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Are pre-service teachers' beliefs toward curricular outcomes challenged by teaching methods modules and school placement? Evidence from three Greek physical education faculties

Abstract

Current research on physical education teacher education (PETE) has shown that pre-service teachers' beliefs concerning the scope of physical education (PE) remain highly influential during their studies. However, undergraduate programs seem to have a limited effect on pre-service teachers' teaching priorities, and this situation is left unchallenged. Therefore, the aim of the present study was to examine the impact of two PE methods modules, which included school placement experiences, over one academic year, on pre-service PE teachers' belief systems towards four important curricular outcomes. A total of 373 undergraduate pre-service teachers (238 males, 135 females; M = 21.02, SD = 2.33 years) from three major Greek Faculties of PE and Sport Science twice completed a previously validated four factor instrument. The results indicated that pre-service teachers shared some similar beliefs about the outcome goals of PE, as they all classified physical activity and fitness as the most important one. The methods modules had a positive impact on their beliefs, which were reinforced; however, their classification did not change over time. Both teaching- and coaching-oriented pre-service teachers classified the curricular outcomes in an identical way. Data suggested that PETE recruits' prioritized the fitness learning outcomes and this was in alignment with utilitarian approaches proposed recently in PE, which forward measurable PE learning outcomes. Also, participants preferred to hold and reinforce their personal beliefs structures and were not willing to change them, complying with faculty staff dispositions. Implications of these findings and recommendations for more effective school placement experiences are discussed.

Keywords

Students' beliefs, PETE, teaching-coaching, field-based experiences, physical education, practicum, methods course

Introduction

Previous research on physical education teacher education (PETE) has shown that pre-service teachers' beliefs concerning the scope and outcomes of physical education (PE) remain highly influential during their studies (Lortie, 1975; Ní Chróinín and O' Sullivan, 2014). As complex cognitive and affective structures, beliefs of this kind develop in a stable and engaging manner during years of "apprenticeship of observation" of PE teaching, both as a school subject and as a career opportunity (Lortie, 1975; Richards, 2015). Life experiences as well as formal knowledge related to PE have been reported as major sources influencing the formation of educational beliefs and determining the strength of the personal theory and practice relationship (Richardson, 2003). Context specific socio-cultural (Wang and Koh, 2006; Xiang et al., 2002) and economic factors (Gillespie, 2013; Korthagen, 2016), set the frame for the adoption of beliefs leading to educational practice, and determine the strategies that novices will employ for achieving curricular outcomes (Richards et al., 2014).

Even though during their studies PETE recruits are enculturated into a series of norms and ideologies that may contradict their own espoused intentions, literature in this field suggests that changes in their PE outcome focus usually do not have a developmental impact and may occur only in the short term (Adamakis and Zounhia, 2016; Hyndman, 2014). Such changes concern shifts from the sport discourse to issues of equality and social awareness (Ní Chróinín and Coulter, 2012; Lee, 2015), assimilation of student-centered methods (Matanin and Collier, 2003), adoption of alternative pedagogical content knowledge behaviors (Sinelnikov et al., 2016), learning to perceive social and political contradictions, and take action against any

oppressive elements (*raise in critical consciousness*; Philpot, 2016), and shifts to pupil-focused empathy during the design of PE teaching (Valtonen et al., 2014).

Overall, PETE novices believe that motor, cognitive, and socio-affective learning outcomes should almost equally be pursued so that learners' quality of living can adequately be supported (Adamakis and Zounhia, 2013, 2016; Kulinna et al., 2010; Tsangaridou, 2008). However, the reported hierarchical nature of beliefs about motor skill and health-related PE outcomes suggests that PETE students hold content-focused perspectives when teaching is realized in practice (e.g. strategies, methods, interactions, assessment) (Kulinna and Silverman, 2000).

As a result, the already dominant status quo of traditional PE teaching methodologies is empowered, and a "wash-out" effect of innovative teaching approaches learned at the university is experienced by the majority of PE recruits (Stroot and Ko, 2006). As suggested by Bronikowski (2011), traditional teaching methodologies are based mainly on reducing teaching content into sub-sets of discrete skills and areas of knowledge. They are teacher-centered, based on repetitive drill and practice and are basically associated with the building up of a large repertoire of competences related to functional aspects of students' life (e.g. the skill theme approach). On the other hand, innovative or modern teaching methodologies are more student-centered, engage students in a meaningful interaction with the subject matter, and focus on broadening their horizons and ways of thinking (e.g. game-based approaches for teaching sports). Within such methodologies, skills and knowledge are taught in a contextually relevant manner, an approach that helps learners to stay motivated (Bronikowski, 2011). This situation seems to be more evident for coaching-oriented PETEs, who prioritize a coaching career over a PE career (Adamakis and Zounhia, 2016; Stran and Curtner-Smith,

2009; Templin and Richards, 2014) and thus pursue careers in sport through their PE studies (Richards and Templin, 2012). According to Curtner-Smith et al. (2008, 99) coaching-oriented students remain “highly focused on coaching extracurricular sports and view teaching PE as a career contingency”.

On the other hand, recruits with a teaching orientation seem more willing to espouse alternative structures (Templin and Richards, 2014) and reflect on the value-laden nature of their teaching and curriculum goals (Burrows, 2009; Sofo and Curtner-Smith, 2010; Templin and Richards, 2014). However, such dispositions may be easily washed out in favor of peer or institutional pressures, which tend to facilitate studentship behaviors in order to reach graduation easily and effortless (Richards et al., 2014).

Indeed, the occupational status quo and the expectations associated with it may create a “role strain”, especially for those individuals who aspire to the teacher/coach duality of duties and responsibilities (Richards and Templin, 2012). Teaching and coaching require different characteristics and abilities in terms of curriculum planning, time allocation and class management, making the distribution of energy and effort a demanding endeavour, especially for novice PE teachers (Richards and Templin, 2012; Schempp, 1989).

Previous studies support that early acculturation and professional experiences affect the priorities set by PETE students in terms of choosing between teaching or coaching careers (Richards, 2015; Templin and Richards, 2014). Thus, for many years now, sport pedagogy researchers have employed various theoretical models and frameworks to interpret the way student teachers interact with PETE program structures and set their own values and beliefs (Curtner-Smith, 2001; Ennis and Chen, 1993). One of the models is the value orientations theory, proposed by Ennis

and Hopper (1988, 1990), in which Ennis (2003) has identified value orientations in PE as: (a) disciplinary mastery; (b) learning process; (c) self-actualization; (d) social responsibility; and (e) ecological integration. Despite the differences in the methodological designs of this line of research, the general conclusion remains the same: PETE programs have a limited effect on students' teaching priorities, and this situation is left unchallenged.

