

DO PRE-SERVICE TEACHERS' BELIEFS TOWARD PHYSICAL EDUCATION CURRICULAR OUTCOMES DEVELOP DURING AN ACADEMIC YEAR?

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ABSTRACT

Teachers in "special" content areas (Physical Education, Music etc.) often rely on their personal beliefs systems in order to achieve the desired curricular outcomes. These guide their actions and behaviors in class. Previous research showed that beliefs persisted during undergraduate students' formal training (Doolittle et al., 1993; Matanin & Collier, 2003). The purpose of the present study was to examine the impact of the second academic year of the Faculty of Sport Science in Athens on the beliefs toward the desired curricular outcomes of PE students with a teaching or coaching orientation.

The participants were 60 third year undergraduate students (21.32±0.70 years) from the Faculty of PE and Sport Science of Athens, of which 24 had teaching and 36 coaching orientation. They completed twice the Greek version of "Beliefs toward curricular outcome goals" scale, a previously validated instrument (Adamakis et al., 2012), at the end of their first and at the beginning of their third academic year. The scale consists of 4 desired outcomes, Physical activity and fitness (PA), Self-actualization (SA), Motor skills development (MS) and Social development (SD). Data were analyzed using descriptive and inferential statistics (mixed design ANOVA). The 4 desirable outcome goals differed significantly [$F(3,56)=50.04, p<.001$], with the PA goal being the prevailing one, followed by SA, for both teaching and coaching oriented students [$F(3,56)=.52, p=.67$]. This result did not change over Time [$F(3,56)=1.41, p=.25$]. There was no statistically significant main effect for Time [$F(3,56)=2.47, p.12$], but the interaction between Time and Orientation was marginally significant [$F(3,56)=3.89, p=.05$]. Finally, no significant interaction was observed between the 4 Outcomes, Time and Occupational orientation [$F(3,56)=.41, p=.75$]. Most students considered the Physical activity and fitness goal as the prevailing one. Generally, the second year of the undergraduate program does not seem to influence students' beliefs, but one main trend seems to arise. Students with a teaching orientation reinforced their beliefs towards all 4 expected outcomes, while coaching oriented students' beliefs did not alter or declined. Teaching oriented students probably incorporate more efficiently messages retrieved from their undergraduate program.

Keywords: curriculum, teaching, coaching, beliefs, outcomes.

INTRODUCTION

The way people interpret reality is influenced by their mental constructions, their cognitive abilities and their beliefs. A person's beliefs, attitudes and values form his/her belief system and it is generally accepted that teachers' attitudes about education have been referred to as teachers' beliefs (Pajares, 1992). In the educational field, and particularly in Physical Education (PE), teachers' beliefs systems guide their behaviors, decisions, actions and attitudes toward students, as well as their teaching effectiveness and strategies (Lara-Cinisomo, Fuligni, Ritchie, Howes, & Karoly, 2008). Lerman (2001) has identified two major strands of research concerning beliefs, which are examined in the present study. These are analysis and classification of beliefs and monitoring changes in beliefs over time.

According to the previous Greek curriculum for PE (GCPE), the most important outcome goal is Motor skill development, and through this, the development of students' natural abilities and the improvement of health (Ministry of Education and Religious Affairs [M.E.R.A.], 2003). The most recent curriculum does not alter the primary goal, which remains Motor skill development. The second goal nowadays is knowledge development for lifelong physical activity participation, followed by the amelioration of students' fitness levels (M.E.R.A.C.S., 2011).

Motor skill development used to be the prevailing goal during the previous decade (Placek, Dodds, Doolittle, Portman, Ratliffe, & Pinkham, 1995; Ryan, Bridges, & Yerg, 2000). Nowadays, Physical activity and fitness that leads to the amelioration of health are the most important PE outcomes in western culture (Kulinna, Brusseau, Ferry, & Cothran, 2010; Matanin & Collier, 2003). Greek students accept this primary goal as the most significant, while they believe that Motor skill development is the least important, contrary to the GCPE (Adamakis, Zounhia, Hatzopoulos, & Dania, 2013). In Eastern Culture, the most important curricular outcome goal is Self-actualization, which can be achieved through Physical activity leading to a healthy active lifestyle (Guan, McBride, & Xiang, 2005; Xiang, Lowy, & McBride, 2002).

