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Elisavet Konstantinidou[a], Athanasios Gregoriadis[b], Vasilis Grammatikopoulos[c] & Maria Michalopoulou[d]

[a] Department of Early Childhood Care & Education, Alexander Technological Educational Institute of Thessaloniki, P.O. Box 14157400, Thessaloniki, Greece

[b] School of Early Childhood Education, Aristotle University of Thessaloniki, University Campus, Pyrgos Paidagogikis, 54124, Thessaloniki, Greece

[c] Department of Early Childhood Education, University of Crete, University Campus, 74100, Rethymno, Greece

[d] Department of Physical Education and Sport Science, Democritus University of Thrace, University Campus, 69100, Komotini, Greece

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Primary physical education perspective on creativity: the nature of creativity and creativity fostering classroom environment

Elisavet Konstantinidou[a]*, Athanasios Gregoriadis[b], Vasilis Grammatikopoulos[c] and Maria Michalopoulou[d]

[a]*Department of Early Childhood Care & Education, Alexander Technological Educational Institute of Thessaloniki, P.O. Box 14157400, Thessaloniki, Greece;* [b]*School of Early Childhood Education, Aristotle University of Thessaloniki, University Campus, Pyrgos Paidagogikis, 54124, Thessaloniki, Greece;* [c]*Department of Early Childhood Education, University of Crete, University Campus, 74100, Rethymno, Greece;* [d]*Department of Physical Education and Sport Science, Democritus University of Thrace, University Campus, 69100, Komotini, Greece*

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From the beginning of the twenty-first century, many authorities and educational policies had begun to campaign their curricula towards the promotion of creativity. Researchers' interest turned to teachers' perceptions, implicit theories and beliefs about creativity-related issues which reflect and influence their behaviours and actions in classroom settings. Till today, no research recorded physical educators' (PEds) perceptions about creativity- (PAC) related issues, although many EU member states promote creativity in their primary curricula. The PAC questionnaire was developed to explore PEds' perceptions on: (a) the characteristics of creative students, (b) students' creative outcomes, (c) the nature of creativity and (d) the creativity fostering and inhibiting classroom environment. The present paper discusses the findings from the two latter aspects. Although PEds seemed to lean towards the democratic approach of creativity, many of them held contradicting views. Also, they appeared undecided, unaware and inconsistent with regard to creativity fostering classroom environment issues.

Keywords: creativity; teachers; perceptions; implicit theories; fostering classroom environment; nature

1. Introduction

The role of nurturing and supporting children's creative potential falls on the shoulders of teachers, who daily strive towards the practical translation of the educational policy (curriculum) into their classrooms. The complexity of the teachers' role regarding the promotion of students' creativity has been described in many studies (Cropley, 1997; Grammatikopoulos, Gregoriadis, & Zachopoulou, 2012; Runco, 2004, 2007; Ward, 2007). Some general and common accepted guidelines for the promotion of creativity in schools suggested by previous research became the stepping stone for the educational community. Since 'creativity arises from a constellation of psychological characteristics including (a) cognitive aspects (knowledge, creativity-related skills and abilities), (b) motivation, and (c) personal properties such as self-confidence' (Cropley, 1999), and several interactions between (a), (b) and (c) occur inside the

*Corresponding author. Emails: konstantinidou_elsa@yahoo.com, elsakonsta@bc.teithe.gr

social context of the classroom, the teachers' role in promoting creativity in schools is a difficult, multidimensional and challenging one.

Regarding teachers, there is a growing research interest on theirs implicit theories about creativity-related issues. Researchers explored teachers' implicit theories, as well as, other synonymous terms such as perceptions, beliefs, views, stances and conceptions (Bolden, Harries, & Newton, 2010; Craft, Cremin, Burnard, & Chappell, 2007; Diakidoy & Kanari, 1999; Fleith, 2000; Fryer & Collings, 1991; Kampylis, Berki, & Saariluoma, 2009; Kokotsaki, 2011; Konstantinidou, Gregoriadis, & Grammatikopoulos, 2011; Martin, Craft, & Tillema, 2002; Tan 2001; Tin, Manara, & Ragawanti, 2010) and sometimes used these terms interchangeably through their articles (Andiliou & Murphy, 2010). Teachers' implicit theories about creativity-related issues reflect their personal views, opinions or definitions (Runco, 1999a; Saracho, 2012) and they differ from researchers' explicit theories as they are not articulated, tested or shared as the latter ones. Teachers' implicit theories are valuable partners of researchers' explicit theories as 'they tell us how people in the natural environment really think about creativity' (Runco, 1999a, p. 30). They are not just ideas about creativity, but as Runco (2007) stated, they lead to expectations which, in turn, lead to actual behaviour. That means, what educators perceive as creativity in the school or in the classroom environment is likely to outline the activities which they provide to their students and the way (strategies, techniques, behaviours and actions) they provide them in order to promote students' creative potential.

