefs about teaching scale

The Beliefs about Teaching Scale (BATS; Watt and Richardson 2007) consists of five factors (i.e., expertise, difficulty, social status, salary, and social dissuasion) with a total of 17 items (see Appendix for sample items). PTs rated their responses on a seven-point Likert-type scale with response options ranging from 1 (not at all) to 7 (extremely). The results of the CFA revealed that the five-factor model with 17 items had good fit to the current data in terms of robust fit indices ($\chi^2(108) = 262.51$; CFI = .973; TLI = .966; RMSEA = .044; SRMR = .039). Alphas were computed as .82, .77, .89, .92, and .79 for expertise, difficulty, social status, salary, and social dissuasion subscales, respectively.

The curriculum orientations inventory

The COI (Cheung and Wong 2002) consists of five factors (i.e., academic, cognitive process, social reconstruction, humanistic, and technological) with a total of 30 items (see Appendix for sample items). PTs rated their responses on an eight-point Likert-type scale with response options ranging from 1 (strongly disagree) to 8 (strongly agree). The factor structure of the scale had acceptable fit to the current data ($\chi^2(389) = 1073.54$; CFI = .933; TLI = .925; RMSEA = .049; SRMR = .048). Internal reliabilities of the academic ($\alpha = .73$), cognitive process ($\alpha = .83$), social reconstruction ($\alpha = .82$), humanistic ($\alpha = .87$), and technological subscales ($\alpha = .85$) were also satisfactory.

The teacher responsibility scale

The TRS (Lauermann and Karabenick 2013) includes four factors (i.e., responsibility for student motivation, student achievement, relationships with students, and teaching) with a total of 13 items (see Appendix for sample items). The scale consists of 11 response options with possible scores ranging from 0 (not at all responsible) to 100 (completely responsible) in 10-point increments. The factor structure of the scale had good fit to the data ($\chi^2(58) = 253.21$; CFI = .970; TLI = .960; RMSEA = .067; SRMR = .043). Internal reliabilities of the student motivation ($\alpha = .82$), student achievement ($\alpha = .89$), relationships with students ($\alpha = .89$), and teaching subscales ($\alpha = .82$) were also satisfactory.

Procedure

A total of 850 questionnaires were distributed to PTs by the researchers during the spring semester of the 2014–15 academic year. Of those, 743 were returned (87% total return rate) and constituted the source of the current data. Specifically, the COI, BATS, and the TRS were applied respectively during one of the regular class hours and presented to the PTs with instructions concerning the aim of the study and a brief explanation about the research variables. Demographic variables were assessed by a self-report on the COI. The administration process lasted approximately 35 min. The present study was approved by the Institutional Review Board of the university where the present study was carried out.

Data analysis

Before addressing the research questions, the possible effects of demographic variables (i.e., gender, age -as a covariate-, fields of study, and year of study) on the BATS, COI, and TRS subscales were examined through multivariate (i.e., MANCOVA) and subsequent univariate (i.e., ANOVA) analyses. The results of MANCOVAs showed that the multivariate effects of year of study on the BATS, COI, and TRS subscales were non-significant (all p values ≥ .351 and all partial eta-square -η^2_p- coefficients ≤ .01). On the other hand, the results showed that the multivariate effects of gender on the BATS (Wilks' $\Lambda = .961$; $F(5, 704) = 5.78$, $p < .001$; $\eta^2_p = .04$) and COI subscales (Wilks' $\Lambda = .972$; $F(5, 704) = 4.10$, $p < .01$; $\eta^2_p = .03$) were significant. The multivariate effects of fields of study on the BATS (Wilks' $\Lambda = .944$; $F(20, 2335) = 2.04$, $p < .01$; $\eta^2_p = .01$), COI (Wilks' $\Lambda = .907$; $F(20, 2335) = 3.47$, $p < .001$; $\eta^2_p = .02$), and TRS subscales (Wilks' $\Lambda = .946$; $F(16, 2154) = 2.47$, $p < .01$; $\eta^2_p = .01$) were also significant.