Occupational socialization theory provides a suitable framework in order to examine why and how beliefs toward curricular outcomes develop. According to Lawson (1983), in the acculturation phase, one of the main attractors in the PE profession which guide their beliefs system is the perspective teachers' desire to coach an athletic team, rather than to teach PE. These two roles, teaching and coaching, are not identical, even if they share some commonalities, and require specific skills and different characteristics and abilities (Konukman, Agbuğa, Erdoğan, Zorba, Demirhan, & Yılmaz, 2010). Students who enter the faculty with a coaching orientation are "highly focused on coaching extracurricular sports and view teaching PE as a career contingency" (Curtner-Smith, Hastie, & Kinchin, 2008, p. 99). Furthermore, they hold conservative views about sport and PE in comparison to teaching-oriented students (Parker & Curtner-Smith, 2012).

During the professional socialization phase that follows students' entrance into university, many beliefs are often disputed and they are forced to choose which ones will be changed or ignored, and if new ones should be adopted. However, students use the information received from the faculty's curriculum in such way as to confirm and fortify beliefs already established during the acculturation phase (Doolittle, Dodds, & Placek, 1993; Matanin & Collier, 2003). Therefore, many well established beliefs may develop during teacher education, but they do not change (Doolittle et al., 1993; Ryan et al., 2000), because preservice teachers choose techniques and strategies that align with their core beliefs (Placek et al., 1995). Students assimilate program messages selectively, due to the filtering subjected by their previous experiences (Matanin & Collier, 2003). Their desire to coach may influence their belief system about the purposes of PE more than their background in PE classes (Placek et al., 1995). Teaching oriented students usually gain a more sophisticated understanding of various values and beliefs and these are developed through the undergraduate program and field experiences. On the other hand, coaching oriented students' belief systems are not affected by the preservice training (Sofa & Cartner-Smith, 2010).

The purpose of the present study was to describe the extent to which preservice teachers' beliefs toward four PE curricular outcomes changed and developed during their second academic year in the Faculty of PE and Sport Science of Athens. Furthermore, the impact of students' teaching and coaching orientation was examined in relation to the development of those beliefs.

METHOD

The questionnaire used was designed to measure what PE teachers believe regarding important curricular outcome goals (Kulinna & Silverman 1999). In Greece, it has been validated in two different phases (Adamakis, Zounhia, Hatziharistos, & Psychountaki, 2012a,b). It consists of 36 questions, nine in 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. The instrument uses a five-point Likert-type scale, with 1=Not important to 5=Extremely important.

It is very comprehensible (>90%) and reliable, with the Pearson r coefficients for the test-retest reliability analysis ranging from .82 to .85 ($p<.001$) for the four domains. The Cronbach's alpha coefficients are: Physical activity and fitness $\alpha=.80$, Self-actualization $\alpha=.75$, Motor skill development $\alpha=.81$, Social development $\alpha=.80$, while the overall Cronbach's alpha for the entire scale $\alpha=.91$. The confirmatory factor analysis has demonstrated acceptable fit indices (CFI=.93, NNFI=.93, RMSEA=.069, AGFI=0.79), offering reassurance to the hypothesized model of four correlated factors.

The participants in the present study were 60 third year undergraduate students, 39 males and 21 females, aged 21.32 ± 0.70 years, from the Faculty of PE and Sport Science of the University of Athens, Greece. They had an extensive athletic experience of 11.72 ± 4.01 years in sport participation. Furthermore, 24 of the students had a teaching orientation, while the remaining 60% (36 students) had a coaching orientation.

This research was a part of a larger longitudinal study. The questionnaire was administered twice, once after the conclusion of the students' first academic year, and again prior to the start of the third year. So we can assume that the second academic year was the one examined regarding its impact on students' beliefs about the desired curricular outcomes of PE. All students were informed of the purpose of this study, provided informed consent and it was made clear that participation was voluntary, anonymous and confidential.

The statistical analysis was conducted using the statistical package SPSS version 17.0. Before the main analysis, variables were screened for accuracy of data entry, missing values, distribution, and potential outliers through descriptive statistics. No missing data or outliers were observed, so it was assumed that the data followed a normal distribution. The internal consistency of the various constructs was assessed by Cronbach α coefficients. Data were analyzed using descriptive (mean, standard deviation, standard error) and inferential statistics (Factorial Repeated Measures ANOVA). The mixed design analysis included: Time (2 levels) x Outcomes (4 levels) x Orientation (2 levels).

RESULTS

The Cronbach α internal consistency instrument for the present data, for both pre and post measurements, ranged from .71 to .81 for every single sub-scale, whereas the reliability of the overall instrument was high (.90), indicating good reliability.