On the verge of the twentieth to the twenty-first century, among the aspects of creativity which magnetise researchers' interest, were the nature of creativity (Aljughaiman & Mowrer-Reynolds, 2005; Fryer & Collings, 1991; Kampylis et al., 2009) and the creativity fostering classroom environment (Craft, 1998; Fleith, 2000; Gregoriadis, Zachopoulou, & Konstantinidou, 2011). In many cases, a misalignment between researchers' and teachers' beliefs was found and exposed. One of those misalignments of particular interest refers to divergent thinking which was identified and considered as one of the closest intellectual ability to creativity (Guilford, 1967; Torrance, 1974) and the most widely used approach to study it (Hocevar, 1981). Thus, it is not surprising that 'divergent thinking tests are among the most commonly used in creativity research' (Runco, 1999b, p. 577). However, teachers did not seem to share the same view with researchers concerning divergent thinking (Aljughaiman, & Mowrer-Reynolds, 2005; Fryer & Collings, 1991). Another important misalignment between researchers' and teachers' beliefs is regarding the nature of creativity. Many researchers and authorities supported the notion of democratic (NACCCE, 1999) or ordinary (Ripple, 1989) or little creativity (Craft, 2000, 2001; Gardner, 1993) which can be developed in every person and as Kampylis et al. (2009, p. 18), pointed out 'this type of creativity could be widely applied in the primary school context because it is regarded as an innate potential in all people'. However, while teachers seem to believe that creativity can be developed or facilitated in everyone, on the other hand, they tend to believe that creativity is a rare gift or it is not a characteristic of all people (Diakidoy & Kanari, 1999; Fryer & Collings, 1991; Kampylis et al., 2009).

Based on misalignments between researchers' and teachers' beliefs, on teachers' inconsistent or conflicting views in creativity-related issues and on their frequent misconception where creativity is often related to the arts or artistic subjects (Aljughaiman & Mowrer-Reynolds, 2005; Diakidoy & Kanari, 1999; Kampylis et al., 2009), researchers stressed the need for further investigation, especially in specialised school subjects (Kampylis et al., 2009) or specific domains of knowledge (Andiliou

& Murphy, 2010) Taking into account: (a) that physical education (PE) is among the top three subjects in European Union member states (EU27), where creativity and their synonyms are the most prominent in curricula (Heilmann & Korte, 2010), (b) the extensive use of creativity and their synonyms in Greek Cross Thematic Curriculum Framework (CTCF) curriculum for PE (Heilmann & Korte, 2010; PI, 2003) and (c) the researchers' growing interest on specific subjects educators' point of view in creativity-related issues, the purpose of this study emerged.

The present paper explores physical educators' (PEds) perceptions about the nature of creativity and the creativity fostering classroom environment in PE. This investigation is part of a larger study, which also recorded, PEds' perceptions about the characteristics of the creative student, the student's creative outcomes (Konstantinidou, Michalopoulou, Aggelousis, & Kourtesis, 2013) and the creativity inhibiting classroom environment in PE.

2. Method

2.1 *Participants*

The sample consisted of 220 (111 men and 109 women) in-service PEds who work in Greek public elementary schools in the region of Central Macedonia (CM) in Northern Greece. The participants had a mean age of 43.77 ± 3.89 (years) and the mean of their professional experience in elementary schools was 13.43 ± 5.12 (years). The instrument's items stability was tested with 23 men and 34 women of the original sample completed the instrument for a second time. The participation in the study was on a voluntary basis and the participants signed an informed consent declaring anonymity, confidentiality and the right to withdraw from the research anytime.

2.2. *Research instrument*

The Perceptions About Creativity (PAC) questionnaire was formulated after reviewing the existing body of literature in the field of teachers' perceptions, beliefs, views or implicit theories of creativity. Many items were adopted from Diakidoy and Kanari's (1999) questionnaire and were modified by the researchers in order to address primary education and PE. PAC is a self-report, pencil-and-paper questionnaire, containing 22 items which employed quantitative and qualitative data analysis. The particular paper discusses the analysis of PEds' perceptions about: the nature of creativity (items 9, 12, 14 and 16) and the creativity fostering classroom environment (item 2–5, 8, 18, 19 and three variables of item 17). For both aspects of creativity, quantitative data methodology was employed. The items required three different types of data analysis according to their answers' type. On seven items, participants had to respond in a 5-point Likert scale (1 = totally disagree and 5 = totally agree). Five items required answers with different approaches: two items with forced-choice and three items with multiple-choice methodologies. The instrument's content validity was assured through thorough conversations between seven academic experts in the field of PE and minor modifications were incorporated. Readability, ease and time of administration were tested with 30 Greek PEds (16 males and 14 females, with mean age $M = 42.35 \pm 5.09$ years).

2.3 *Research procedure and data analysis*

Research took place in 2010. The instrument was mailed to a total of 800 elementary public schools from the region of CM in Northern Greece addressed specifically to their

PEds. The average time to complete the questionnaire was 25–30 minutes. Two hundred and twenty PEds from 205 elementary schools (24% of the elementary public schools of CM) answered and mailed back the questionnaire with anonymity. After a three-week interval, 57 PEds (23 men and 34 women) completed the instrument for a second time (after agreeing in a relevant question on the first implementation of the PAC) in order to check its items' stability. Kendall's tau-c (τ_c) coefficient for Likert scale items, Cramer's phi coefficient (ϕ_c) for items with forced-choice answer (with three and more alternatives) and phi coefficient (ϕ) for items with multiple-choice answer were employed to check items' stability. Moderate positive correlation ($+.30 < \tau_c > +.80$) and medium effect sizes ($.30 \leq \phi_c < .50$ and $.30 \leq \phi < .50$) were found for the majority of the items, showing a moderate repeatability. Quantitative data analysis of PAC was based on descriptive statistics (frequency analysis).