The results of the follow-up ANOVAs demonstrated that the effects of gender on difficulty ($F(1, 708) = 12.58$, $p < .001$, $\eta^2_p = .02$) and social dissuasion ($F(1, 708) = 12.75$, $p < .001$, $\eta^2_p = .02$) subscales of the BATS, as well as the effects of

gender on cognitive process ($F(1, 708) = 4.54$, $p < .05$, $\eta^2_p = .01$), humanistic ($F(1, 708) = 15.54$, $p < .001$, $\eta^2_p = .02$), and technological ($F(1, 708) = 5.34$, $p < .05$, $\eta^2_p = .01$) subscales of the COI, were significant. The results also demonstrated that the effects of fields of study on salary ($F(4, 708) = 4.36$, $p < .01$, $\eta^2_p = .02$) subscale of the BATS and academic ($F(4, 708) = 4.53$, $p < .01$, $\eta^2_p = .03$) and social reconstruction ($F(4, 708) = 6.50$, $p < .001$, $\eta^2_p = .04$) subscales of the COI were significant. The effects of fields of study on student motivation ($F(4, 708) = 2.50$, $p < .05$, $\eta^2_p = .01$), relationships with students ($F(4, 708) = 5.11$, $p < .001$, $\eta^2_p = .01$), and teaching ($F(4, 708) = 6.06$, $p < .001$, $\eta^2_p = .03$) subscales of the TRS were also significant.

Given that the p values are more sensitive to sample size than the effect size measures such as η^2_p (Ferguson 2009), and also given that significant p values are likely to be found in large samples even when the effect size measures are negligible (Sullivan and Feinn 2012), the η^2_p values were considered in the present study in order to reliably evaluate the importance of the multivariate and univariate effects of gender and fields of study. Consequently, it was observed that, with η^2_p coefficients ranging from .01 to .04, the multivariate effects of gender and fields of study on the BATS, COI, and TRS subscales were negligible (e.g., $\eta^2_p < .06$, Richardson 2011). With η^2_p coefficients ranging from .01 to .03, the univariate effects of gender and fields of study on the BATS, COI, and TRS subscales were even more negligible than their multivariate effects. Thus, demographic variables were not included in the later analyses.

For the first research question, latent-factor correlations were computed to examine the relationships between the research variables. For the second research question, based on the results of correlation analysis, a structural model was created and tested by conducting the Structural Equation Modelling (SEM) analysis. This model served as a baseline model and encompassed only the variables that associate with each other at $p < .01$ level of significance because even small correlation coefficients can be significant at $p < .05$ level of significance in relatively large samples. Specifically, in the baseline model, beliefs about teaching (i.e., independent variables) were allowed to associate with the four aspects of personal responsibility (i.e., dependent variables) both directly and indirectly through curriculum orientations (i.e., mediator variables). Furthermore, in the baseline model, error variances of the mediator variables were allowed to correlate with each other in order to control possible interactions between the mediator variables (Hayes 2013). A model comparison analysis was also conducted to validate the importance of the mediating roles of curriculum orientations. The percentile bootstrap method (95% CI; 5000 bootstrap samples) was used in the correlation and SEM analyses in order to reduce the Type I error rates and to control for the possible distributional violations (Nevitt and Hancock 2001).

Results

Latent-factor correlations

Expertise was moderately related to curriculum orientations, whereas it was weakly related to the four aspects of personal responsibility. The relationships between difficulty and curriculum orientations were significant, albeit weak, whereas the relationships between difficulty and the four aspects of personal responsibility were non-significant. Social status was positively and weakly related to academic orientation whereas the relationship between social status and responsibility for relationships with students was negative and weak. The relationships between social status and other subscales of the COI and TRS were trivial (Table 1).

The relationships between salary, humanistic orientation, responsibility for relationships with students, and responsibility for teaching were negative and quite weak ($r < .20$). No other significant relationships between salary and subscales of the COI and TRS were observed. Similarly, the relationships between social dissuasion and subscales of the COI and TRS were non-significant. With the exceptions of the relationships between responsibility for relationships with students, humanistic orientation, and cognitive orientation, the relationships between curriculum orientations and the four aspects of personal responsibility were significant, albeit weak ($r < .25$).

