PEDAGOGY

Do Physical Educators Promote Students' Creativity? An Observational Analysis Study

Elisavet P. Konstantinidou and Vasiliki Z. Zisi

Abstract

The ordinary nature of creativity and the global acceptance of its significance have made it a key characteristic of citizens in knowledge-based societies. Although research interest in recording teachers' perceptions on creativity and its promotion have been noticeably increasing, a remarkable gap has been observed in teachers' behaviors and actions to promote creativity. The purpose of this study was to delineate teaching behaviors and actions when educators try to promote students' creativity in class. The Creativity Fostering Teacher Behaviors (CFTB) checklist is based on the well-established theory of Cropley (1997), who suggested what behaviors teachers should demonstrate to foster their students' creativity. The CFTB checklist has been developed through a content validity method and has been tested for interrater reliability, which has been found to be very satisfactory. We observed 30 physical educators (PEds) twice during PE lessons in which they aimed to foster students' creative expression. PEds expressed only a minority of their creativity-fostering behaviors and actions, especially those associated with encouraging the responsibility of learning, such as the enhancement of autonomy, independence, and social integration, during learning processes. On the contrary, the enhancement of flexibility, a top indicator of creative achievements denoting a person's divergent thinking, and the positive management of failure and frus-

Elisavet P. Konstantinidou is a lecturer, Department of Life and Health Sciences, University of Nicosia. Vasiliki Z. Zisi is an associate professor, School of Physical Education and Sport Science, University of Thessaly. Please send author correspondence to konstantinidou.e@unic.ac.cy

tration, which is thought to eliminate students' emotional barriers and inhibitors of creativity, were almost absent during observations. The same happened for indicators such as opportunities for deviation, lack of rush and criticism delay on students' ideas and suggestions, and all of the other indicators on the CFTB checklist. We discuss a misalignment of theory into practice concerning teachers' creativity-fostering behaviors and actions. Possible factors related to this inadequacy such as lack of academic education, training and continuous professional development in related issues, and the curriculum itself may limit PEds from teaching for creativity.

The promotion of creativity arrived with a great ballyhoo at the beginning of the new millennium. Creativity is a substantial personal quality in knowledge-based economies, along with other fundamental characteristics such as competitive development, modernization, innovation, and smart entrepreneurship (Commission of the European Communities, 2007; Organisation for Economic Co-Operation and Development [OECD], 1996). Creativity is a characteristic that should be developed in everyone. National and worldwide organizations and authorities have thus included the promotion of creativity in their guidelines, recommendations, policy decisions, and actions ("Conclusions," 2008; "Education and Training 2010," n.d.; "Education and Training 2020," n.d.; "2008 joint," 2008; National Advisory Committee on Creative and Cultural Education, 1999; UK Department of Education, 2013). Educational systems and authorities have begun to nurture students' creative potential in school settings, through their curricular documents or educational actions (Australian Curriculum, Assessment, and Reporting Authority, 2014; Pedagogical Institute [PI], 2003; Qualifications and Curriculum Authority, 2004).

Physical education (PE) is a creativity-fostering school subject, and Heilmann and Korte (2010) confirmed this. Their study revealed a high occurrence of the term *creativity* and synonyms in primary and secondary school curricula (eight school subject groups) in Europe (EU27). The Greek PE curricula was among the top five in the occurrence of the term *creativity* and synonyms. Additionally, PE was among the top three school subjects in EU27, together with ICT and Arts, in which the term *creativity* and synonyms were the most prominent. PE should be expected among the top subjects in

schools for promoting students' creative potential given the long history of research in creative movement. Research in creative movement, which focuses on the kinesthetic responses of children, has been established and studied for many years under the term *motor creativity* (Torrance, 1981; Wyrick, 1968) or *divergent movement ability* (Cleland, 1994; Cleland & Gallahue, 1993).

With the variety of options for movement exploration and ways to respond to motor problems, or movement exploration and ways to respond to motor problems, students have many opportunities to develop their creative thinking skills. Konstantinidou, Michalopoulou, Aggelousis, and Kourtesis (2011) found in their qualitative study that PE encompasses a wide range of activities that allow creative outcomes to emerge, such as team games, practicing sports skills, activities for developing fundamental movement abilities, motor improvisation, and dancing. This wide range of activities seems to contribute to the development of higher cognitive skills (analogical reasoning, convergent and divergent thinking, problem-finding and -solving ability, causative thinking, etc.). The results of another contemporary international study (OECD, 2009) strongly support the contribution of PE to students' personality characteristics related to their creative self. The results of that study, which was based on teachers' opinions, perceptions, beliefs, and activities, emphasize the importance of PE that offers learning experiences that are provided less often in other subjects such as mathematics, science, and foreign language. It was found that during PE classes, students are offered many student-oriented practices and also structuring ones. Given the more practical nature of the subject, there seems to be more opportunities for student co-determination of lesson content, ability grouping, and individualized instruction. These chances allow students to take responsibilities, self-organize, and develop a broad spectrum of skills that will be helpful for their future professional lives.