3. Results

3.1. *PEds' perceptions on the nature of creativity*

The items 9, 12, 14 and 16 examined the nature of creativity.

3.1.1 *Item 9*

This item examined if creativity is a characteristic of all students (Table 1). Almost half of PEds (46%) believed that creativity is a characteristic of all students while one-third of them (34.4%) disagreed with this statement. These results are slightly more supportive of the democratic nature of creativity than those of Kampylis et al. (2009) and much more promising than those of Diakidoy and Kanari (1999). In Kampylis et al.'s (2009) study almost one out of three (36.2%) Greek primary teachers supported that creativity is a characteristic of all students, while roughly two out of three (57.9%) considered creativity as a rare phenomenon. In Diakidoy and Kanari's (1999) study, the majority (75.5%) of the Cyprian participants (prospective teachers) believed that creativity is not a characteristic of all people. On the contrary, 80% of primary and secondary teachers from EU27 refused the elitist view of creativity, since they did not perceive it as a characteristic of eminent people only (Cachia & Ferrari, 2010). An even higher percentage endorsed a democratic view of creativity, with 88% sustaining the statement that everyone can be creative.

3.1.2 *Item 12*

This item examined how often PEds think that they encounter creative students (Table 1). Creativity as an ordinary phenomenon was supported by one out of two PEds (53.8%). This percentage uncovers that half of the participants not only regard creativity as a frequent phenomenon in their classes but they were also able to recognise it. On the other hand, many PEds (43.1%) seemed undecided as they neither agreed nor disagreed with this statement. In Diakidoy and Kanari's (1999) study, the majority of the participants (77.5%) agreed that educators encounter creative children often or very often revealing their beliefs about the frequent occurrence and recognition of everyday creativity. Similar findings were reported for American primary and secondary teachers and administrators since 76% of them believed that they were able to identify the most creative children in their classes (Treffinger, Ripple, & Dacey, 1968).

Table 1. Answers of PEds on a 5-point Likert scale as percentages ($n = 220$) (seven items).

Statements (items)	Totally disagree	Disagree	Neither agree nor disagree	Agree	Totally agree	*M*(SD)
2. Prior knowledge facilitates students' creativity	0.5	1.5	8.8	63.4	25.8	4.12 (0.66)
3. A PEd has the knowledge and the experience to promote students' creativity in PE lessons	1	4.6	14.2	52.3	27.9	4.02 (0.84)
4. The Greek national PE curriculum allow for the manifestation of students' creativity	3.6	19.4	43.9	28.6	4.6	3.11 (0.89)
5. Students can express their creativity in PE	1	4.1	15.3	56.1	23.5	3.97 (0.80)
8. Students are offered a lot of opportunities to manifest their creativity in school	2.5	24.9	36	28.4	8.1	3.15 (0.97)
9. Creativity is a characteristic of all students	6.7	27.7	17.9	32.3	15.4	3.22 (1.20)
12. I often encounter creative students	0	3	43.1	45.2	8.6	3.59 (0.69)

3.1.3 *Item 14*

With this particular item, PEds were forced to choose only one from the following statements: (1) All students are creative to some extent and (2) some students are more creative than others. The majority of the participants (78.5%) supported as the truest the second statement, separating students to at least two groups according to the extent of their creativity: high-creativity and low-creativity students. This finding is in accordance with the result from a prior study (Diakidoy & Kanari, 1999) where 77.6% of the participants had identical beliefs.

3.1.4 *Item 16*

With this item, PEds were forced to choose only one from the following statements: (1) Creativity can be promoted in every student. (2) Creativity can be promoted only in students who are creative by nature. (3) Creativity is innate; it cannot be promoted. The minority of PEds (5.1%) supported that creativity is innate and cannot be promoted and 13.4% supported that creativity can be promoted only in students who are creative by nature rejecting the notion that creativity is for the few. On the contrary, the majority of PEds (81.5%) believed that creativity can be promoted in every student. These results come in agreement with those of Diakidoy and Kanari (1999), Fryer and Collings (1991) and Kampylis et al. (2009).

3.2. *PEds' perceptions on the creativity fostering classroom environment in PE*

The items 2–5, 8, 17.1–17.3, all variables of item 18 and all variables of item 19 examined the creativity fostering classroom environment in PE.

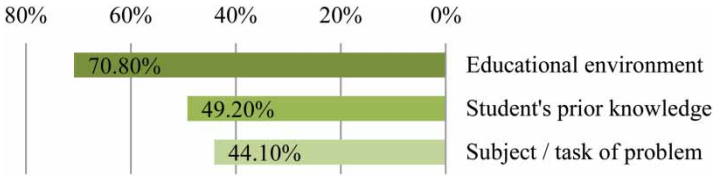

Figure 1. Answers of PEds on variable 17 (multiple choice) as percentages ($n = 220$). Statement: The extent to which students express their creativity depends on 17.1 (educational environment), 17.2 (students' prior knowledge) and 17.3 (subject/task of problem) (three items).