Structural equation modelling analyses

A structural model was created based on the results of correlation analysis. As mentioned in the data analysis section, this model served as a baseline model. Specifically, the baseline model includes the mediator variables that associate with independent and dependent variables at $p < .01$ level of significance because recent research on mediation analysis suggests that the relationship between predictor variable and mediator variable, as well as the relationship between mediator variable and outcome variable, is more important than the relationship between predictor and outcome variable (see, for example, MacKinnon et al. 2007).

Thus, significant relationships between the subscales of the BATS, COI, and TRS were examined in the baseline model in order to demonstrate the mediation accurately (Table 2). The results of the SEM analysis revealed that the baseline model had acceptable fit to the data ($\chi^2(1072) = 2487.98$; CFI = .924; TLI = .917; RMSEA = .042; SRMR = .076).

Expertise significantly and positively predicted the COI subscales. Expertise also significantly predicted responsibility for student motivation, student achievement, and teaching. The effects of difficulty on the cognitive process, social reconstruction, and humanistic curriculum orientations were also significant. Social reconstruction orientation predicted responsibility for student achievement, whereas humanistic

Table 1 Descriptive statistics and latent-factor correlations

Variable	M	SD	Range	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Expertise	17.48	2.77	13	−.62	.01	–													
2. Difficulty	17.11	3.42	18	−1.02	1.00	.33**	–												
3. Social status	24.33	8.30	36	−.06	−.54	.17**	−.03	–											
4. Salary	5.94	2.98	12	.53	−.29	.00	−.11*	.46**	–										
5. Social dissuasion	12.35	4.94	18	−.04	−.94	.06	.06	.03	.06	–									
6. Academic	39.03	6.10	40	−1.02	2.17	.34**	.18**	.12*	.02	−.05	–								
7. Cognitive process	41.22	5.82	42	−1.81	6.38	.29**	.22**	−.01	−.07	−.06	.86**	–							
8. Social reconstruction	38.34	6.60	39	−.74	.95	.34**	.29**	.06	.02	.02	.56**	.60**	–						
9. Humanistic	41.93	6.16	42	−1.92	6.26	.34**	.27**	−.06	−.10*	−.02	.68**	.79**	.66**	–					
10. Technological	40.08	6.43	40	−1.41	3.38	.35**	.23**	.06	−.03	−.02	.66**	.71**	.63**	.84**	–				
11. Student motivation	199.14	63.95	300	−.45	−.22	.17**	.07	.04	−.07	.09	.15**	.19**	.12**	.20**	.19**	–			
12.Student achievement	274.09	78.64	400	−.47	−.02	.20**	.03	−.01	−.03	.03	.17**	.19**	.19**	.21**	.19**	.72**	–		
13. Relationships with students	241.41	61.80	300	−1.23	1.18	.14**	.06	−.13**	−.19**	−.05	.24**	.27**	.14**	.29**	.22**	.52**	.61**	–	
14. Teaching	218.78	60.93	300	−.85	.49	.19**	.07	−.04	−.12*	.02	.16**	.20**	.14**	.22**	.20**	.59**	.68**	.82**	–

Skewness coefficients of all the research variables are acceptable as they are smaller than ±1.96. With four exceptions (i.e., academic, cognitive, humanistic, and technological orientations), kurtosis coefficients of the research variables are also acceptable as they are smaller than ±2.00. The results regarding the high kurtosis coefficients advocate that it is appropriate to use the percentile bootstrap method in order to control for the distributional violations (Nevitt and Hancock 2001)

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

orientation predicted responsibility for relationships with students (Table 2).

A final model was created based on the results of the SEM analysis regarding the baseline model. Non-significant relationships that were observed in the baseline model were omitted from the final model for the sake of clarity and simplicity (Fig. 1). The final model had good fit to the data ($\chi^2(262) = 552.41$; CFI = .967; TLI = .962; RMSEA = .039; SRMR = .037).