Experienced as a dialectical relationship between individual norms and social structures, PETE students' beliefs towards curriculum outcomes is an issue that has to be studied longitudinally, before claims are made about the quality or effectiveness of PETE programs (Ferry, 2018; Richards et al., 2014). Belief resistance to change may depend on contextual and/or regional influences, which novices come across during the years of interaction with instructors, curricula and fellow students. Such interactions may also vary on stages and is usually experienced as a reality shock, especially during PETE students' transition to the school setting, since they have to put in practice their subjective theories, while "buying into" the content of their university curriculum (Richards et al., 2014).

In relation to the stages mentioned above, these constitute an integral part of the occupational socialization theory, which "includes all the kinds of socialization that initially influence persons to enter the field of physical education and that later are responsible for their perceptions and actions as teacher educators and teachers" (Lawson, 1986, 107). According to this theory,[1] PE recruits undergo three socialization stages:

a) Acculturation, or developing initial impressions of PE (Richards et al., 2019). This stage involves prospective PE teachers' influences prior to initial entrance into PETE

[1] Richards et al. (2019) present an extensive scoping review regarding the occupational socialization theory.

programs, and mainly involves apprenticeship of observation (Lortie, 1975), recruitment into PE and the subjective warrants (Richards et al., 2014).

b) Professional socialization, or moving recruits past initial subjective theories (Richards et al., 2019). Following the acculturation stage, the professional socialization stage begins when a recruit enters a PETE program in a university setting (Lawson, 1983). This stage helps to prepare recruits with the knowledge, skills, attitudes and beliefs that a particular group of PETE faculty believes are important for their future career in PE (Lawson, 1986). Research indicates that PETE programmes are generally the weakest form of socialization experienced by PE teachers, mainly because recruits enter PETE with well-shaped pre-existing ideas and beliefs about what these programs should offer based on subjective theories developed during acculturation (Graber et al., 2017).

c) Organizational socialization, or finding one's way in the social milieu of schools (Richards et al., 2019). In general, this stage refers to the influence of the workplace. Schools act as the primary socializing agents, attempting to induct and conform new members to the school's culture (Templin and Schempp, 1989). Teachers progress through a number of career phases, beginning with induction (the process of transitioning into the culture of the teaching profession and context in which one is teaching) and ending with career termination. During this stage, a number of themes explored in the international literature exist (i.e. the influence of biography and school culture, teacher knowledge and continuous professional development, marginalization and burnout) (Richards et al., 2019).

PE teachers' beliefs are developed during the three stages of the occupational socialization theory described above. Furinghetti and Pehkonen (2000, 8-9) have described the function of beliefs in the following way; "(a) Beliefs form a

background system regulating our perception, thinking and actions; and therefore, (b) beliefs act as indicators for teaching and learning. Moreover, (c) beliefs can be seen as an inertial force that may work against change, and as a consequence, (d) beliefs have a forecasting character". Lerman (2001) has identified two major strands of research concerning beliefs: analysis and classification of beliefs, and monitoring changes in beliefs over time.

Longitudinal studies that attempt to track changes in PETE students' beliefs towards curricular outcomes are limited (i.e. Matanin and Collier, 2003; Tsangaridou, 2008; Xiang et al., 2002). Matanin and Collier (2003) reported that pre-service teachers selectively assimilated program messages into their beliefs about certain aspects of teaching PE (i.e. content and teaching effectiveness) and rejected other messages. Indeed, PETE programs may influence students' beliefs in certain areas, and one of the most important elements of these programs for enhancing beliefs toward teaching PE is field-based PE teaching methods courses and teaching experiences (Tsangaridou, 2008; Xiang et al., 2002).

Most of the previously mentioned studies on teachers' belief systems (i.e. Tsangaridou, 2008; Xiang et al., 2002) were carried out in pre-service elementary teachers and not PE specialist teachers, while the participants were recruited in the same undergraduate program. Considering this, there is a gap in the international literature regarding quantitative longitudinal studies of pre-service PE teachers' belief systems toward curricular outcomes and how different PETE programs impact them. As Xiang et al. (2002, 158) stated, "studies that expand the sample populations and institutions are recommended". At the same time, there is a lack of empirical data concerning the examination of factors that may act as barriers or determinants of

change in student beliefs and more specifically the influence of an entire year of school placement modules.

Therefore, the aim of the present study was to examine pre-service PE teachers' belief changes towards curricular outcomes, by equally taking into account regional and contextual characteristics of the PETE program attended, as well as their occupational orientations towards the PE teaching profession.

Method

Participants and setting

We recruited pre-service teachers from three major public Greek faculties of PE and sport science, namely from National and Kapodistrian University of Athens (NKUA), Aristotle University of Thessaloniki (AUTH) and Democritus University of Thrace (DUTH). Initially, we obtained approval from NKUA scientific committee in order to conduct this study. All pre-service teachers were informed about the purpose of the study, provided informed consent and it was made clear that participation was voluntary, anonymous and confidential.

The participants in the present study were 373 pre-service teachers, 238 males and 135 females, with an average age of 21.02 years (SD= 2.33 years) and extensive athletic experience of 11.25 years (SD= 4.50 years). During the fall and spring semesters of 2014-2015 they were enrolled in and successfully completed two PE teaching methods modules. The first module included primary school placement field-based experiences, while the second module included lower secondary school placement field-based experiences. More specifically, these PE modules were:

a) NKUA; Sport pedagogy and primary school placement (fifth semester - 3 ECTS), PE Didactics and secondary school placement (sixth semester - 3 ECTS) (NKUA Faculty of PE and Sport Science, 2016).

b) AUTH; PE Didactics in primary education (fifth semester - 4 ECTS), PE Didactics in secondary education (sixth semester - 4 ECTS) (AUTH Faculty of PE and Sport Science, 2013).

c) DUTH; School placement in primary education (seventh semester - 2 ECTS), School placement in secondary education (eighth semester - 2 ECTS) (DUTH Faculty of Physical Education and Sport Science, 2008). Detailed participants' demographic characteristics by faculty are presented in Table 1.

Table 1. General demographic characteristics of the sample.

	Group	NKUA	AUTH	DUTH
N		205	80	88
Age (years)		20.68 ±2.50	21.25 ± 2.49	21.60 ±1.50
Athletic experience (years)		11.67 ±4.55	11.59 ±4.16	9.95±4.48
Gender	Male	116 (56.6%)	57 (71.3%)	65 (73.9%)
	Female	89 (43.4%)	23 (28.8%)	23 (26.1%)
Occupational orientation	Teaching	87 (42.2%)	41 (51.3%)	36 (40.9%)
	Coaching	118 (57.6%)	39 (48.8%)	52 (59.1%)

All modules were set up as a weekly two-hour lecture and one-hour laboratory session on campus, as well as 14 to 20 hours of school placement field-based experiences, according to module and semester taught. The primary purpose of

these modules was to train pre-service PE teachers in teaching at primary and secondary education level, and to acquire teaching experience. Further important objectives were:

- To know the important issues and directions that define PE teaching.
- To know the most common PE teaching methods and styles, with consideration to other aspects of teaching, such as motivation, discipline, rewards etc.
- To become aware of and use direct and indirect teaching methods across the spectrum of teaching styles.
- To become familiar with the design and application of models' lesson plans, as well as the assessment of the learning outcomes in real life settings.
- To know the content of the Greek PE Curriculum.
- To become familiar with special issues concerning the physical educator and effective teaching in Greek schools.
- To become familiar and gain real life school-based experience with the teaching of PE in primary and lower secondary education level.