3.2.1 *Item 17.1 and 17.3*

More than two-third of the participants (70.8%) supported that the extent to which students express their creativity depends on the educational environment (variable 1, item 17, Figure 1). On the other hand, less than half of respondents (44.1%) believed the same for the subject/theme of a problem or an activity (variable 3, item 17, Figure 1). With respect to the extent of manifestation of creativity, the environment factor was considered to be of utmost importance, as nearly all of the prospective teachers (98%) of Diakidoy and Kanari (1999) study supported it.

3.2.2 *Item 3*

This item examined if a PEd has the knowledge and the experience to promote students' creativity (Table 1). In total, 80.2% of the participants supported the above statement, since the majority of them believed that PEds are capable to promote students' creativity. In Diakidoy and Kanari's (1999) study, the percentage of prospective teachers who believed that teachers can facilitate students' creativity was higher (98.3%). On the contrary, in Kampylis et al.'s (2009) study, prospective and in-service teachers replied that they did not feel well trained to act as creativity facilitators (51.6% and 56.5%, respectively), while a small proportion of them felt well trained to do so (25.8% and 18.8%, respectively). Also, a notable percentage of prospective and in-service teachers (22.6% and 24.7%, respectively) replied that they did not know how or did not answer, reflecting their uncertainty about their capability to foster students' creativity.

3.2.3 *Item 4*

With this particular item, PEds stated if the Greek national PE curriculum allows for the manifestation of students' creativity (Table 1). Only one-third of the PEds supported the above statement, 23% of them disagreed or totally disagreed with it and a remarkable 44% was undecided regarding the positive orientation of the Greek national PE curriculum towards students' manifestation of creativity. Almost identical were the findings in Morais and Azevedo's (2011) study. Forty per cent of the Portuguese primary and secondary teachers agreed or strongly agreed that the curricula promote creativity in students, 36% neither agreed nor disagreed and 24% disagreed or strongly disagreed with the respective statement. Participants' opinions reported in Kampylis et al.'s (2009) study greatly reflected the inappropriateness of the Greek educational materials and textbooks for the promotion of creativity. Additionally, in Diakidoy and Kanari's (1999) study, nearly two out of three prospective teachers stated that the Cypriot National Curriculum does not allow for creativity.

3.2.4 *Item 5*

PEds indicated their degree of agreement to the following statement: Students can express their creativity in PE (Table 1). The majority of PEds (79.6%) believed that PE is a subject that allows for the manifestation of students' creativity. Indeed, it seems that students express their creativity in PE and this was supported by the findings of a prior study of Konstantinidou, Michalopoulou, Aggelousis and Kourtesis (2011), which examined PEds' perceptions regarding their students' creative outcomes in PE. PE includes a wide range of activities (at least 16 PE and sports thematic activities) that allow creative outcomes to emerge, such as playing team games, practicing sports and sports skills, exercising with basic movements and fundamental movement activities, improvising kinaesthetically, dancing, etc. However, PEds not only support that PE is a subject that allows for the manifestation of students' creativity. In Kampylis et al.'s, study (2009) many in-service and prospective teachers of primary education (59.8%) supported that PE is a creativity-friendly subject since it is likely for a student to manifest his/her creativity through this subject, and PE occupied the 10th position between 16 school subjects. Also, in Diakidoy and Kanari's (1999) study, when Cyprian prospective teachers were invited to select subjects or domains in which they consider it likely for a person to manifest his/her creativity, dance was supported by 61.2% of the participants and occupied the 4th position after Art, Music and Literature. It can be assumed that PE was indirectly supported by the Cyprian prospective teachers because, dance, at least in the context of Cyprian and Greek primary education is usually exercised and performed through PE lessons. The same happens in other countries as for example in England where, again, dance is included in the subject of PE (NACCCE, 1999). A possible explanation is that the children's creativity, especially that of young ones at least in Greek primary education is exercised and expressed through dance and exercises and movements which are very close to dance (music and movement activities) (PI, 2003). However, the study of Konstantinidou et al. (2011) demonstrated through the eyes of PEds that students' creativity in primary PE is expressed through a wide variety of activities, which sometimes surpass even the boundaries of the PE subject (interdisciplinary activities) and several discrepancies (insufficient resources and children's disabilities) which might exist during the lesson or inside the class. These findings together with the ones of the present study and the other aforementioned studies are against the common misconception, which has at least 50 years of life and defends the notion that creativity is manifested especially through the arts (Craft, 2000; Kampylis, 2010).

3.2.5 *Item 8*

PEds stated their degree of agreement to the following statement: students are offered a lot of opportunities to manifest their creativity in school (Table 1). In total, 36.5% of PEds agreed or totally agreed with the statement, another 36% of them neither agreed nor disagreed and the rest 26% of the participants disagreed or totally disagreed. The findings revealed that PEds hold contradictory perceptions concerning the opportunities that the school environment offers for the manifestation of creativity. These findings are in line with those of Morais and Azevedo's (2011) study, where a high level of teachers' indecision or unfamiliarity was noted when the contribution of schools towards the creativity of students (46%) was examined. In other studies (Diakidoy & Kanari, 1999; Kampylis et al., 2009) prospective and in-service teachers had

more distinct, consistent and opposite views to the subject matter as the majority of them believed that the school is not the best environment for the manifestation of creativity.