Specifically, expertise predicted responsibility for student achievement both directly and indirectly through social reconstruction orientation; whereas difficulty predicted responsibility for student achievement only indirectly through social reconstruction orientation (Table 3). Expertise and difficulty predicted responsibility for relationships with students indirectly through humanistic orientation. Notably, the results showed that the upper and lower bounds of the indirect effects of expertise and difficulty were not equal to zero (Table 3), indicating that the mediated effects of expertise and difficulty cannot be interpreted as statistical artefacts. Notably, the results of model comparison analysis demonstrated that the final model had slightly, yet significantly, better fit to the data than the alternative model in which the mediated effects of beliefs about teaching were set to zero ($\chi^2(264) = 677.68$; CFI=. 953; TLI = .962; RMSEA = .046; SRMR = .092; $\Delta\chi^2(\Delta df = 2) = 125.27$, $p < .001$; ΔCFI = .014). These results further support the mediating roles of social reconstruction and humanistic curriculum orientations.

Discussion

Associations between the research variables

The results of correlation analysis revealed that beliefs about expertise, and to a lesser extent, beliefs about difficulty were positively and significantly related to curriculum orientations. Given that to adopt curriculum orientations more or less requires PTs to have awareness regarding the demanding and challenging aspects of the teaching profession (Cheung and Wong 2002; Eisner 2002), it can be understood why PTs' beliefs about expertise and difficulty were significantly related to their curriculum orientations. On the other hand, relatively weak relationships between beliefs about the difficulty and the five aspects of curriculum orientations can be explained by the fact that PTs currently lack actual teaching experiences on the basis of which they evaluate the difficulty of the teaching profession in a realistic manner. Following the same line of reasoning, weak relationships between curriculum orientations, social status, salary, and social dissuasion can be also understood because the contents of curriculum orientations are less relevant to the contents of these beliefs in comparison

Table 2 Summary of the structural equation modelling analysis regarding the baseline model

Predictor variable	Predicted variable	B[a]	β[b]	S.E.[c]
Expertise	Academic	.32	.35**	.07
	Cognitive process	.33	.31**	.07
	Social reconstruction	.30	.31**	.06
	Humanistic	.40	.33**	.07
	Technological	.43	.34**	.07
	Student motivation	3.75	.14*	.06
	Student achievement	3.39	.14*	.06
	Relationships with students	1.13	.05	.06
	Teaching	3.76	.15*	.06
Difficulty	Academic	.08	.10	.08
	Cognitive process	.16	.17*	.08
	Social reconstruction	.18	.21*	.06
	Humanistic	.20	.18*	.07
	Technological	.16	.14	.08
Academic	Student motivation	−3.58	−.12	.14
	Student achievement	−1.61	−.06	.13
	Relationships with students	2.50	.09	.14
	Teaching	−2.23	−.08	.13
Cognitive process	Student motivation	5.20	.21	.16
	Student achievement	2.20	.10	.15
	Relationships with students	1.46	.06	.16
	Teaching	3.18	.13	.15
Social reconstruction	Student motivation	−1.11	−.04	.07
	Student achievement	2.37	.10*	.05
	Relationships with students	−2.45	−.09	.06
	Teaching	−.36	−.01	.06
Humanistic	Student motivation	−.94	−.04	.17
	Student achievement	.98	−.05	.17
	Relationships with students	7.01	.34*	.17
	Teaching	1.29	.06	.16
Technological	Student motivation	1.52	.07	.13
	Student achievement	−.35	−.10	.12
	Relationships with students	−2.56	−.13	.11
	Teaching	.80	.04	.12

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

[a] Unstandardised parameter estimation

[b] Standardised parameter estimation

[c] Bootstrap standard error

to beliefs about expertise and difficulty (Cheung and Wong 2002; Watt and Richardson 2007).