Within all PE modules, laboratory sessions required compulsory attendance and course assignments. Particularly, during laboratory micro-teaching activities students were expected to apply principles and strategies learned in lectures to the writing and preparation of PE lesson plans. Lesson plans should present in detail games, activities, and sports along with: (a) basic terminology associated with the lesson plans' delivery; and (b) content and age-specific adaptations. Some of these lesson plans were implemented as partner teaching episodes and were commented upon as case studies. As an integral part of the modules, students were regularly asked to log onto online e-classes in order to access supplementary material, upload their

practicum program planning, communicate with the instructor, and keep track of their lesson obligations.

Following an initial period of laboratory session planning, students entered the field experience (either in pairs or in small groups) with the guidance of university-assigned cooperating teachers, who were expected to provide instructional support and guidance to students. Students' responsibility to lead the teaching practice depended on the program of studies of each PE faculty after an initial period of observing the cooperating teachers' classes. Course instructors had a supervisory role and came in regular contact with students and their cooperating teachers to resolve mainly procedural issues and give administrative support and feedback.

For our research purposes, pre-service teachers were divided into groups according to occupational orientation (teaching n = 224, coaching n = 259). In order to categorize them into teaching or coaching orientation, all pre-service teachers completed one question regarding their orientation, with four possible answers: (a) strong teaching, (b) moderate teaching, (c) moderate coaching, (d) strong coaching, based on the notion that teaching and coaching orientations likely lie along a continuum from highly teaching-oriented to highly coaching-oriented (Richards, Templin and Graber, 2014).[2] The pre-service teachers mainly answered that they had moderate teaching or moderate coaching orientations, except four pre-service teachers who preferred strong teaching and 10 pre-service teachers with strong coaching orientation. In order to gain an adequate sample size for the comparison study, all pre-service teachers were grouped in two main categories, namely *Teaching* (strong and moderate) and *Coaching* (strong and moderate) (Table 1).

[2] Question: "Among the four options, which one would you choose to follow as a professional career when you will graduate (you can choose only one response)?"

Instrumentation

Pre- and post-measures were completed with the instrument “Beliefs toward curricular outcomes in PE” (Adamakis et al., 2013), which was designed to measure the prospective PE teachers’ belief systems related to four important PE curricular outcomes. The initial pre-measure took place at the beginning of the primary education level course in the fall semester, while the post-measure was computed at the end of the secondary education level course in the spring semester (pre- and post-course).

The instrument used has been also validated in other contexts worldwide (Guan et al., 2005; Kulinna and Silverman, 1999; Kulinna et al., 2010). The Greek version used for the present study (Adamakis et al., 2013) contained 36 items, nine of each of four domains representing important outcomes for school PE programs: (a) physical activity and fitness, (b) self-actualization, (c) motor skill development, and (d) social development. A five-point Likert-type scale is used, with 1 = Not important to 5 = Extremely important. The responses from each domain were summed to create cumulative scores for every factor, according to the original authors’ guidelines (Kulinna and Silverman, 1999; Kulinna et al., 2010). An example of the instrument’s questions is the following: *How important are the following outcomes of physical education?* (a) *Improved levels of health and fitness in students*; (b) *Improved motor skill performance needed for participation in a variety of sports and activities*; (c) *Improved social interactions and acceptance between students*; (d) *Improvement in the emotional release opportunities and a reduction in anxiety levels for individual students.*

The questionnaire has undergone three validation studies. In the preliminary study (Adamakis et al., 2012), the instrument was translated by five PE experts. The

content validity was very high, and it was easily comprehensible by pre-service teachers. The test-retest reliability over time revealed a high percentage of agreement, with the Pearson *r* coefficients ranging from .82 to .85 ($p < .001$) and the intraclass correlation coefficients ranging from .90 to .92 for the four factors of the instrument.

Two main validation studies have been conducted with the use of confirmatory factor analysis (CFA) and a maximum likelihood structural equation modelling procedure supported the four-factor dependent model (Adamakis, 2018; Adamakis et al., 2013). All CFA fit indices ranged from slightly lower than optimal to very good in both studies. Furthermore, the internal consistency indices were acceptable, with Cronbach alpha coefficients ranging from .75 to .81 for the four factors.

Data analysis

The statistical analysis was conducted with the use of the statistical package SPSS 23.0 (IBM SPSS Corp., Armonk, NY, USA). Before analysis, variables were screened for accuracy of data entry, missing values, distribution (skewness and kurtosis), and potential outliers. No missing values were observed. Scales were then computed and screened for univariate and multivariate outliers using the suggestions proposed by Tabachnick and Fidell (2018). Standardized z-scores larger than 3.29 ($p<.001$, two-tailed) were used as criteria for univariate outliers and a Mahalanobis distance value greater than $\chi^2_{(4)} = 18.47$ was used as criteria for multivariate outliers. No univariate and multivariate outliers were observed.

Data were analysed using descriptive (mean, standard deviation, standard error) and inferential statistics [multivariate analysis of variance (MANOVA) with two

repeated measures]. The between-subjects factors for the two performed repeated measures MANOVAs were (a) *faculty* (3 levels) and (b) *occupational orientation* (2 levels), on the four factors of the outcomes questionnaire at two time points. In order to control whether the design was unbalanced, the equality of covariance matrices using Box's M test was used. Furthermore, to test the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix, Mauchly's test of sphericity was implemented. Furthermore, the partial η^2 was presented as a measure of effect size for *F*-Tests. A partial η^2 value between .01 and .06 was associated with a small effect, between .06 and .14 with a medium effect, and .14 or greater with a large effect (Warner, 2012). For purposes of interpretation, significant multivariate effects were followed by univariate *F*-ratios [analysis of variance (ANOVA)] and t-tests for correlated means, along with the Bonferroni correction, to explore which sub-groups experienced significant changes between the two moments throughout the research project, while ensuring an overall $p < .05$. Finally, the internal consistency of the various constructs was assessed by Cronbach *a* coefficients.

Results

All descriptive statistics of the four desired outcome goals between the two time points, as well as Cronbach *a* coefficients for the initial measurement, are reported in Table 2.

Table 2. Descriptive statistics by outcome goal priorities (pre- and post-course).