The Box-Cox test of equality of covariance was performed. It was not statistically significant (Box's $M=56.59$, $p=.09$), so the normality assumption was assumed. The Mauchly's test of sphericity was statistically significant ($p<.001$), so the Factorial Repeated Measures ANOVA was conducted with the use of the Greenhouse-Geisser correction.

All descriptive statistics of the four desired outcome goals, between the two measurements and separated according to teaching or coaching orientation, are reported in Table 1.

Table 1 Descriptive statistics of teaching and coaching oriented students

	Orientation	1 st year		3 rd year	
		M	SD	M	SD
Physical activity and fitness	Teaching	36.33	4.62	37.21	3.71
	Coaching	38.33	3.61	37.64	4.44
	Total	37.53	4.13	37.47	4.13
Self-actualization	Teaching	33.33	4.72	36.50	2.89
	Coaching	35.72	3.41	35.72	4.35
	Total	34.77	4.12	36.03	3.82
Motor skill development	Teaching	31.92	4.24	33.83	3.57
	Coaching	34.44	3.78	34.33	3.48
	Total	33.43	4.13	34.13	3.450
Social development	Teaching	32.42	5.85	35.04	3.59
	Coaching	34.47	3.89	34.31	5.14
	Total	33.65	4.83	34.60	4.57

The test of within-subject effects presented a statistically significant main effect for Outcomes [$F(2,123)=41.53$, $p<.001$, partial $\epsilon^2=.42$], showing that students did not evaluate as equally important the four desirable outcome goals. The test of within-subjects contrasts indicated that the most important goal was Physical Activity and fitness (grand $Mean=37.38$, $SE=.40$), followed by Self-actualization (grand $Mean=35.32$, $SE=.35$), Social development (grand $Mean=34.06$, $SE=.43$) and, lastly, Motor skill development (grand $Mean=33.63$, $SE=.36$). All outcomes differed significantly at $p<.001$.

The interaction effect for Outcomes per Orientation was not statistically significant [$F(2,123)=.56$, $p=.58$, partial $\epsilon^2=.01$]. Both students with a teaching and a coaching orientation classified in an identical way the curricular outcomes. This classification did not change over time, as revealed by the interaction effect for Outcomes per Time, which was not statistically significant [$F(3,147)=1.41$, $p=.25$, partial $\epsilon^2=.02$].

There was no statistically significant main effect for changes over Time [$F(1,58)=2.47$, $p=.12$, partial $\epsilon^2=.04$] and for Orientation [$F(1,58)=2.79$, $p=.10$, partial $\epsilon^2=.05$]. However, the interaction for Time per Orientation was marginally significant [$F(1,58)=3.89$, $p=.05$, partial $\epsilon^2=.06$], suggesting that occupational orientation affected beliefs' modification over time. A significant effect was calculated for the Self-actualization outcome goal [$F(1,58)=4.44$, $p=.04$, partial $\epsilon^2=.07$], while the three other goals were not statistically significant ($p>.05$). However, looking at the interaction graphs (Figures 1 and 2), students with a teaching orientation reinforced their beliefs toward all outcome goals (overall pre- $Mean=33.50$, overall post- $Mean=35.65$), while coaching oriented students' beliefs remained unaltered, or declined (overall pre- $Mean=35.74$, overall post- $Mean=35.50$). Finally, no significant interaction was observed for the interaction of Outcomes, Time and Orientation [$F(3,147)=.45$, $p=.68$, partial $\epsilon^2=.01$].

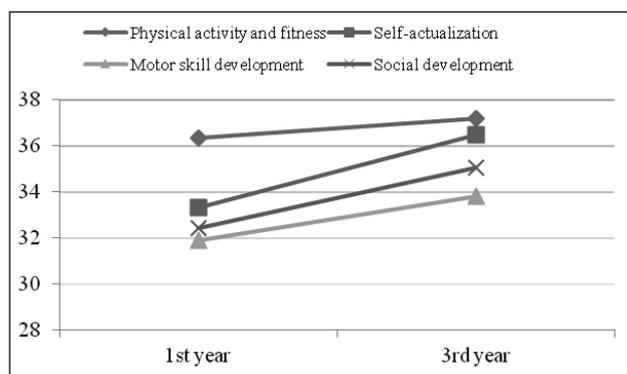


Figure 1

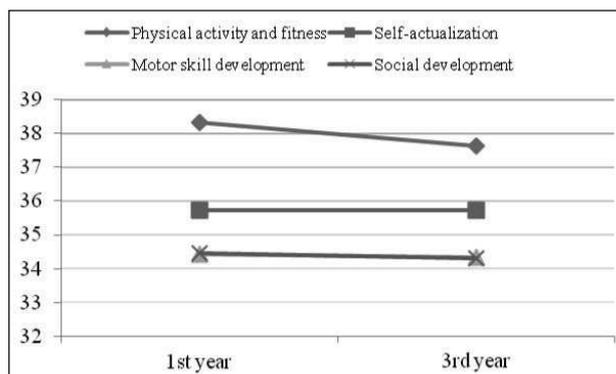
Modification of outcomes in students with **teaching** orientation