In addition, the results of correlation analysis revealed that the relationships between beliefs about teaching and the four aspects of personal responsibility were less noticeable than the relationships between beliefs about teaching and curriculum orientations. This was particularly true for the relationships between beliefs about the difficulty and the four aspects of personal responsibility. This result can be explained by the fact that beliefs about teaching are conceptually more similar to the curriculum orientations than to the four aspects of personal responsibility (Lauermann and Karabenick 2013). The results also showed that social status was negatively related to responsibility for relationships with students. The same was also true for the relationships between salary, responsibility for relationships with student, and responsibility for teaching. Although poorly paid, teaching is a highly appreciated profession in Turkey, when compared to other European countries and the United States (Dolton and Marcenaro-Gutierrez 2013). Moreover, in Turkey, teaching is mostly perceived as a sacred profession that requires self-sacrifice and teachers are appreciated as crucial role models for students (Taneri et al. 2014). The latter aspect highlights the importance of establishing strong relationships with students in school and classroom settings in which students mostly expect teachers to outline paths to follow (Hofstede 1986). Hence, it can be understood why PTs are more likely to adopt responsibility for relationships with students and teaching even when they believe that teaching is not well-respected and well-paid. Nevertheless, given the weak relationships between the mentioned research variables, it is worthwhile saying that these explanations require further investigations.

The results of correlation analysis also demonstrated that curriculum orientations were weakly, yet significantly related to the four aspects of personal responsibility. As a whole, curriculum orientations refer to teachers'/PTs' perceptions of curriculum and classroom practices. In addition, the underlying values and beliefs of each curriculum orientation do not only influence what is taught but also influence how and why it is taught (Cheung and Wong 2002; Eisner 2002). Considering that such values and beliefs are not isolated from teachers'/PTs' feelings and/or emotions (Hargreaves 1998; Zembylas 2011), the significant relationships between PTs' curriculum orientations and sense of personal responsibility can be understood. Likewise, recent cognitive psychological research provides evidence that beliefs, feelings and/or emotions are strongly linked to each other (e.g., Hannula et al. 2004). Moreover, these links have important implications for teachers' professional efforts to promote effective teaching and learning (e.g., Neophytou et al. 2011).

These explanations may also shed light on the substantial relationships between responsibility for relationships with students, humanistic orientation, and cognitive orientation. Specifically, when compared to other curriculum orientations, humanistic and cognitive orientations require teachers/PTs to adopt more of a learner-centred perspective (Eisner 2002). In turn, this may encourage PTs to take more responsibility for relationships with students to establish positive relationships which are highly central to learner-centred activities/perspectives.

The mediating roles of curriculum orientations

The results of the SEM analysis regarding the baseline model supported the significant relationships between beliefs about teaching, curriculum orientations, and the four aspects of personal responsibility. This indicates that the significant relationships between the research variables are not coincidental at all, and can be well interpreted in the light of the aforementioned explanations. Nevertheless, a small number of notable differences were also observed between the results of correlation analysis and the results of the SEM analysis regarding the baseline model. For example, the significant relationship between beliefs about expertise and responsibility for relationships with students, as well as the significant relationships between the four aspects of personal responsibility, academic, cognitive process, and technological orientations, were not more significant in the SEM analysis. This result can be explained by the mediating effects of curriculum orientations on the links between beliefs about teaching and sense of personal responsibility. Complex mediational designs through which the effects of one or more independent variables on the dependent variable(s) are examined may provide more sophisticated and reliable results regarding the relationships between the research variables. Moreover, in complex mediational designs, the effects of independent and/or mediator variables that have little predictive value can be cancelled or at least weakened by the effects of variables that have more predictive value (MacKinnon 2008).

Likewise, the results of the SEM analysis showed that the final model, in which both direct and indirect effects of beliefs about expertise and difficulty on responsibility for student achievement and relationships with students were examined by considering the mediating effects of social construction and humanistic curriculum orientations, had fit to the data better than the baseline model. Specifically, the results revealed that the relationship between expertise and sense of personal responsibility for student achievement was partially mediated by social reconstruction orientation; whereas the relationship between expertise and sense of personal responsibility for relationships with students was fully mediated by humanistic orientation.