3.2.6 *Items 2, 17.2, 18.11 and 19.4*

PEds' perceptions of the relationship of creativity with prior knowledge were examined with the above items. PEds seemed to hold contradictory perceptions about the role that prior knowledge plays in students' creativity. The majority of them (89.3%) agreed or totally agreed that prior knowledge facilitates student's creativity (item 2, Table 1). However, only one out of two participants (49.2%) responded that the creative potential of a student depends on his/her prior knowledge (item 17.2, Figure 1). Additionally, less than half of the PEds (43.7%) considered that students' creativity is more likely to be promoted from questions or problems of which students have prior knowledge (item 19.4, Figure 3). The PEds' conflicting perceptions were further confirmed when less than one-third of them supported that the emphasis in knowledge acquisition is necessary for the promotion of creativity (item 18.11, Figure 2).

3.2.7 *Item 18*

PEds' perceptions of behaviours and practices which are necessary for the promotion of creativity were examined with the 15 variables of item 18 (Figure 2). 'Emphasis on intrinsic motivation' was supported by nearly two out of three PEds as a necessary behaviour for the facilitation of students' creative potential. The opposite viewpoint, 'use of external rewards' (which reflects an emphasis in extrinsic motivation) is necessary for the promotion of creativity and was supported nearly by one out five participants. These two findings revealed that PEds' conceptions lean towards the emphasis on intrinsic motivation and are in line with the findings of Diakidoy and Kanari's (1999) and Fleith's (2000) studies.

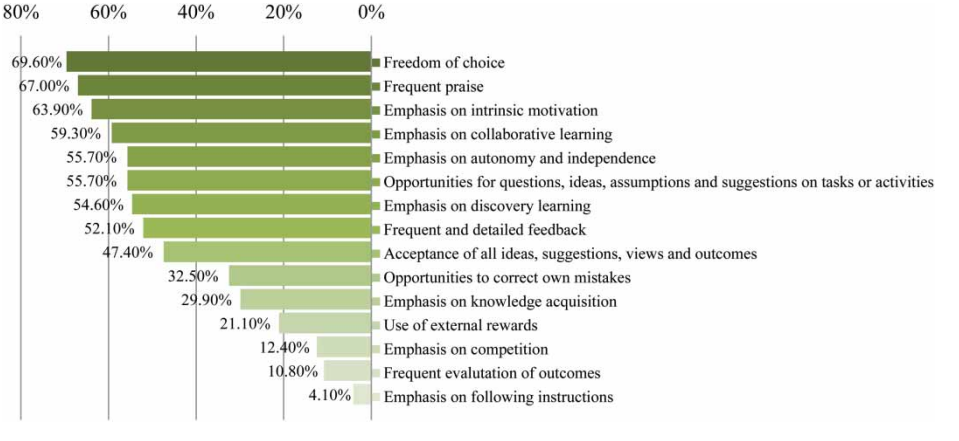

Figure 2. Answers of PEds on variable 18 (multiple choice) as percentages ($n = 220$). Question: Which behaviours and practices do you consider necessary for the promotion of creativity? (15 items).

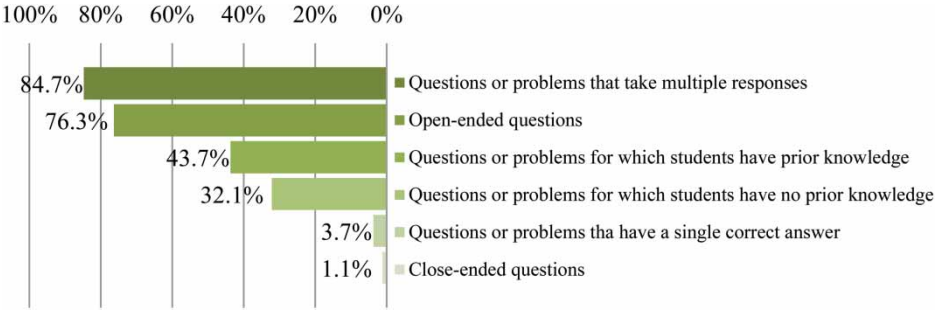

Figure 3. Answers of PEds on variable 19 (multiple choice) as percentages ($n = 220$). Question: Which types of questions do you consider are more likely to promote students' creativity? (six items).

Regarding the 'emphasis on competition' (a teacher's behaviour that focuses on a student's extrinsic motivation) only 12.4% of PEds believed that it is necessary for the promotion of creativity. This finding is in accordance with their previous perceptions and revealed their recognition about the generally inhibiting role of extrinsic motivation to creativity. Although, when 'frequent praise' was examined (another type of extrinsic motivation) many participants (67%) indicated that it is necessary for the promotion of creativity, hence uncovering a contradiction with the previous perceptions and their unawareness that too much praise may harm the students' self-confidence and consequently their intrinsic motivation. 'Emphasis on competition' and 'frequent praise' were supported only by a small number of prospective teachers (18.4% and 28.6%, respectively) in Diakidoy and Kanari's (1999) study. Therefore, when comparing these results with the ones reported in the present study, a contradiction was revealed regarding the student's 'frequent praise' for the promotion of creativity. With reference to an 'emphasis on competition', the result of the present study comes in agreement with the results of Gregoriadis et al. (2011) and Fleith's (2000) studies.

