

Original Article

Physical education student teachers' experiences with and perceptions of teaching styles

IOANNIS SYRMPAS¹; NIKOLAOS DIGELIDIS²

^{1,2}Department of Physical Education and Sport Science, University of Thessaly, GREECE

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Abstract:

This study is aimed at examining physical education student teachers' experiences with, beliefs about, and intention to use Spectrum teaching styles in the future (Mosston & Ashworth, 2002). Two hundred and eighty eight Physical Education student teachers participated in the study whereas data were collected using a modified and translated version of the questionnaire developed by Cothran, Kulinna, and Ward's (2000). Participants in the study reported that as primary and secondary education students they had been more frequently exposed to reproduction teaching styles in their physical education classes whereas exposure to what can be described as productive styles had been substantially less frequent. In terms of beliefs, student teachers participating in the study perceive that the reproduction teaching styles provide students with more opportunities for fun, learning skills, and motivation for learning. In addition, as physical education instructors in the future student teachers stated that they are keener on implementing teaching styles from the reproduction cluster. Finally, the finding of the study confirmed student teachers' conceptions about their students' learning process influenced by their prior experiences as school students.

Key words: teaching approaches, physical education, prior experiences, Mosston and Ashworth's Spectrum.

Introduction

Teaching in the physical education (PE) context is a complex and a challenging job. Perhaps the main reason for this is the fact that PE teachers have to teach a wide variety of activities while their students, each one of them different in terms of skill, ability and interests, has to move constantly in an environment that is frequently poorly equipped. In addition, learning in PE must be linked to three interdependent educational dimensions, motor, cognitive, and affective (Graham, 2008). Within this challenging environment, the main goal for PE teachers is to help students learn. Undoubtedly, student teachers' education plays an important role and can greatly assist their learning to be effective instructors (Cothran & Kulinna, 2008) in a very complex instructional environment (Hardy & Mawer, 1999).

Development of teacher knowledge is influenced by a variety of factors. According to Lawson's theory on occupational socialization (1983a, 1983b), a PE teachers' knowledge keeps undergoing continuous evolution. The socialization period is divided into three stages, acculturation, professional, and organizational (Lawson, 1983a). During the period of acculturation a plethora of factors influence a person's decision to become a physical education instructor and his/her construction of knowledge and beliefs about teaching approaches, course content, and pedagogical perspective. Research on occupational socialization indicates that an individual's perception of PE is heavily influenced by his/her experiences in K-12 physical education (Curtner-Smith, 1999). Therefore, the conclusion to be reached is that PE student teachers enter university teacher preparation programs already having formed an initial professional profile.

A significant number of studies, based mainly on the constructivist approach, have stressed the important role of the acculturation period in the development of student teachers' beliefs and knowledge. More specifically, student teachers form their conceptions about their students' learning process mainly based on their prior experience as school students (Calderhead, 1996). According to Richardson (1997), student teachers construct their knowledge based on their prior knowledge and experience (i.e., knowledge developed as a result of being a student in K-12 physical education classes) and actively give new meaning to their current knowledge. Likewise, the findings of another study (Patrick & Pintrich, 2001) confirm that teachers' conceptions about teaching, learning and motivation undergo changes mainly and more effectively during their educational period. From the above we can assume that physical education students' prior beliefs play an important role in their intention to adopt or reject specific instructional approaches as future physical educators. The influence of the undergraduate studies is also important (Lawson 1983a, b).