First of all, these results indicate that PTs are more willing to take responsibility for student achievement when they believe that both teachers need highly specialised knowledge and societal problems (e.g., pollution, population explosion) should be the organising centre of the curriculum. This can be explained by the fact that PTs take many pedagogical courses and field-related courses encompassing a large body of theoretical and technical knowledge regarding the diverse aspects of the teaching profession (e.g., curriculum development) and education (e.g., societal contributions of education) during the teacher education process. Such comprehensive knowledge may reinforce PTs' beliefs about expertise (e.g., the teaching profession requires expert knowledge). These, in turn, may encourage PTs to envision 'student achievement' based on a larger framework in which taking responsibility for student achievement does not only mean to increase students' course achievement but also means to develop students' authentic societal problem-solving skills. Subsequently, this may motivate PTs to adopt more responsibility for student achievement.

Second, the results also signify that PTs are more willing to take responsibility for relationships with students when they believe that students' needs and interests should be the organising centre of the curriculum, even they recognise the fact that teaching requires high levels of expert knowledge. Indeed, this result was not unexpected at all for two reasons. Primarily, to establish positive relationships with students is highly relevant to humanistic curriculum orientation which emphasises that students' needs and interests should be the organising centre of the curriculum (Cheung and Wong 2002; Ng and Cheung 2002). Secondarily, to adopt such kind of learner-centred curriculum orientations more or less requires PTs to be aware of the fact that teachers need highly specialised knowledge and experience to implement learner-centred practices in the classroom (Moore 2014).

The explanations above also provide a solid basis to explain why difficulty was not directly, but only indirectly

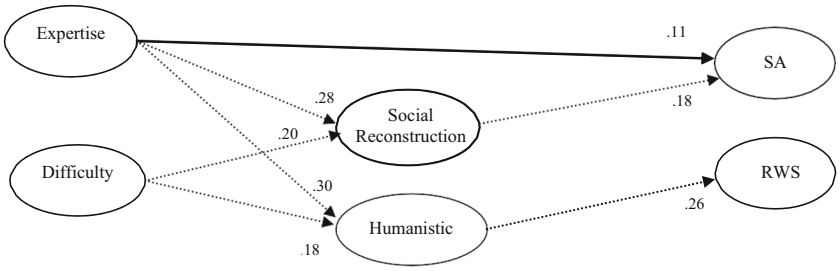

Fig. 1 The Final model. *Note*: SA: Responsibility for student achievement; RWS: Responsibility for relationships with students. Parameter estimations are standardised values. The solid line indicates the unmediated effect whereas dashed lines indicate the mediated effects. All parameter estimations are at least significant at $p < .05$ level of significance. Bootstrap standard errors of the parameter estimations range in magnitude from .04 to .06

related to responsibility for student achievement and relationships with students through social reconstruction and humanistic orientations, respectively. To adopt responsibility for the challenging aspects of the teaching profession (e.g., responsibility for student achievement and relationships with students) requires PTs to recognise that teaching is both hard work and emotionally demanding (Watt and Richardson 2007). It also requires PTs to recognise that they should select appropriate curriculum contents and teaching activities in order to fulfil the type of responsibility they are willing to adopt. Hence, the roles of curriculum orientations can be more prominent than the roles of beliefs about teaching in clarifying the boundaries of PTs' sense of personal responsibility because both curriculum orientations and sense of personal responsibility include specific and challenging aspects of the teaching profession.

On the other hand, the results also demonstrated that the mentioned roles of curriculum orientations were not valid for academic, cognitive process, and technological orientations. This result could be expected because the present sample consisted of PTs who lacked actual teaching experiences and, thus, had not had any interaction with students as teachers. This may lead PTs to considering curriculum orientations through the eyes of a student rather than the eyes of a teacher, which, in turn, may highlight the roles of curriculum orientations that have less emphasis on technical/academic details, but have more emphasis on 'student' both as a member of the society and as a person.