However, when the 'emphasis on students' autonomy and independence' were explicitly examined, it was not strongly supported by the participants of the present study (55.7%). A comparison with the previous results revealed an inconsistency in PEds' perceptions regarding classroom environmental issues related to students' autonomy and independence. This inconsistency was not revealed on Diakidoy and Kanari's (1999) study, where the prospective students totally agreed (100%) that emphasis on autonomy and independence is a necessary environmental aspect for the facilitation of creativity. Likewise, a high percentage of teachers (90%) associated the concept of a creative teacher with the promotion of students' autonomy (Morais and Azevedo, 2011). Furthermore, in the study of Tan (1999) prospective teachers selected 'encouraging independent learning and thinking' variable as a quite important teacher role for students' creativity. In a similar manner, 'independence of thinking' was selected as one of the most indicative criteria for a teacher 'most oriented to creativity' (Fryer & Collings, 1991). However, the present study's findings are in agreement with those of Gregoriadis et al. (2011), revealing that in Greece, PEds and early childhood educators share the same views regarding 'autonomy and independence', as they did not strongly support them as necessary for the promotion of students' creativity.

Moreover, 'frequent evaluation of children's outcomes', was identified by the participants of the present study as being harmful to students' creative potential, since only a minority of them (10.8%) chose it as a necessary practice for the facilitation of creativity. With reference to 'frequent evaluation of children's outcomes', the present study's results are in agreement with the result of Diakidoy and Kanari's (1999) study, where this classroom environmental aspect was supported by few prospective teachers (16.3%).

The percentages of PEds' perceptions on 'emphasis on collaborating' and 'on discovery learning' and 'opportunities for questions, ideas, assumptions and suggestions on tasks or activities' ranged from 59.3% to 54.6%, showing a partial recognition of the importance of these teachers' behaviours, and also, a scepticism about their necessity for the promotion of student's creativity. Moreover, the 'acceptance of all students' ideas, suggestions, views and outcomes', as well as the 'opportunities to correct their own mistakes', were not strongly supported by the participants (47.4% and 32.5%, respectively) revealing a tendency towards to a not so safe, open and positive educational environment to students' challenges and experiences. The results of the present study regarding the 'acceptance of all students' ideas' come in agreement with the respective ones of Gregoriadis et al.'s (2011) study, where 41.5% of early childhood educators supported it. In Diakidoy and Kanari's (1999) study, 'emphasis on discovery learning', students' 'opportunities to correct their own mistakes' and 'to question theories and assumptions', as well as 'acceptance of all students' work outcomes' are thought to be very conducive or conducive to creativity (98%, 92%, 79.6% and 63.2%, respectively) by the prospective teachers, thus, these environmental aspects were perceived much more as optimistic in comparison to PEds' perceptions.

3.2.8 *Item 19*

PEds' perceptions for types of questions that promote students' creativity were investigated with the six variables of this item (Figure 3). A positive educational environment which fosters students' creativity is shaped when educators set open-ended questions or questions and problems that take multiple responses (76.3% and 84.7%, respectively), according to PEds' views. On the contrary, close-ended questions and questions and problems that have a single correct answer were not supported by the participants as techniques that enhanced the manifestation of creativity (1.1% and 3.7%, respectively). Slightly conflicting seemed to be the conceptions that PEds held about the questions or the problems for which students have prior or no prior knowledge (43.7% and 32.1%, respectively). Nevertheless, on both of these two techniques, participants showed a tendency to disbelieve that they promote students' creativity. The same belief was held by the prospective teachers in Diakidoy and Kanari's (1999) study, regarding the questions or the problems for which students have relevant prior knowledge, where only 28.6% of them indicated that this kind of tasks are likely to facilitate students' creativity. Regarding open-ended tasks and questions that take multiple responses, prospective and in-service educators, as well as experts on creativity seem to hold common views.

4. Discussion

Regarding the nature of creativity, Greek PEds seemed to lean towards the 'little c', 'ordinary' or 'democratic' approach of it (Craft, 2000, 2001; Gardner, 1993;

NACCCE, 1999; Ripple, 1989). This was concluded from the fact that half of them perceived creativity as an ordinary phenomenon and as a characteristic of all children. Additionally, the majority of them believed that all children are creative to some extent and that creativity can be promoted in every student. Though, a considerable percentage of the participating PEds (more than one-third) supported that creativity is not a characteristic of all children and seemed undecided to whether creativity is an everyday phenomenon in their classes.

Although many PEds supported the democratic or ordinary approach to creativity, a notable percentage of them appeared to have unclear perceptions, even conflicting ones. A possible explanation of this partial inconsistency of PEds' perceptions derives from the noteworthy percentage of PEds who expressed their indecision on how often they encounter creative students. Their uncertainty exposes probably their ignorance about the democratic approach to creativity and their incapability to recognise and evaluate it in their students, revealing an insufficient theoretical background on this topic.

Similar conflicting results on teachers' beliefs or conceptions about the nature of creativity have been previously reported (Diakidoy & Kanari, 1999; Kampylis et al., 2009). The latter researcher pointed out that the Greek primary in-service and prospective teachers held contradictory conceptions about creativity and strive to formulate consistent implicit theories for the multifaceted phenomenon of creativity. The contradictory perceptions of educators confirm the existence of some widespread misconceptions about creativity, such as that a person is born creative and that creativity is innate and cannot be promoted. It seems that these kinds of misconceptions still stand as obstacles to the approach of democratic creativity and are still held by several educators. This, in turn, may echo an inhibiting classroom environment for the promotion of students' creative potential.