When planning and organizing lessons, teachers must make decisions about content to be taught and instructional processes to be implemented (Capel & Whitehead, 2010). Concerning the methodology of teaching Mosston and Ashworth's (2002) Spectrum of teaching styles is one of the most popular frameworks used to

design and deliver instruction. The Spectrum consists of a continuum of 11 different teaching styles in which decisions shift between teacher and students. Teachers make specific lesson plans and choose appropriate teaching styles depending on their students' capability and skills. Selecting a teaching style is mostly dependent on the goals/objectives that the teacher wants to have their students meet. In addition, content does play a role in decision-making (Mosston, & Ashworth, 2002). The selection of a Spectrum teaching style will dictate the level of teacher and student involvement in decision-making (Mosston, 1981). In case that a reproduction teaching style is implemented, decisions about content, class organization, and feedback will be mostly made by teachers. The goal of reproduction teaching styles is to reproduce the demonstrated movement task or known information as accurately as possible. On the other hand, if a productive teaching style is implemented, students will be given the opportunity to make some or all decisions over learning process and will be provided with opportunities to produce a new skill or to discover new bits of knowledge (Mosston & Ashworth, 2002).

Over the past decade in a number of studies researchers have explored the extent to which Spectrum teaching styles are perceived and used by PE teachers from multiple countries around the world. Findings from studies conducted in the UK revealed that PE teachers teaching in schools situated in urban and rural areas tend to use reproduction teaching styles more often than production teaching styles. The practice style was reported to be used more often than any of the other Spectrum styles (Curtner-Smith, & Hasty, 1997; Curtner-Smith, Todorovich, McCaughtry, & Lacon, 2001). In another study, the reproduction styles were reported to prevail in the UK and were considered by respondents to be the most appropriate styles to promote all four standards of the National Curriculum in Physical Education. Actually, the standards in question concern the following areas: acquiring and developing skills, selecting and applying skills, evaluating and improving performance and knowledge, and understanding fitness and health (Macfadyen & Campbell, 2005). In a study conducted by Cothran, Kulinna, and Ward (2000), college students from the U.S reported that they perceived that their PE teachers used teaching styles from the reproduction cluster more frequently. Even though college students recognized the differences and benefits of each style, they reported that they believed the reproduction teaching styles lead them to learn more and promoted their motivation and fun in PE lessons more than in production style lessons. The findings about the use of and experience with Spectrum teaching styles in a subsequent study of U.S. PE teachers (Kulinna & Cothran, 2003) reflect those reported by Cothran et al. (2000) about U.S. college students (Cothran et al., 2000). More specifically, the PE teachers reported using reproduction teaching styles more often than production teaching styles. Only divergent production from the production cluster was ranked in the teachers' five top choices. Noteworthy was the fact that although they perceived divergent production and guided discovery as very effective styles they avoided using them. Finally, they perceived the reproduction teaching styles as more beneficial to their students than the production teaching styles. In a cross-cultural study of South Korean, Australian, French, Portuguese, British, Canadian, and American physical education teachers, Cothran et al. (2005) found that the reproduction teaching styles were used more frequently and valued more highly by the teachers than teaching styles from the production cluster. Similar to the aforementioned were the findings of a study conducted in Finland (Jaakkola & Watt, 2011). The researchers found that Finnish PE teachers preferred using teaching styles from the reproduction cluster than the production cluster. In addition, they perceived these styles as more beneficial to their students than any of the production teaching styles.

Participants in the current study were PE students from a university teacher preparation program in which students completed many courses aimed at enhancing their knowledge and ability to teach, but more specifically two practicum courses, one delivered during their second year in the program and one during their fourth year. Both practicum courses were designed to give the student teachers opportunity to convert theory into practice, which helped them develop into more effective teachers. During the practicum courses, PE student teachers have the chance to teach physical education activities to adolescents and children with emphasis being placed on lesson planning, management, and assessment. Student teachers were encouraged by their mentors to implement production teaching styles. In addition, two theory-oriented courses delivered during the first year of the teacher preparation program included information about the reproduction and production teaching styles. Including these courses in the curriculum is consistent with Zeng, Leung, and Hipscher's (2010) suggestion that teaching style strategies, such as those associated with Mosston and Ashworth's Spectrum, should be included in curricular programs to help student teachers cope with their future students' diversity. The implementation of the Spectrum of teaching styles can facilitate the achievement of a variety of goals within the PE curriculum (Chatoupis, 2005). Although the importance of Mosston and Ashworth's Spectrum has been well documented, little evidence is available to support PE student teachers' perceptions about Spectrum teaching styles. The Spectrum of teaching styles has been taught in Greek physical education teacher preparation programs for more than 10 years. It now seems time that student teachers' perceptions about the implementation of the Spectrum teaching styles were examined. The present study relied on PE student teachers' reports so as to further examine to what extent Spectrum teaching styles are implemented in Greece. Tracing PE student teachers' beliefs and their intention to rely on Spectrum teaching styles as PE teachers was an additional goal. Finally, exploring prior experience influence on PE student teachers' decision to actually implement the styles in question can be said to be a further goal of this research paper.