Implications for teacher education

Relevant literature suggests that curriculum orientations are highly influential in understanding teachers' professional intentions and classroom practices, indicating that to focus exclusively on teaching practices will not be effective unless teachers' beliefs about teaching and curriculum orientations are understood comprehensively (Eisner 2002; Cheung and Wong 2002). Thus, the present study significantly contributes to the current literature by demonstrating that PTs' beliefs about expertise and difficulty are significantly and positively related to their curriculum orientations. This indicates that teachers' curriculum orientations should be taken into account together with their beliefs about teaching, particularly together with their beliefs about expertise and difficulty, in order to develop a greater insight in relation to teachers' professional intentions and practices at the initial phase of their teaching career (i.e., teacher education). It is obvious that such greater insight may allow policy makers and teacher educators to uncover the factors underlying teachers' professional intentions and classroom practices more accurately and comprehensively.

Additionally, the results of the current study also revealed that the relationships between PTs' curriculum orientations and sense of personal responsibility were more obvious than the relationships between beliefs about teaching and sense of personal responsibility. Thus, the results of the present study may inform current educational and curricular reforms that assume 'teacher accountability' as an important attempt to affect student outcomes positively by providing a comprehensive framework in which the roles of curriculum orientations in teachers' sense of personal responsibility for the diverse student outcomes (e.g., student achievement) are discernible.

Finally, and most importantly, the current results also revealed that PTs were more willing to adopt responsibility for student achievement and relationships with students when they held social reconstruction and humanistic curriculum orientations, even they believed that both effortful and challenging processes were required to implement these curriculum orientations in school and classroom settings. Thus, teacher educators and teacher education program developers should find effective ways to improve PTs' awareness regarding the mentioned links between beliefs about teaching, curriculum orientations, and sense of personal responsibility. By doing so, teacher educators and teacher education program developers may encourage PTs to autonomously question the role of their sense of personal responsibility for student achievement and relationships with students, for example, in the quality of student learning. In turn, this may intrinsically motivate PTs to adopt responsibility for student outcomes in their future teaching because of the autonomous and self-oriented nature of this questioning process (Ryan and Deci 2000, 2006).

Table 3 The direct and indirect effects of the expertise and difficulty

Predictor variable	Predicted variable	Total[a]	Direct[b]	Indirect[c]
Expertise	Social reconstruction	.28 [.21/.37]**	.28 [.21/.37]**	–
	Humanistic	.30 [.20/.39]**	.30 [.20/.39]**	–
	Student achievement	.16 [.10/.23]**	.11 [.05/.18]*	.05 [.03/.09]**
	Relationships with students	.08 [.04/.12]**	–	.08 [.04/.12]**
Difficulty	Social reconstruction	.20 [.10/.28]**	.20 [.10/.28]**	–
	Humanistic	.18 [.08/.28]**	.18 [.08/.28]**	–
	Student achievement	.04 [.02/.06]**	–	.04 [.02/.06]**
	Relationships with students	.05 [.02/.08]**	–	.05 [.02/.08]**

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

[a] The total effect

[b] The unmediated effect

[c] The mediated effect. The coefficients in brackets represent lower (before the slash) and upper (after the slash) bounds of the standardised effects

One of the reasonable ways to improve the mentioned awareness is to provide an autonomy-supportive learning environment in which PTs can find valuable opportunities to reflect on their past experiences and teaching related future practices in order to recognise the links between their beliefs about teaching, curriculum orientations, and sense of personal responsibility. For example, teacher educators could develop reflective experiences in which PTs are exposed to different curriculum orientations and asked to reflect on the benefits and challenges of them, which, in turn, bridge theory and practice for PTs in a concrete way.[1] Likewise, engaging in reflective practice through effective tools such as peer-videoing has been shown to help PTs to make connections between their past experiences, current learning activities, and possible future actions (Harford and MacRuairc 2008). Practicum processes, during which PTs are supported and guided effectively (Smith and Ingersoll 2004), may also be beneficial to influence PTs' beliefs about teaching and curriculum orientations. Subsequently, these may affect PTs' sense of personal responsibility because, during these kinds of practicum processes, they may find opportunities to experience how they can establish relationships with students and how they can cope with the challenging aspects of the teaching profession effectively.