	Pre-course		Post-course		
	M	SD	M	SD	Cronbach *a*

Physical activity and fitness	36.98	4.28	38.13	4.44	.80
Self-actualization	35.66	4.32	36.52	4.25	.78
Motor skill development	34.14	4.21	35.00	4.48	.80
Social development	35.23	4.48	35.99	4.60	.82

The Box-M test of equality of covariance for the first repeated measures MANOVA for the faculty between-subjects factor was not statistically significant at $p < .001$ (Box's $M = 94.14$, $p = .07$) and the normality assumption was assumed. However, Mauchly's test of sphericity for the faculty repeated measures MANOVA was significant (Mauchly's $W = .85$, $df = 5$, $p < .001$) and the Greenhouse-Geisser correction due to violations of sphericity was used.

The repeated measures MANOVA revealed a non-statistically significant main interaction effect for Outcome x Faculty x Time [$F(6,1051) = 2.11$, $p = .054$, $\eta^2 = .011$] (descriptive statistics presented in Table 3).The interaction effect for Outcome x Faculty was statistically significant, with a small effect size [$F(5,1008) = 6.09$, $p < .001$, $\eta^2 = .032$]. Pre-service teachers from the three faculties classified the four curricular outcomes differently. The test of within-subjects contrasts indicated that the most important goal for all pre-service teachers was physical activity and fitness. However, the second classified goal was self-actualization for NKUA and DUTH participants, and social development for AUTH pre-service teachers. NKUA pre-service teachers classified social development third and motor skill development

fourth, while motor skill development was classified as the third goal for DUTH teachers and fourth for AUTH ones (Figure 1).

The previous classifications did not change over time, as revealed by the interaction effect for Outcome x Time, which was not statistically significant [$F(3,1051) = 2.31$, $p = .078$, $\eta^2 = .006$]. The Time x Faculty interaction effect was also not statistically significant [$F(2,370) = .16$, $p = .854$, $\eta^2 = .001$], suggesting that different undergraduate courses did not affect beliefs' modification over time. Finally, the main effect for Time was statistically significant, with a small effect size [$F(1,370) = 20.13$, $p < .001$, $\eta^2 = .052$]. The post-course measurement was significantly higher for all outcomes and pre-service teachers from all faculties, than the pre-course one [overall pre-course $M = 35.43$ ($SE = .20$), overall post-course $M = 36.33$ ($SE = .21$)].

Table 3. *Descriptive statistics of pre-service teachers' outcome goals according to faculty attended.*

		Pre-course		Post-course	
	Faculty	*M*	*SD*	*M*	*SD*
Physical activity and fitness	NKUA	37.43	4.32	38.34	4.50
	AUTH	36.11	4.14	37.70	4.36
	DUTH	36.70	4.21	38.02	4.44
Self-actualization	NKUA	36.18	4.37	36.83	4.33
	AUTH	35.56	4.22	36.31	4.53
	DUTH	34.53	4.32	35.98	3.78
Motor skill development	NKUA	33.80	4.12	35.00	4.46
	AUTH	34.35	4.22	34.49	4.46

	DUTH	34.76	4.37	35.45	4.42
	NKUA	35.24	4.55	36.08	4.74
Social development	AUTH	35.81	4.60	36.34	4.75
	DUTH	34.67	4.20	35.45	4.10

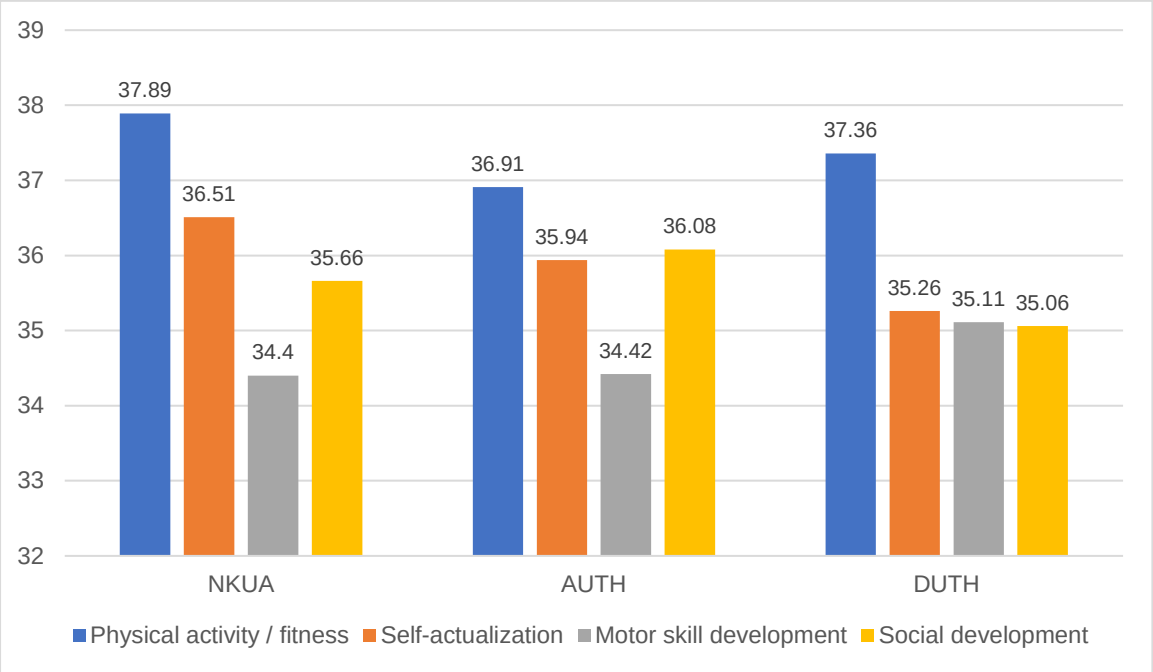


Figure 1. *Graphic representation of pre-service teachers' outcomes classification.*

The Box-M test of equality of covariance for the first repeated measures MANOVA for the occupational orientation between-subjects factor was not statistically significant at $p < .001$ (Box's $M = 46.38$, $p = .14$) and the normality assumption was assumed. However, Mauchly's test of sphericity for the occupational orientation repeated measures MANOVA was significant (Mauchly's $W = .84$, $df = 5$, $p < .001$) and the Greenhouse-Geisser correction due to violations of sphericity was used.

The repeated measures MANOVA revealed a non-statistically significant main interaction effect for Outcome x Orientation x Time [$F(3,1055) = .14$, $p = .093$, $\eta^2 < .001$] (descriptive statistics presented in Table 4). The interaction effect for Outcome x Orientation was not statistically significant [$F(3,1006) = 1.23$, $p = .298$, $\eta^2 = .003$]. Both pre-service teachers with a teaching and a coaching orientation classified the curricular outcomes in an identical way. This classification did not change over time, as revealed by the interaction effect for Outcome x Time, which was not statistically significant [$F(3,1055) = 1.06$, $p = .362$, $\eta^2 = .003$]. The Time x Orientation interaction effect was also not statistically significant [$F(1,371) = .42$, $p = .515$, $\eta^2 < .001$], suggesting that occupational orientation did not affect beliefs' modification over time. Finally, the main effect for Time was statistically significant, with a small effect size [$F(1,371) = 23.09$, $p < .001$, $\eta^2 = .059$]. The post-course measurement was significantly higher for all outcomes and pre-service teachers, teaching and coaching-oriented, than the pre-course one [overall pre-course $M = 35.52$ ($SE = .18$), overall post-course $M = 36.41$ ($SE = .20$)].