Moreover, the findings revealed a poor agreement or disagreement of PEds' perceptions with the researchers explicit theories on many items related to the creativity fostering classroom environment. This environment in PE was assessed with the use of multiple variables. Almost two out of three PEds supported that the extent to which students express their creativity depends on the environment. The school as the general educational environment was not supported by PEds as a factor conducive to the expression of their creativity. More specifically, participants held contradictory perceptions concerning the opportunities that the school environment offers for the manifestation of creativity. The same was revealed for the Greek national PE curriculum. Indecision in those two factors (school and PE curriculum) was reported by more than one-third of the participants, exposing the PEds' scepticism about the role that school environment and PE curriculum play for the promotion of students' creativity. The current study's Greek PEds' perceptions are in accordance with previous Greek in-service and prospective teachers' conceptions, recorded in Kampylis et al.'s (2009) study, reporting the inappropriateness of Greek educational materials and textbooks for the promotion of creativity and stating that the primary school does not offer enough opportunities and means for the students to express and develop their creative potential. The scepticism, concerning the appropriateness of curricula towards the promotion of creativity, has been previously revealed in studies outside the Greek boundaries (Diakidoy & Kanari, 1999; Morais & Azevedo, 2011).

The findings are of great importance if we take under consideration the fact that the Greek educational policy supports the promotion of creativity through primary education and through the lesson of PE (PI, 2003; New School). In Greece, the PE CTCF for Compulsory Education (PI, 2003) makes extensive use of creativity and

related terms. For the first two grades, motor creativity is referred as the objective of many lessons' activities (in 17 out of 37 lessons) and the method of creative teaching is mainly suggested for children's psychomotor development. Yet, PE CTCF attempts to promote creativity through activities which are mostly related to dance or art (music and movement activities, drama, dance or movements' improvisation) and to basic movements as well as fundamental movement abilities (locomotor, non-locomotor and manipulation skills). Nevertheless, there is no creativity promotion through sports, traditional dances or games. In addition, hardly any reference to creativity and its promotion can be found within PE CTCF of the last two grades of primary school (fifth and sixth) and the curriculum leans towards sport-skill learning. Probably this is a reason why in the present study half of the participants supported that artistic tendencies are neccesary for students to express their creativity. Possibly, the orientation of the PE CTCF for Compulsory Education towards dance, music, movement activities, fundamental motor abilities, drama and dance improvisation cultivates and subconsciously nurtures the misconception which relates creativity mainly to arts. Most likely this existing orientation of the Greek PE CTCF and the subsequent misconceptions that cultivate are responsible for the notable amount of PEds' disagreement and their remarkable indecision percentage with the positive orientation of the Greek PE curriculum to students' manifestation of creativity.

Creativity in PE encompasses more than art-related activities. As already described by Konstantinidou et al. (2011) where the creative expressions of students were explored through the eyes of their PEds, PE includes a wide range of activities that allow creative outcomes to emerge. PEds supported that several sports (basketball, volleyball, handball, and soccer), gymnastics and sports skill practice offer lots of opportunities and act as a keystone for the expression of students' creativity along with the fundamental movement activities, motor improvisation and dance. This fact confirmed in the present study as the majority of PEds supported that generally PE is a subject that allows for the manifestation of students' creativity.

Furthermore, the majority of PEds perceived that they contribute to creativity fostering classroom environments in PE as they believed that they have the theoretical background and the experience to promote students' creativity. However, a thorough examination of their perceptions about 15 behaviours and practices which foster or inhibit students' creativity refuted the background that they perceived to have. Only 6 out of the 15 teaching practices were correctly identified (according to researchers' explicit theories) by PEds in this study as conducive or detrimental to creativity. In more detail, a minor percentage of them correctly recognised four teaching behaviours that according to explicit theories inhibit students' creativity: 'use of external rewards', 'emphasis on competition', 'on following instructions' and 'frequent evaluation of outcomes' as contributing to the promotion of students' creativity. Regarding the other nine teaching behaviours, PEds either did not support them as strong contributors as suggested by explicit theories (e.g. see results on 'opportunities to students to correct own mistakes', 'emphasis on knowledge acquisition' and 'emphasis on discovering learning') or held contradicting perceptions to what the theory recommended (e.g. see results on 'frequent praise', 'frequent and detailed feedback'). Thus, the overall picture that emerges from PEds' perceptions about teaching behaviours and practices which foster students' creativity is blurred and somewhat disappointing. The findings revealed that many PEds are unaware of some teaching behaviours that contribute to a creativity fostering classroom environment.

Moving onto the role of the presentation of a task to creativity promotion, PEds held consistent perceptions to some extent. The majority of them supported that open-ended and divergent thinking tasks promote creativity, whereas they devalued close-ended and convergent thinking tasks. Nevertheless, PEds seemed to have contradicting views when prior or no prior knowledge to a task was examined. Their confusion, especially for the role of prior knowledge to creativity was confirmed from their contradicting perceptions in other similar items. Many of them ignored the fact that knowledge is a key building block of creative accomplishment (Ward, 2007) and creative thinking cannot take place unless the thinker already possesses knowledge of a rich and/or well-structured kind (Boden, 2001). Their ignorance about the role of prior knowledge was also revealed in a previous section, where only few of them supported the 'emphasis on knowledge acquisition'.