Limitations and directions for further studies

This study has several limitations. First, the sample consisted of PTs from English language, mathematics, science, special education, and social studies teacher education programs. Therefore, further studies should include other teaching domains such as music teaching and preschool teaching in order to broaden the current understanding regarding the current topic.

Second, the correlational design of the study prohibits causal interpretations regarding the relationships between the research variables. Given that teachers'/PTs' beliefs are more or less stable and resistant to change (Kagan 1992), longitudinal studies, in which the relationships between PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility are investigated over a long period, may allow researchers to interpret the relationships between the research variables in a causative manner.

Third, in the present study, possible roles of PTs' motivations for teaching in their sense of personal responsibility were not examined. However, PTs' motivations for teaching would significantly relate to their sense of personal responsibility given the potential links between the diverse aspects of teacher motivation and personal responsibility (Lauermann 2017). Thus, in further studies, PTs' motivations for teaching should be examined together with their beliefs about teaching in order to examine whether the roles of PTs' beliefs about teaching and curriculum orientations in their sense of personal responsibility are more evident than the possible roles of their motivations for teaching.

Finally, the present results may be peculiar to the cultural characteristics of the sample because beliefs about teaching, curriculum orientations, and sense of personal responsibility are socially constructed and situated within a particular culture. Hence, cross-cultural studies are needed to investigate possible cultural influences on PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility.

Conclusions

Three major conclusions can be derived from the results of this study. First, PTs' beliefs about expertise and difficulty were significantly and selectively related to their curriculum orientations. Second, the relationships between PTs'

[1] The authors thank one of the anonymous reviewers for this comment.

curriculum orientations and sense of personal responsibility were more evident than the relationships between their beliefs about teaching and sense of personal responsibility. Third, PTs' humanistic and social reconstruction curriculum orientations played significant mediating roles in the relationships between their beliefs about teaching (i.e., expertise and difficulty) and sense of personal responsibility for student achievement and relationships with students.

Overall, the results suggest that PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility for their students and for their own teaching should be examined based on the links between beliefs about expertise, difficulty, and sense of personal responsibility for student achievement and relationships with students by considering the mediating roles of social reconstruction and humanistic orientations. Given that teachers are assumed to be responsible for student outcomes and expected to adhere strictly to proposed/national curriculum during teaching (Schiro 2013), the current results are highly important to urge policy makers to consider the relationships between PTs' beliefs about teaching, curriculum orientations, and sense of personal responsibility. Such consideration is particularly important in an era of high-stakes accountability because the changing roles of teachers (Valli and Buese 2007) require policy makers to evaluate teacher effectiveness more comprehensively and accurately than ever.

Appendix

Sample items of the BATS

Expertise (three items)

Do you think teaching requires high levels of expert knowledge?

Difficulty (three items)

Do you think teachers have a heavy workload?

Social status (six items)

Do you believe teaching is perceived as a high-status occupation?

Salary (two items)

Do you think teaching is well paid?

Social dissuasion (three items)

Were you encouraged to pursue careers other than teaching?

Sample items of the COI

Academic orientation (six items)

Curriculum should stress refinement of students' intellectual abilities

Cognitive process orientation (six items)

Curriculum should require teachers to teach thinking skills systematically

Social reconstruction orientation (six items)

Curriculum should let students understand societal problems and take action to establish a new society

Humanistic orientation (six items)

Students' interests and needs should be the organising centre of curriculum

Technological orientation (six items)

Curriculum design should start with stating learning objectives)

Sample items of the TRS

Responsibility for student motivation (three items)

I would feel personally responsible if a student of mine was not interested in the subject I teach

Responsibility for student achievement (four items)

I would feel personally responsible if a student of mine failed my class

Responsibility for relationships with students (three items)

I would feel personally responsible if a student of mine did not believe that I truly cared about him/her

Responsibility for teaching (three items)

I would feel personally responsible if a lesson I taught failed to reflect my highest ability as a teacher

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