Table 4. *Descriptive statistics of teaching- and coaching-oriented pre-service teachers' outcome goals.*

		Pre-course		Post-course	
	Orientation	*M*	*SD*	*M*	*SD*
Physical activity and fitness	Teaching	37.17	4.23	38.19	4.48
	Coaching	36.83	4.32	38.08	4.43
Self-actualization	Teaching	35.65	4.56	36.41	4.41
	Coaching	35.67	4.12	36.61	4.13

Motor skill development	Teaching	34.12	4.36	34.90	4.47
	Coaching	34.16	4.09	35.08	4.44
Social development	Teaching	35.59	4.74	36.11	4.70
	Coaching	34.95	4.27	35.89	4.52

Discussion

The aim of the present longitudinal study was to examine pre-service PE teachers' beliefs concerning the importance of PE curriculum outcomes by taking into account possible influences of faculty program attended and recruits' orientation towards the PE profession. More specifically, the study looked for possible differences in pre-service teachers' PE outcome priorities, as these would occur over time as a result of their participation in PETE programs and school placement courses.

The present study results are in agreement with previous studies in PETE (Adamakis, 2018; Adamakis et al., 2013; Kulinna et al., 2010), which is in line with existing international trends. Particularly, for most participants in the study the promotion of physical activity and fitness was the most important goal of PE curriculum, followed by self-actualization, social development and motor skill development. The prevalence of health-related learning outcomes is in alignment with recent utilitarian approaches to PE, which forward measurable PE learning effects to justify the purpose and educational significance of the subject (Korthagen, 2016). The reality is that the claims about decreasing levels of youth physical activity and increasing patterns of sedentary behavior have forced PE practitioners to use fitness monitoring as a means of "making children fitter" (Kirk, 2006). However, in many cases this is done at the expense of addressing issues concerned with their socio-affective and cultural development (Blankenship and Ayers, 2010). Our PETE

recruits' prioritization of physical activity and fitness learning outcomes provides evidence of this kind. A similar situation can also be witnessed in recruits' lesson planning during school placement, revealing their concerns about finding activities and/or teaching methods that could effectively deal with the youth-obesity challenge (Lee and MacDonald, 2010).

Pre-service PE teachers seem to assimilate in this health-related culture, even though doubts have been raised about whether PE can directly address fitness goals (Ericsson, 2011). Indeed, their acknowledgement of the importance of fitness and health PE goals is evident in previous research (Adamakis et al., 2013; Kulinna et al., 2010; Matanin and Collier, 2003; Wang and Koh, 2006; Xiang et al., 2002), and studies have shown that it remains the same throughout a four-year undergraduate program without being influenced by individual differences (Adamakis and Zounhia, 2016; Adamakis et al., 2013).

In the present study, pre-service teachers' classification of PE outcome importance did not change over time, and these were only reinforced. This result is in accordance with previous findings (i.e. Adamakis and Zounhia, 2013; Doolittle et al., 1993; Ryan and Bridges, 2000), which claimed that often PETE programs do not have the power to make pre-service teachers challenge their pre-existing beliefs.

Our experience as PETE educators in Greece suggests that it is difficult to break habitual practices only by intellectual and/or academic or rational action. The organization of PETE practicum, only in the form of short-duration experiences and "stand-alone" courses, has until now failed to change the landscape of Greek PE teacher professional preparation. A careful examination of the three faculties' program of PETE studies reveals a prominent focus on prospective teachers' technical preparation for teaching (i.e. course assignments dealt mainly with

mechanistic aspects of teaching, and cooperating teachers' feedback was given mainly in the form of unstructured reflective discussions). Remaining cognizant to the realities of school life (e.g. lack of resources and time to meet educational standards, multicultural classrooms, developmental differences), the present study suggests that the advancement of PETE course work should focus both on the knowledge of teaching practice and on the knowledge of practice itself. Since knowledge of teaching practice is promoted mainly through processes of collaborative disciplinary discourse on health, fitness and PE issues (Wrench, 2017), the recorded lack of belief changes was an expected finding.

Indeed, the lack of dialectical practices within PETE course modules restricts the deconstruction of faulty assumptions, while encouraging the adoption of behaviors that help students complete their course obligations with ease (Lux and McCullick, 2011), and move to graduation (Darling-Hammond and Richardson, 2009). In the current case, the PETE modules of the three participating PE faculties were offered during the last two years of a four-year program of studies and there were no early field-based experiences or structured reflective practices. As a result, all study participants probably preferred to comply with the expectations of each faculty's program since they were close to graduation and the professional obligations that come with it (i.e. finding a job). Such a form of "strategic compliance" or "short-cut taking" has been reported by Graber (1991) and Graber et al. (2015).

Norms and constraints of educational contexts may (re)shape student teachers' subject ideologies only in cases when time and opportunities for connection and rapport are scheduled (Green, 2002; Ovens and Tinning, 2009). These connections are prerequisite for assisting novice students filter already established beliefs concerning the educational purposes and think beyond the status

quo (McEvoy et al., 2017). Traditional teaching methods courses combined with school placement experiences (Tsangaridou, 2008; Xiang et al., 2002), opportunities for students to adopt leadership roles (O' Sullivan et al., 2009), introduction to teaching models that align with recruits' sporting orientations (i.e. Sport Education model - Curtner-Smith, 2009; Stran and Curtner-Smith, 2009), and common planning time for pre-service, cooperating and university teachers (Banville and Rikard, 2009; Stroot and Ko, 2006), are some of the most commonly referred characteristics of PETE programs that are a prerequisite for challenging the recruits' beliefs.

In our research approach, PETE programs of the three participating faculties combined a variety of method courses with school placement; however due to reductions in teaching time, resources and teaching staff, as well as school placement supervisors, strong connections between the university and the school settings were not possible. On the contrary, schools retained a rather peripheral role, as contexts of teaching practice and not as places for authentic knowledge production. Furthermore, PETE program courses were mainly held in the form of lectures, while the organization of school placement focused mainly on the technicalities of PE teaching, rather than providing pre-service PE teachers with meaningful experiences. As a result, pre-service PE teachers' interaction, reflection and dialogue on content, pedagogy and assessment, were restricted.

Previous findings have shown that although field-based methods courses have a positive impact on student teachers' beliefs about the goals of PE, they are relatively ineffective for altering the practices they employ in educational settings, unless they include high-quality internship placements (Curtner-Smith, 2007; Park and Curtner-Smith, 2018). This seems also to be the case in the current study, since pre-service PE teachers' beliefs were higher at the end of each undergraduate

program, with minimum differences between faculties. In order for school placement experiences to have a positive impact and contribute to changes of participants' belief systems, they should include observation of PE classes (Xiang et al., 2002), as well as reflective inquiry and strategies that attempt to surface, challenge and transform pre-service PE teachers' beliefs (Tsangaridou, 2008). However, due to issues raised before (i.e. reductions in teaching time, staff and resources), this was not the case in our context, and reflective practices were almost entirely absent.