Method

Participants and Data Collection

Two hundred eighty eight PE student teachers, 158 males and 130 females, participated in this study. Their age was 20-22 years old ($M=20.7$, $SD=3.41$) and all of them studied in the Department of Physical Education. 74 of them attended the first year and second whereas 70 of them were third year and the fourth year students. They voluntarily participated in the study which was conducted after receiving the ethical approval from Ethics Committee of the University. Also, the assent of PE student teachers was mandatory for participating in the study. In addition, specific instructions, oral and written, were provided before research questionnaires could be filled in by students. Researchers were available to provide explanation throughout the data collection process. Instrument. Cothran, Kulinna and Ward's (2000) questionnaire was translated and modified in order to be used in the Greek educational context. The questionnaire includes a concise scenario for each Spectrum teaching style. Each scenario was followed by four questions. A fifth question was added so that the Greek version of the questionnaire could gauge PE student teachers' intention to implement each teaching style as PE teachers in the future. More specifically, the additional question was: "I intend to use this teaching style in the future as a physical education teacher". Another question was related to their experience with each teaching style during school years: "I had a physical education teacher that taught this way". For these two questions a 5-point Likert scale was used (from never to always). Three more questions were included related to their beliefs concerning this style, "I think this way of teaching would make class fun for my students", "I think this way of teaching would help students learn skills and concepts", "I think this way of teaching would motivate students to learn". For these three questions a 5-point scale was used too (from strongly disagree to strongly agree). Also, the questionnaire included background questions concerning gender and study year.

In order to produce an accurate translation of the questionnaire the following steps had to be taken. Firstly, the questionnaire was translated in Greek and then back to English by bilingual PhD students. The version produced was then evaluated by bilingual PhD students before an experimental version of the questionnaire could be established. A testing procedure was resorted to which involved a small group of six undergraduate students so that the version in question could be tested. Finally, validity, reliability and internal consistency tests were conducted.

Data Analysis

The construct validity and the internal consistency of the scale were analyzed. A Confirmatory Factor Analysis (CFA) was performed using Amos 16 software (Arbuckle, 2008). The hypothesized factors structure of the translated scale was tested. The Non-normed Fit Index (NNFI), the Comparative Fit Index (CFI) and the Root Mean Squared Error of Approximation (RMSEA) were the indices that were used in order to examine if the model fit well. In the CFA model, only the perception items (2,3 and 4 of each style) were used. Scale internal consistency was determined through Cronbach's alpha (Cronbach, 1951). MANOVAs were performed in order to investigate differences in PE student teachers' experiences with each teaching style and their intention to implement each teaching style as PE teachers in the future. In addition, items 2,3 and 4 were grouped together thus forming a new item for each style and then MANOVA was performed in order to analyze the PE student teachers' overall perceptions concerning the benefits of each style for students. Following Cothran, Kulinna and Ward's (2000) example repeated measures ANOVAs were performed aiming to examine their perceptions about students' motivation, fun and learning with each teaching style. A Pearson product-moment correlation coefficient was computed to assess the relationship between PE student teachers' experiences on teaching styles and their intention to implement them in the future as physical education teachers. Finally, Pearson correlation analysis was performed in order to examine the relation between PE student teachers intention to adopt each teaching style and their perceptions about each teaching style.