Figure 2

Modification of outcomes in students with **coaching** orientation

DISCUSSION

PE students identified the Physical activity and fitness goal as the most important one, followed by Self-actualization, Social development and Motor skill development. Although they held strong beliefs for all domains, statistically significant differences were observed, suggesting that they did not consider them equally important. In a previous Greek study, Adamakis et al. (2013) found exactly the same results. The Greek context of PE tends to be more similar to that of other Western countries (Kulinna et al., 2010; Matanin & Collier, 2003), rather than that of Eastern ones (Guan et al., 2005; Xiang et al., 2002).

Physical activity and fitness is the primary curricular outcome goal, possibly because of the "obesity crisis" and the high overweight rates through the world, and especially Greece (Georgiadis & Nassis, 2007; Roditis et al., 2009). Motor skill development was placed last in students' beliefs, contrary to the GCPE. Discrepancy between many preservice teachers' beliefs and the most recent national curriculums for PE may be a reality, but in order to resist and adapt the GCPE major emphasis should be given to the Self-actualization goal (Meek & Curtner-Smith, 2004).

The longitudinal analysis of the entire sample beliefs showed that these persisted during students' second academic year. Both teaching and coaching oriented students classified in an identical way the four curricular outcomes and this classification did not change. The teacher education program and the different occupational orientations do not seem to affect these beliefs' classification and the major goal remained Physical activity and fitness. Perhaps this teacher program was not designed to challenge recruits' beliefs toward their subject matter.

Previous studies have reported a similar lack of impact of the undergraduate programs on students' core beliefs. According to Doolittle et al. (1993) and Matanin and Collier (2003), the persistence of beliefs reinforces the power of recruit-stage experiences to limit what recruits learn. They filter new experiences through the screen of their earlier belief systems formed through their own participation in PE classes and sports as youngsters. Furthermore, preservice teachers' desire to coach may influence their beliefs about the curricular outcomes of school PE more than their background in PE classes (Placek et al., 1995).

When beliefs of students with a teaching and coaching orientation were examined separately, a marginally significant difference appeared. Teaching oriented students reinforced their beliefs toward all four outcomes during the second academic year, with the most emphasis on Self-actualization. On the other hand, students' beliefs with a coaching orientation remained the same, or even declined.

This result was somehow expected, since coaching oriented students' beliefs are usually not affected by the methods courses (Sofa & Curtner-Smith, 2010). These students often have conservative and traditional ideas about PE, while teaching oriented students are more innovative and willing to reinforce their beliefs (Lawson, 1983). Furthermore, the former interpret the various programs more conservatively, the latter hold more liberal views concerning sport and PE (Chen & Curtner-Smith, 2013; Parker & Curtner-Smith, 2012). Due to these characteristics, teaching oriented recruits are more likely to incorporate messages retrieved from the teacher education program and to reinforce their beliefs towards curricular outcomes. Of major importance is the fact that they did not alter their beliefs, they just reinforced them. However, the conservative personality traits of coaching oriented preservice teachers make them resistant to any attempt to reinforce their belief system, which becomes looser or remains unchanged.

As a final remark, the interpretation of the data should be made with extreme caution, due to the small sample size. Future research should include larger samples and should be focused on the impact of students' field experiences, which seem to have a positive impact on their belief systems (Tsangaridou, 2008; Xiang et al., 2002).

CONCLUSION

Most students considered the Physical activity and fitness outcome goal as the prevailing one. In general, the second year of Athens PE Faculty's undergraduate program did not alter students' beliefs toward curricular outcomes, but one main trend seems to arise. In this sample, students with a teaching orientation reinforced their beliefs towards all four expected outcomes, probably because they incorporate more efficiently messages received from their undergraduate program. On the other hand, coaching oriented students' beliefs did not alter, and some even declined, possibly because they hold more conservative views, which deter them from changing their core beliefs.

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