Similar were the findings when teaching-oriented pre-service teachers' beliefs were examined in relation to those of their coaching-oriented counterparts. The lack of significant differences between the two groups confirmed the statement that teachers interpret and enact the curriculum through a blend of beliefs and teaching perspectives (Gillespie, 2011; Hyndman, 2014). According to Collins and Pratt (2010), a teaching perspective as a view of what it means to teach, is defined by an individual's intentions and beliefs towards their subject. In the present study, although holding contradictory beliefs towards the scope of PE, both teaching- and coaching-oriented participants seemed to adopt similar intentions towards teaching PE and were not able to challenge the culture and habits of their PETE programs.

This result is in partial accordance with a previous longitudinal study, which concluded that pre-service PE teachers with a coaching orientation exhibited weaker beliefs about the purposes of self-actualization and social development compared to those with a teaching orientation (Adamakis and Zounhia, 2016). Similar to this study, all pre-service teachers classified their beliefs in a similar way and only the intensity of these beliefs was altered. The PE teaching methods courses and school placement reinforced their beliefs towards all expected outcome goals, but these were not challenged. It is suggested that all pre-service teachers, and not only the

coaching-oriented ones as proposed by Curtner-Smith et al. (2008), had entered the school placement program with very specific, pre-formatted beliefs and expectations, which could not be easily modified.

O'Sullivan et al. (2009) proposed that if PETE educators expect their students both to challenge their personal beliefs and to experiment with alternative intentions towards PE teaching, then they ought to give them multiple opportunities to understand that career and identity are not two aspects of the same coin. The fact that most pre-service PE teachers choose the PE profession based on their personal biography of success in sport (O' Sullivan et al., 2009) does not imply a deep understanding of the complexities of PE teaching. On the other hand, the accumulation of practical experience does not imply professional expertise (Zeichner, 2010) and close partnerships between university educators, school practitioners and preservice PE teachers are needed (i.e. close supervision of field-based experiences, mentoring, support networks and communities of practice; McCullick et al., 2012). In our case, none of the above was implemented in practice at the three participating faculty. Due to a long-lasting financial crisis, reductions in the three faculties' teaching staff resulted in one-university educator supervising more than 20 PETE students. As a result, less time and practice were given to all participants to consider their pedagogy and curriculum, as well as to reflect upon their practices.

Limitations, conclusions and practical implications

This study provides insight into what pre-service PE teachers believed about the curricular outcome goals and the impact that two PE teaching methods modules and school placement field-based experiences had on their beliefs. A limitation is that

pre-service teachers came from the three major Greek PE faculties, while the two minor ones did not participate; thus, readers must be aware that the present findings may not apply to all Greek PE faculties. Another limitation is that even though the PE teaching methods modules from the three faculties share a similar structure, there might have been minimal differences during the delivery of the modules that this study was not able to capture entirely. A final limitation is that one single question was used to determine pre-service teachers' occupational orientation, and not an extensive questionnaire. This may have influenced their responses, as it may not be enough to simply ask participants which orientation they prefer.

The results of the present study imply that Greek PETE programs, even during PE teaching methods courses and school placement experiences, fail to challenge pre-service PE teachers' pre-existing curricular beliefs and reinforce them with alternative understandings of pedagogy and teaching. Pre-service PE teachers enter the university with pre-formed beliefs, which are so strong that only shared-culture programs and signature pedagogies could challenge them (Matanin and Collier, 2003; Shulman, 2005; Tannehill, and MacPhail 2014), and this was not the case in our setting. Pedagogies of this kind fall under a more critical oriented frame, according which PETE should be experienced as a period of probing, questioning and problematizing on intertwined political, social and ethical issues of the PE profession (Curtner-Smith, 2007). However, for many PETE educators, this is neither an easy nor an achievable task to accomplish, especially when workplace conditions prevent this approach. Conservative colleagues within the university, positivist-oriented criticisms about the mission and scope of pedagogical subjects, as well as fatigue experienced by PETE staff who constantly have to deal with many bureaucratic issues (i.e. access to school settings, changes in curriculum documents

and theoretically void educational policy) are some of the most commonly referred constraining factors.

Concerning the structure of PETE programs, strong underlying theoretical frameworks are needed to support the pedagogy of teacher education, so that PETE teaching could be enacted more as a moral enterprise and less as lecturing. Such a shift would imply the need for gaining a better understanding of pre-service PE teachers' everyday needs, along with their beliefs concerning PE teaching and schooling. The latter could be used as a point of reference for the design and presentation of personally relevant and professionally challenging content of study.

Therefore, instead of delving into the search for changes or differences in pre-service PE teachers' belief systems, trying to relate these with their personal and contextual attributes, it would be a more adequate approach to reflect upon the meaning that we, as teacher educators, ascribe to our role. Do we want to socialize newcomers to particular ways of thinking and, if this is not the case, how able are we to help them reflect on dilemmas and experiment with alternative actions? What is the meaning we ascribe to professional knowledge and how this can translate into practice? Lastly, how prepared are we to keep up with new knowledge and avoid obsolescence? It is the authors' conviction that if the above issues are not carefully encountered by PETE educators, PE teacher professional socialization will continue to be realized as a clear-cut process that leads to neglect and reproduction of beliefs of tested, yet minimally effective and productive practices.

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References

Adamakis M (2018) Physical education students' beliefs in four important curricular outcomes: Results from three Greek Faculties. *Journal of Physical Education and Sport* 18: 1001-1007.

Adamakis M and Zounhia K (2013) Do pre-service teachers' beliefs toward physical education curricular outcomes develop during an academic year? *FIEP Bulletin* 83(3): 10-13.

Adamakis M and Zounhia K (2016) The impact of occupational socialization on physical education pre-service teachers' beliefs about four important curricular outcomes: A cross-sectional study. *European Physical Education Review* 22(3): 279-297.

Adamakis M, Zounhia K, Hatziharistos D, et al. (2012) Prokatarktiki meleti engirotitas kai axiopistias tis klimakas 'Pepithisis gia tus skopus tis Fisikis Agogis' [Preliminary study on validity and reliability control of the ''Beliefs toward curriculum in Physical Education'' scale]. *Kinesiology* 5(SI): 8-9.

Adamakis, M., Zounhia, K., Hatziharistos, D., et al. (2013) Greek preservice physical education teachers' beliefs about curriculum orientations: Instrument validation and examination of four important goals. *Acta Universitatis Palackianae Olomucensis Gymnica* 43(4): 39-51.