Results

Questionnaire Validity and Reliability

CFA findings suggested that the overall 11 factors teaching styles model fit the data well (Hu & Bentler, 1999): ($CMIN = 824.91$ [$df = 440$], $CMIN/df = 1.875$, $TLI = .891$, $CFI = .909$, $RMSEA = .055$). The Cronbach's alpha value varied between .74 and .87 indicating good internal consistency for the scale. Therefore, the findings mentioned above suggest that the Greek version of the questionnaire is a valid and reliable instrument.

Physical education student teachers' experiences in physical education lesson

Repeated measures ANOVA revealed significant differences in PE students' experiences with Mosston and Ashworth's Spectrum ($F[10,278] = 19.96$, $p < .001$, $\eta^2 = .42$). PE student teachers reported that their PE teachers in school relied more on the teaching styles of command, practice and guided discovery whereas the reciprocal teaching style as well as the learner initiated and the self-check teaching style were much less frequently resorted to. (Table 1).

Physical education student teachers intention to implement Mosston and Ashworth's spectrum of teaching styles

MANOVAs' findings revealed significant differences in PE student teachers' intention to implement Mosston and Ashworth's (2002) teaching styles for the study year ($F[33,810] = 2.44, p < .001, \eta^2 = .09$) but no differences were found for gender and interaction between study year and gender. The examination of the univariate effects revealed significant effect of study year on guided discovery ($F[3,278] = 3.07, p < .05, \eta^2 = .03$), learner's individual designed program ($F[3,278] = 4.72, p < .01, \eta^2 = .04$), and self-checking teaching style ($F[3,278] = 6.81, p < .01, \eta^2 = .06$). Post-hoc polynomial contrasts investigating differences in students' intention to implement teaching styles by study year showed that second and fourth year PE student teachers tend to rely more on the guided discovery, learner's individual designed program and self-checking teaching style than first and third year student teachers. Descriptive statistics results (Table 1) showed that PE student teachers as physical education teachers in the future are willing to rely more on the teaching styles of practice, command and inclusion whereas relying on the teaching style of learner's individual designed program as well as on the learner initiated and self-teaching approaches appears to be a less likely option.

Physical education student teachers' perceptions of the spectrum of teaching styles

A two-tailed multivariate analysis (two-way MANOVA) of variance was performed in order to examine differences in teaching styles benefits between study year and gender. The findings showed statistically significant multivariate effect for the study year ($F[33,816] = 2.88, p < .001, \eta^2 = .09$) but found no differences for gender and interaction between study year and gender. Examination of the univariate analysis showed statistically significant effect for the study year on guided discovery ($F[3,280] = 4.59, p < .01, \eta^2 = .05$), on practice style ($F[3,280] = 3.40, p < .05, \eta^2 = .04$), on self-teaching ($F[3,280] = 3.57, p < .05, \eta^2 = .04$), on learner's individual designed program ($F[3,280] = 3.87, p < .05, \eta^2 = .04$), on learner-initiated ($F[3,280] = 3.91, p < .01, \eta^2 = .04$), on self-check ($F[3,280] = 3.32, p < .05, \eta^2 = .03$), on command ($F[3,280] = 3.96, p < .01, \eta^2 = .04$) and on convergent discovery ($F[3,280] = 3.38, p < .05, \eta^2 = .04$). Post-hoc polynomial contrasts investigating differences in students' perception of teaching styles by study year showed that first year students are more inclined to perceive the self-checking style as more beneficial than PE teacher students attending in the second, third and fourth year. Descriptive statistics results (Table 1) showed that physical education students perceived the reciprocal approach and the teaching styles of inclusion, command and practice as being more beneficial whereas they viewed the learner's individual designed program, the learner-initiated approach and the self-teaching approach as less beneficial. The results of repeated measures ANOVAs for fun ($F[10,278] = 12.26, p < .001$), motivation ($F[10,278] = 18.44, p < .001$) and learning ($F[10,278] = 25.82, p < .001$) revealed that PE student teachers' perceptions concerning the benefits of each style varied. More specifically, they perceived that inclusion, practice and reciprocal approach are maximally effective in promoting student satisfaction the most whereas convergent discovery, learner initiated and self-teaching were viewed as being minimally effective in promoting the same aspects of a PE lesson situation. Also, PE student teachers perceive that reciprocal, command and guided discovery are the most beneficial in promoting learning. On the other hand, learner's individual designed program, learner initiated and self-teaching were assessed as less effective in promoting learning. Finally the same students stated that the reciprocal approach as well as the teaching styles of command and inclusion can maximally enhance student motivation whereas learner's individual designed program, learner initiated and self-teaching enhance student motivation substantially less.