The current study attempted to highlight how multidimensional is the role of PEds when promoting creativity in classroom settings. PEds are teachers of a specialised subject and they should acknowledge the possibilities and opportunities offered within this subject for creative thinking and expression, the approach with which they would elicit these elements from their students and which aspects and facets of creativity they should take under consideration for its promotion. However, the findings not only raise questions about the background and the capability of PEds to promote the creative potential of their students through their lessons but undeliberately expose a gap on the orientation of the Greek PE CTCF towards the promotion of students' creativity. The present study apparently confirms that primary PEds need further education and training in creativity-related issues and its promotion in schools. Also, it leaves questions about the appropriateness of school environment and a misappliance of the educational system and policy towards the promotion of students' creativity in practice. As students and the promotion of their creative potential is what we are looking and stressing at, for modern knowledge societies this study flashes the urgent need for teachers' training and a mindful approach on policy making of this subject matter.

In Europe, statistics of early school leavers are disappointing. Although early school leavers have decreased in EU-27 from 17.6% in 2000 to 15.3% in 2006 (EC, 2008/C 86/01), this percentage is still high and reflects a major concern in European educational systems. Europe has too many young people leaving school without having acquired the skills needed for a smooth transition into employment; thus, education systems should deliver efficient and relevant education in a lifecycle perspective, stimulating the individual's potential for creativity and autonomy [COM (2007) 0498]. This is a major impediment and the challenge is to transform this drawback to a vision for our students towards more attractive and qualitative education according to the needs of our era. Each level of education and especially each domain and subject of school education must contribute to the promotion of specific knowledge and skills along with that of generic capacities linked to creativity addressing the demands and needs of modern knowledge-based societies. Research on creativity-related issues in specific domains or school subjects, such as the present study in PE, enlighten the study of creativity and its promotion in the school environment.

The 2010 Joint Progress Report of the European Council and the Commission on the implementation of the 'ET 2010' work programme reported that a significant progress has been achieved particularly in schools, even though further development is needed for their learning organisation, for the reason that curricula reform alone is not an action capable to elicit the desired effects (EC 2010/C 117/01). This report pointed out the future crucial role of teachers and school leaders as it highlights the capacities, the skills and the positive

attitudes towards further learning and creativity that they should develop for the sake of their students. The present study's findings proliferate what the report stressed and advocates for more systematic efforts towards educational policies and strategies that aim to update the educators' professional background to those new trends and priorities.

In Greece, the recent action plan 'New School: Student First'[1] from the Greek Ministry of Education, especially for primary and secondary education, is on the go. This action plan supports a transition from the 'Chore School' to the 'New School of Creative Learning'. This action plan seems hopeful for educators as it promises them a number of short-term and medium- to long-term changes and interventions and a systematic and substantive education and training in themes and subjects, which is functionally associated with these changes in school and promoted them. Educators are in the heart of the educational system and they should be included in lifelong educational programmes and thus supported in comprehending new and upcoming trends and developments in education.

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Note

1. http://www.minedu.gov.gr/apo-to-simera-sto-neo-sxoleio-me-prota-ton-mathiti.html (Greek action plan 'New School: Student First: Greek Ministry of Education, Lifelong Learning and Religious Affairs').

Notes on contributors

Elisavet Konstantinidou, is a research and teaching assistant at the Department of Early Childhood Care & Education of Alexander Technological Educational Institute of Thessaloniki and a public employee of a Greek local authority. She has participated and is currently participating as a research assistant (external partner) in funded international and national research projects, for early childhood and physical education. She has participated in the translation and writing of books and has published papers in scientific national and international journals and proceedings of conferences. She has numerous scientific presentations and has participated as a keynote speaker at international training seminars.

Athanasios Gregoriadis is a lecturer of Early Childhood Education at Aristotle University of Thessaloniki, Greece. He teaches courses both in bachelor and master's degrees. He is a scientific advisor in the Experimental Early Childhood Centre of his University. His main research interests are teacher-child relationships, early childhood curricula, and the evaluation of early childhood environments. He has participated and is currently participating as a coordinator and key staff member in five funded international and national research projects during the last seven years. He has published many research papers in peer review international journals.

Vasilis Grammatikopoulos is a lecturer in Educational Evaluation at the University of Crete, Department of Preschool Education, Greece. In the past, he was postdoctoral teaching fellow at the Liverpool Hope University, UK and University of Macedonia, Greece. He has participated in numerous funded national and international research projects, and his main research interests are: educational evaluation, early childhood education evaluation, evaluation of physical activity in early childhood education. He has great experience in pre & in-service teacher training as he has taught in many training courses. He has published many research papers in peer reviewed international journals.

Maria Michalopoulou is a professor of the Department of Physical Education and Sport Sciences of Democritus University of Thrace, Greece. Her area of expertise is the 'Skill acquisition in physical activity and sports', and her sector is 'Sports Management' and 'Physical education in schools'. She has published numerous research papers in peer reviewed international journals and she has many presentations at national and world conferences. She has been extensively involved in National and European Research Projects as a coordinator and member. She has translated and edited the Greek version of many well-known international books for motor learning.

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