AUTH Faculty of Physical Education and Sport Science (2013) *Odigos spudon* [Program of study]. Thessaloniki: Faculty of Physical Education and Sport Science. Available at: https://www.phed.auth.gr/sites/default/files/odigos_spoydon_2013-2014.pdf (accessed 10 April 2019).

Banville D and Rikard GL (2009) Teacher induction: Implications for physical education teacher development and retention. *Quest* 61(2): 237-256.

Blankenship BT and Ayers SF (2010) The role of PETE in developing joy-oriented physical educators. *Quest* 62: 171-183.

Bronikowski M (2011) Transition from traditional to modern approaches to teaching. In: Hardman K & Green K (ed.) *Physical Education. Contemporary Issues in Physical Education: International Perspectives*. Maidenhead (UK): Meyer & Meyer Sport, pp. 105-121.

Burrows L (2009) Discursive dilemmas in New Zealand's health and physical education curriculum. In: Dinan-Thompson M (ed.) *Health and Physical Education: Issues for Curriculum in Australia and New Zealand*. Melbourne, VIC, Australia: Oxford University Press, pp. 147-164.

Collins JB and Pratt DD (2010) The teaching perspectives inventory at 10 years and 100,000 respondents: Reliability and validity of a teacher self-report inventory. *Adult Education Quarterly* 61(4): 358-375.

Conley S and You S (2009) Teacher role stress, satisfaction, commitment, and intensions to leave: A structural model. *Psychological Reports* 105: 771-786.

Curtner-Smith MD (2001) The occupational socialization of a first-year physical education teacher with a teaching orientation. *Sport, Education and Society* 6(1): 81-105.

Curtner-Smith MD (2007) The impact of critically oriented physical education teacher education on pre-service classroom teachers. *Journal of Teaching in Physical Education* 26(1): 35-56.

Curtner-Smith MD (2009) Breaking the cycle of non-teaching physical education teachers: Lessons to be learned from the occupational socialization literature. In Housner LD, Metzler M, Schempp PG and Templin TJ (eds) *Historic Traditions and Future Directions of Research on Teaching and Teacher Education in Physical Education*. Morgantown, WV: Fitness Information Technology, pp. 221-225.

Curtner-Smith MD, Hastie PA and Kinchin GD (2008) Influence of occupational socialization on beginning teachers' interpretation and delivery of sport education. *Sport, Education and Society* 13(1): 97-117.

Darling-Hammond L and Richardson N (2009) Teacher learning: What matters? *Educational Leadership* 66(5): 46-53.

Doolittle SA, Dodds P and Placek JH (1993) Persistence of beliefs about teaching during formal training of preservice teachers. *Journal of Teaching in Physical Education* 12: 355-365.

DUTH Faculty of Physical Education and Sport Science (2008) *Odigos spudon* [Program of study]. Komotini: Faculty of Physical Education and Sport Science. Available at: http://www.phyed.duth.gr/undergraduate/images/files/publications/study_guide.pdf (accessed 10 April 2019).

Ennis CD (2003) Using Curriculum to Enhance Student Learning. In Silverman SJ and Ennis CD (eds) *Student Learning in Physical Education* (2nd ed). Champaign, IL: Human Kinetics, pp. 109-127.

Ennis CD and Chen A (1993) Domain specifications and content representativeness of the revised value orientation inventory. *Research Quarterly for Exercise and Sport* 64(4): 436-446.

Ennis CD and Hooper LM (1988) Development of an Instrument for Assessing Educational Value Orientations. *Journal of Curriculum Studies* 20(3): 277-280.

Ennis CD and Hooper LM (1990) An Analysis of the PPCF as a Theoretical Framework for an Instrument to Examine Teacher Priorities for Selecting Curriculum Content. *Research Quarterly for Exercise and Sport* 61(1): 50-58.

Ericsson I (2011) Effects of increased physical activity on motor skills and marks in physical education: an intervention study in school years 1 through 9 in Sweden. *Physical Education and Sport Pedagogy* 16(3): 313-329.

Ferry BM (2018) Physical education pre-service teachers' perceptions of the subject and profession: development during the professional socialization. In: *Book of Abstracts AIESEP World Congress 2018: Creating Thriving and Sustainable Futures*. Edinburgh, UK, 25-28 July 2018, p. 148. Edinburgh: The University of Edinburgh.

Furinghetti, F and Pehkonen, E (2000) A comparative study on students´ beliefs concerning their autonomy in doing mathematics. *NOMAD* 8/4: 7-26.

Gillespie LB (2011) Exploring the 'how' and 'why' of value orientations in physical education teacher education. *Australian Journal of Teacher Education* 36(9), 58-74.

Gillespie AM (2013) *Untangling the evidence: Teacher librarians and evidence based practice*. PhD Thesis, Queensland University of Technology, Australia.

Graber K (1991) Studentship in preservice teacher education: A qualitative study of undergraduates in physical education. *Research Quarterly for Exercise and Sport* 62: 41-51.

Graber KC, Killian CM, and Woods AM (2017) Professional socialization, teacher education programs, and dialectics. In Richards KAR and Gaudreault KL (eds) *Teacher Socialization in Physical Education: New Perspectives*. New York: Routledge, pp. 79-94.

Green K (2002) Physical education teachers in their figurations: a sociological analysis of everyday 'philosophies'. *Sport, Education and Society* 7(1): 65-83.

Guan J, McBride R and Xiang P (2005) Chinese teachers' attitudes toward teaching physical activity and fitness. *Asian Pacific Journal of Teacher Education* 33(2): 147-157.

Hyndman BP (2014) Exploring the differences in teaching perspectives between Australian pre-service and graduate physical education teachers. *Journal of Physical Education and Sport* 14(4): 438-445.

Kirk D (2006) Sport Education, Critical pedagogy, and learning theory: toward an intrinsic justification for physical education and youth sport. *Quest* 58(2): 255-264.

Korthagen FA (2016) Pedagogy of teacher education. In Loughran J and Hamilton ML (eds) *International Handbook of Teacher Education*. Singapore: Springer, pp. 311-346.

Kulinna PH and Silverman S (1999) The development and validation of scores on a measure of teachers' attitudes toward teaching physical activity and fitness. *Educational and Psychological Measurement* 59(3): 507-517.

Kulinna PH and Silverman S (2000) Teachers' attitudes toward teaching physical activity and fitness. *Research Quarterly for exercise and Sport* 71(1): 80-84.

Kulinna PH, Brusseau T, Ferry M and Cothran D (2010) Preservice teachers' belief systems toward curricular outcomes for physical education. *Research Quarterly for Exercise and Sport* 81: 189-198.

Lawson HA (1983) Toward a model of teacher socialization in physical education: Entry into schools, teachers' role orientations, and longevity in teaching (Part 2). *Journal of Teaching Physical Education* 3(1): 3-15.

Lawson HA (1986) Occupational socialization and the design of teacher education programs. *Journal of Teaching in Physical Education* 5: 107-116.