Table 1. Means and Standard Deviation for Greek PE student teachers' experiences with, intention to implement, perceptions of, perceived overall benefits of the Mosston and Ashworth's Spectrum of Teaching styles.

Teaching Styles	Experiences		Intention		Overall perceived benefits		Perceived promotion of fun		Perceived promotion of learning		Perceived promotion of motivation	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
A Command	2.86	1.22	3.37	1.05	11.80	2.08	3.85	.80	4.03	.77	3.92	.85
B Practice	2.26	1.06	3.53	.84	11.75	1.94	4.00	.72	3.90	.83	3.85	.84
C Reciprocal	1.84	1.10	3.23	.93	11.97	1.89	3.89	.77	4.10	.71	3.98	.80
D Self-check	1.65	.98	2.94	.97	11.90	2.18	3.66	.97	3.75	.90	3.79	.91
E Inclusion	2.01	1.00	3.26	.94	11.90	2.18	4.02	.77	3.92	.92	3.96	.85
F Guided Discovery	2.14	.92	3.23	.85	11.64	2.01	3.81	.88	3.94	.80	3.89	.81
G Convergent Discovery	2.00	.99	2.95	.90	11.22	2.22	3.64	.83	3.78	.84	3.80	.90
H Divergent production	1.94	.97	3.10	.93	11.43	2.04	3.71	.75	3.85	.80	3.88	.84
I Learner designed individual program	1.96	1.04	2.83	.93	10.95	2.30	3.80	.83	3.55	.91	3.61	.93
J Learner-initiated	1.81	1.01	2.70	1.04	10.44	2.66	3.60	.91	3.43	1.05	3.41	.101
K Self-teaching	1.92	1.07	2.37	.97	9.55	2.82	3.44	1.03	3.00	1.11	3.11	1.12

Relation between physical education student teachers' experiences and their intention to implement teaching styles

The findings of the Pearson's r suggested that the experience of physical education student teachers with guided discovery, self-teaching, reciprocal, self-check, inclusion, divergent discovery and command style significantly related to their intention to implement these teaching styles as physical education teachers in the future. In addition, learner's individual designed program, learner initiated, and convergent discovery moderately related to their intention to implement these teaching styles. Finally, there was no relation between physical education student teachers experiences with practice style and their intention to implement this teaching style as PE teachers in the future.

Relation between Physical Education Student Teachers Intention to Implement Teaching Styles and Their Perception about Their Benefits

Correlation between PE student teachers' intention and overall perceptions ranged from .43 to .61. The findings suggested that PE student teachers' intention to make use of a teaching style related with their perception about the teaching style in question.

Discussion

The Greek version of Cothran, Kulinna and Ward's (2000) questionnaire proved to be a reliable tool for assessing the variety of teaching styles implemented in the Greek educational context, and PE student teachers' perceptions about them. In particular the findings of the present study revealed that a variety of teaching styles have been used in the context of physical education in Greece. PE student teachers reports lead to the conclusion that Greek PE teachers tend mainly to use reproductive teaching styles and only rarely implement productive teaching styles. The above finding is consistent with the findings of Cothran, Kulinna and Ward's (2000) study in which participants were college students as well. Present study findings are similar to the findings of other studies which, unlike the present study, used PE teachers' reports as a source of information (Cothran et al. 2005; Jaakkola & Watt, 2011; Kulinna & Cothran, 2003). The above finding is in contrast with the prevailing constructivist approach which supports that learner plays an important role in the learning process and in any case should not be a passive recipient of teacher's authority (Shuell, 1986). Actually, a purely constructivist approach would dictate that productive teaching styles should be implemented more frequently as they encourage more effective learning (Morgan, Kingston, & Sproule, 2005). Therefore, teachers should provide adequate stimuli to learner's interest by offering opportunities for connecting previously obtained knowledge with more recently presented bits of information, thus ensuring more meaningful learning. A rational explanation for this trend could be the fact that Greek PE teachers probably attach more importance to course control whereas student learning is believed to be a lower priority, as has been revealed by studies in the U.S. (Cothran & Ennis, 1997; Cothran & Kulinna, 2008) and in the U.K. (Curtner-Smith, 2001). As Thorburn and Collins (2003) reported, reproductive teaching styles have been considered to be a powerful means enabling PE teachers to control the learning environment; Furthermore, the effectiveness of reproductive teaching styles in motor skills acquisition (Byra, 2000) and the perceptions of PE teachers that reproductive teaching styles promote time management and students' knowledge (Cothran & Kulinna, 2008), may influence PE teachers' trend to adopt a reproductive teaching approach.

In the present study PE student teachers reported that PE teachers use more frequently the command and practice styles whereas the learners' initiated program and self-check styles are less frequently resorted to. Actually, although PE teachers' tendency to make use of reproductive approaches is pretty clear, there was an exception that did not follow this general rule. Greek physical education teachers tend to rely more on the guided discovery style which belongs to the cluster of productive teaching styles. Actually, the same finding is confirmed by other studies, too (Cothran et al., 2005; Jaakkola & Watt, 2011; Kulinna & Cothran, 2003).

A reason to account for the popularity of guided discovery in Greece is that it can be said to bear resemblances to Socrates's method of elicitation. Actually, this fact has probably inspired PE teachers and encouraged them to incorporate guided discovery in their teaching style repertoire. After all, Greek education presents Socrates as one of the greatest teachers of all time. Therefore, wishing to identify with such a powerful paragon is absolutely reasonable.

The fifth item, which was added so that this study could gauge PE student teachers' intention to implement each teaching style as PE teachers in the future, revealed that they tend to be keen on adopting more often reproductive than productive teaching approaches. Second and fourth year PE student teachers reported that they are keen on implementing more often the guided discovery, learner's individual designed program and self-checking teaching styles than first and third year students. Even though the first two teaching styles belong to the productive cluster and the last one to the reproductive, we can assume that self-check provides students with a relative degree of autonomy in learning and allows for more decision making on students' part (Byra, 2006; Jenkins & Byra, 1997). Actually, both of these constitute more common features of productive teaching styles. A rational explanation for this trend of PE student teachers is the fact that second and fourth year students

attend practicum courses during this period of their studies and the influence of their teachers could motivate them to implement more often productive teaching styles. However, it appears that this is a rather short-lived and weak influence. Consequently, it can be concluded that the above finding confirms Curtner-Smith's (1999) suggestion that professional socialization period has rather a weak influence on PE student teachers' beliefs, skills and knowledge.