Lee I (2015) Student teachers' changing beliefs on a pre-service teacher education course in Hong Kong. In Wright T and Beaumont M (eds) *Experiences of second language teacher education*. Palgrave Macmillan: London, pp.15-41.

Lee J and Macdonald D (2010) Are they just checking our obesity or what? The healthism discourse and rural young women. *Sport, Education and Society* 15(2): 203-219.

Lerman S (2001) Cultural, discursive psychology: a sociocultural approach to studying the teaching and learning of mathematics. *Educational Studies in Mathematics* 46(1-3): 87-113.

Lux K and McCullick BA (2011) How one exceptional teacher navigated her working environments as the teacher of a marginal subject. *Journal of Teaching in Physical Education* 3: 358-374.

Lortie D (1975) *Schoolteacher: A sociological study*. London: University of Chicago Press.

Matanin M and Collier C (2003) Longitudinal analysis of preservice teachers' beliefs about teaching physical education. *Journal of Teaching in Physical Education* 22(2): 153-168.

McCullick BA, Baker T, Tomporowski PD, et al. (2012) An analysis of state physical education policies. *Journal of Teaching in Physical Education* 31(2): 200-210.

McEvoy E, Heikinaro-Johansson P and MacPhail A (2017) Physical education teacher educators' views regarding the purpose(s) of school physical education. *Sport, Education and Society* 22(7): 812-824.

Ní Chróinín DN and Coulter M (2012) The impact of initial teacher education on understandings of physical education: Asking the right question. *European Physical Education Review* 18(2): 220-238.

Ní Chróinín D and O'Sullivan M (2014) From initial teacher education through induction and beyond: a longitudinal study of primary teacher beliefs. *Irish Educational Studies* 33(4): 451-466.

NKUA Faculty of Physical Education and Sport Science (2016) *Odigos proptihiakon spudon* [Undergraduate program of study]. Athens: Faculty of Physical Education and Sport Science. Available at: http://www.phed.uoa.gr/fileadmin/phed.uoa.gr/uploads/MATHIMATA/ODIGOS_SPOUDON.pdf (accessed 10 April 2019).

O'Sullivan M, MacPhail A and Tannehill D (2009) A career in teaching: Decisions of the heart rather than the head. *Irish Educational Studies* 28(2): 177-191.

Ovens A and Tinning R (2009) Reflection as situated practice: A memory-work study of lived experience in teacher education. *Teaching and Teacher Education* 25(8): 1125-1131.

Park CW and Curtner-Smith MD (2018) Influence of occupational socialization on the perspectives and practices of adapted physical education teachers. *Adapted Physical Activity Quarterly* 35(2): 214-232.

Philpot RA (2016) Shaking student's cages: A Freirean pedagogy that influenced PETE students' beliefs about physical education. *The International Journal of Critical Pedagogy* 7(1): 143-163.

Richards KAR (2015) Role socialization theory: The sociopolitical realities of teaching physical education. *European Physical Education Review* 21(3): 379-393.

Richards KAR, Pennington, CG and Sinelnikov, OA (2019). Teacher socialization in physical education: A scoping review of literature. *Kinesiology Review* 8(2): 86-99.

Richards KAR and Templin TJ (2012) Toward a multidimensional perspective on teacher-coach role conflict. *Quest* 64(3): 164-176.

Richards KAR, Templin TJ and Graber K (2014) The socialization of teachers in physical education: Review and recommendations for future works. *Kinesiology Review* 3(2): 113-134.

Richardson V (2003) Preservice teachers' beliefs. In Raths J and McAninch AR (eds) *Teacher beliefs and classroom performance: The impact of teacher education*. Greenwich, Connecticut: Information Age Publishing, pp. 1-22.

Ryan S and Bridges FS (2000) The influence of teacher education on teachers' beliefs about purposes of physical education. *Education* 121(2): 301-304.

Schempp PG (1989) Apprenticeship-of-observation and the development of physical education teachers. In Templin TJ and Schempp PG (eds) *Socialization into Physical Education: Learning to Teach.* Indianapolis: Benchmark Press, pp. 13–38.

Shulman LS (2005) Pedagogies. *Liberal education* 91(2): 18-25.

Sinelnikov OA, Kim I, Ward P et al. (2016). Changing beginning teachers' content knowledge and its effects on student learning. *Physical Education and Sport Pedagogy* 21(4): 425-440.

Sofo S and Curtner-Smith MD (2010) Development of preservice teachers' value orientations during a secondary methods course and early field experience. *Sport, Education and Society* 15(3): 347-365.

Stran M and Curtner-Smith M (2009) Influence of occupational socialization on two preservice teachers' interpretation and delivery of the Sport Education model. *Journal of Teaching in Physical Education* 28(1): 38-53.

Stroot SA and Ko B (2006) Induction of beginning physical education teachers into the school setting. In Kirk D, Macdonald D and O'Sullivan M (eds) *The Handbook of Physical Education*. London, UK: Sage Publications, pp. 425-448.

Tabachnick BG and Fidell LS (2018) *Using Multivariate Statistics* (7th ed.). Boston, MA: Pearson.

Tannehill D and MacPhail A (2014) What examining teaching metaphors tells us about pre-service teachers' developing beliefs about teaching and learning. *Physical Education and Sport Pedagogy* 19(2): 149-163.

Templin TJ and Richards KAR (2014) C. H. McCloy Lecture: Reflections on socialization into physical education: An intergenerational perspective. *Research Quarterly for Exercise and Sport* 85(4): 431-445.

Templin TJ and Schempp PG (Eds) (1989) *Socialization into physical education: Learning to teach*. Indianapolis, IN: Benchmark Press.

Tsangaridou N (2008) Trainee primary teachers' beliefs and practices about physical education during student teaching. *Physical Education and Sport Pedagogy* 13(2): 131-152.

Valtonen J, Reunamo J, Hirvensalo M and Ruismäki H (2015) Socialization intoteaching physical education – Acculturative formation of perceived strengths. *The European Journal of Social & Behavioural Sciences* 12: 1683-1695.

Wang CJ and Koh TM (2006) Sport ability beliefs, achievement goals, self-determination and beliefs about the purposes of physical education among Singaporean preservice physical education trainees. *Asian Journal of Exercise and Sports Science* 3(1): 25-34.

Warner RM (2012) *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). Los Angeles, CA: Sage.

Wrench A (2017) Pre-service teacher identity formation and socialization. In Richards KAR and Gaudreault KL (eds) *Teacher Socialization in Physical Education: New Perspectives*. New York: Routledge, pp. 63-78.

Xiang P, Lowy S and McBride R (2002) The impact of a field-based elementary physical education methods course on pre-service classroom teachers' beliefs. *Journal of Teaching in Physical Education* 21: 145-161.

Zeichner K (2010) Rethinking the connections between campus courses and field experiences in college-and university-based teacher education. *Journal of Teacher Education* 61(1-2): 89-99.

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