In addition, PE student teachers perceived reproductive teaching styles as more overall beneficial than productive. The above finding is similar to findings from college student reports (Cothran, Kulinna & Ward 2000) and PE teachers' reports (Cothran et al., 2005; Jaakkola & Watt, 2011; Kulinna & Cothran, 2003). The findings of the aforementioned studies and the present study also indicate that there is a trend in physical education in many countries to perceive the implementation of reproductive teaching styles as more beneficial to their students. A reason to account for this is the fact that PE student teachers have a sporting background which makes them see transferring mainly knowledge content to their students as a top teaching priority. In their attempt to be more effective in teaching skills they prefer to adopt the same teaching approaches (reproductive) that PE teachers used to implement in school rather than to explore new pedagogical teaching approaches by expanding their knowledge and adopting productive teaching approaches (Capel, 2007). Also, it is likely that the PE student teachers of the present study belong to Lawson (1983b) first type of PETE, according to which their first priority is coaching. Since the defining characteristic of reproductive styles is teachers' dominant role in delivering knowledge to their students while students in turn reproduce the bits of knowledge presented to them (Mosston & Ashworth, 2002); then PE student teachers are likely to adopt a reproductive teaching approach which is closer to a coaching viewpoint.

Even though the majority of the participants in the present study have already attended many courses in which teachers put emphasis on productive teaching styles effectiveness, it seems that they tend to prefer using reproductive teaching approaches. A possible explanation is that PE student teachers based on their experiences during schooling form very strong and solid beliefs and consequently PETE programs could not help them to reconstruct their beliefs (Curtner-Smith, 1999). Students' prior beliefs and the variety of teaching approaches in higher education are likely to lead students to misinterpretation of the new information. In addition, according to Entwistle and Peterson (2004), at least in British higher education, the limited implementation of innovative teaching methods influences students understanding. More specifically, their limited exposure to innovative teaching methods prevents PE student teachers from reconstructing their existing coherent beliefs and replace them with new innovative ones. In addition, the majority of undergraduate students adopts a rather superficial approach during their studies and put emphasis on achieving their goals with a minimum of effort (Entwistle & Tait, 1990); this is likely to urge PE students to adopt teaching approaches similar to their PE teachers. In consistency with the aforementioned conclusion was the finding of the present study that PE student teachers' intention to implement each teaching style related to their reports about their prior experiences and beliefs about each style. Although the relation is not high, it was very significant. Furthermore, this finding implies that prior beliefs are not the only factors to influence PE student teachers' perceptions about the teaching styles. According to Lawson (1983a, b) PE teachers are influenced by a number of factors during acculturation period; one of them is their experience from physical education lessons. This finding is in consistency with Calderhead's (1996) suggestion that student teachers' conceptions about their students' learning process are mainly based on their prior experience as school students. Likewise, Postareff et al. (2007; 2008) stressed that a short educational period is not enough for influencing pre-service educators to adopt a productive teaching approach.

Conclusions

The findings of the present study indicated that based on students' responses who have been asked to recall their school experiences, Greek PE teachers prefer to implement more frequently reproductive teaching styles and rarely productive teaching styles. In addition, findings imply that PE student teachers form their beliefs about their teaching preferences mostly based on their previous experiences about PE during schooling. These beliefs appear to be very solid and thus seems quite difficult to be re-constructed during undergraduate studies. Despite the fact that during the practicum courses student teachers were urged by their mentors to implement production teaching styles, it appears that the influence of this educational period is weak. Consequently, curriculum developers should elongate and enrich the practicum with more innovative teaching approaches that would facilitate the use of a larger repertoire of the Spectrum of teaching styles. Finally, it is imperative the adoption of innovative teaching methods by entire teaching personnel in order to create a supportive teaching context for PE student teachers. Furthermore, it is imperative to educate PE teachers primarily in site with innovative and effective workshops/seminars in order to be convinced that many of the objectives of physical education could be accomplished efficiently through productive teaching styles implementation. Further investigation of PE teachers teaching preferences must be conducted in order to confirm PE student teachers reports combined with observation in order to compare any new findings that may arise. Also, future studies through a qualitative approach could examine the deeper reasons for which both PE teachers and PE student teachers tend to adopt a reproductive teaching approach.

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