Promoting creativity in school is a complex matter (Runco, 2007; Ward, 2007). As Cropley (1999) indicated, creativity is influenced by many factors such as students' psychological constellations, personal properties, motivation, cognitive and social factors, and a variety of aspects related to the teaching–learning environment and interactions. Cropley (1997) also stated that teachers who want to foster their students' creativity should demonstrate behaviors and actions

that enhance and encourage students' (a) independent and (b) social integrated way of learning, (c) motivation for mastering basic and factual knowledge, (d) way and formulation of ideas and thoughts by delaying judgments, (e) flexible thinking, (f) self-evaluation, (g) personal suggestions and ideas by taking them seriously, (h) opportunities for divergence, and (i) positive management of disappointments (frustration from mistakes, errors, and failure on tasks), to encourage them to try new and unusual things. Since then, some researchers have recorded teachers' self-perceptions on promoting these teaching behaviors (Barahona, 2004; Konstantinidou, Zisi, & Michalopoulou, 2014; Soh, 2000) and emphasized the gap in this research field concerning teachers' effectiveness in promoting creativity in schools. Apart from these efforts, many other researchers have explored creativity-related issues from the spectrum of teachers' implicit theories, perceptions, beliefs, views, stances, and conceptions (Bolden, Harries, & Newton, 2010; Craft, Cremin, Burnard, & Chappell, 2007; Diakidoy & Kanari, 1999; Fleith, 2000; Fryer & Collings, 1991; Kokotsaki, 2011; Konstantinidou, Gregoriadis, & Grammatikopoulos, 2011) to shed light on promoting creativity in school classes and in specific school subjects.

Despite the efforts for promoting creativity through educational policies, initiatives, actions, and curricula, and despite the growing interest of scholars to record how teachers perceive creativity and its promotion in a variety of subjects (Ferrari, Cachia, & Punie, 2009; Kampylis, Berki, & Saariluoma, 2009; Konstantinidou, Michalopoulou, Aggelousis, & Kourtesis, 2013; Tan, 2001), there is a research gap regarding the actual promotion of creatvity in classes, underlining the need for observing teaching for creativity. The results of such observational studies could shed light on the practices of physical educators (PEds) in their classes to promote their students' creative potential. After a thorough literature review, however, we found no instruments for systematic observation of teachers' behaviors and actions when they are trying to promote students' creativity in their classes. The primary concern was thus developing such an observational tool, which was recently achieved in a preliminary study (Konstantinidou & Tsoumpouktsoglou, 2014). This observational checklist provides opportunities for new methodological designs and approaches in researching the teachers' role in fostering students' creativity.

The purpose of this study was to observe PEds' behaviors and actions in their classes to promote students' expression of creativity. The results of this study may contribute to educational policies and practices of teacher training, which would thus strengthen teachers' knowledge base, abilities, and efficiency in promoting a creative environment for children.

Method

Participants

Thirty PEds (13 men, 17 women) from 27 schools of the prefecture of Thessaloniki (20 from east and seven from west suburban districts) participated voluntarily in this study. This sample was derived from all of the primary schools in the region of Central Macedonia, North Greece ($N = 868$). More specifically, of 220 PEds from 205 primary schools (24% of the total population, M_{age} = 43.77 ± 3.89 years, $M_{teaching\ experience}$ = 13.43 ± 5.12 years) who participated in a parallel study (Konstantinidou, 2012; Konstantinidou, Gregoriadis, Grammatikopoulos, & Michalopoulou, 2013), 74 declared they wished to participate in the forthcoming observational research, which formed the sample pool for this study. We selected teachers who could apply the teaching protocol, as described in the Research Procedure section, without deviations from their formal teaching schedule to participate in this study. The participants had a mean age of 43.25 ± 4.18 years and a teaching experience in primary PE of 13.53 ± 5.16 years.

Instrument

To observe PEds' behaviors and actions while they promoted creativity in PE, we used the Creativity Fostering Teacher Behaviors (CFTB) checklist. The CFTB is based on the CFT Index (Soh, 2000), a 45-item instrument with nine subscales (five items per scale), which is based on Cropley's (1997) well-established theory for teachers' behaviors to foster students' creativity. To develop the checklist, Konstantinidou and Tsoumpouktsoglou (2014) used a well-known content validity method (Lawshe, 1975). Via e-mail, the researchers asked 11 experts in the fields of PE and education to choose two of the five items (behaviors or actions) of each subscale of the CFT Index that they considered the most representative for each dimension.

Also, the researchers asked them to consider which of the behaviors and actions could be better recorded through naturalistic observation during lessons. After receiving experts responses, the researchers developed an 18-item checklist. Items were presented in Greek, because in the study of Konstantinidou, Zisi, and Michalopoulou (2014) the CFT Index was translated and culturally adapted in Greek (Gr-CFTIndex). Additionally, the researchers tested the CFTB for interrater agreement in eight of 60 observations and found it to be adequate to perfect with Cohen's kappa coefficient (K = 0.75 to 1.00; Konstantinidou and Tsoumpouktsoglou, 2014). The reduction of the items (behaviors) from 45 to 18 for the development of the CFTB checklist was inevitable, because in naturalistic observation it is impossible to observe such a large number of teachers' behaviors and actions, as compared with video analysis observation, for which the recordings can be watched multiple times.

Research Procedure

We implemented a nonparticipant (the observer is not directly involved in the situation being observed) naturalistic systematic observation using the CFTB checklist. We chose naturalistic observation because it was the only observational method allowed at schools at the time of the study (filming and sound recording of lessons is prohibited in Greece by law). Naturalistic observation records the facts as they occur, and as Gay and Airasian (2009) stated, the observer purposely controls or manipulates nothing and works very hard to not affect the observed situation in any way. In our study, the observer marked a tick in a CFTB item when the corresponding behavior or action was presented by the PEd. For example, the observer marked a tick in the item "Follows up on students' suggestions with questions to make them think further" each time the PEd gave relevant feedback on students' motor responses or verbally expressed ideas using key questions concerning the elements of movements the students used (e.g., qualitative characteristics such as time, space, dynamics, relationships with others or body parts or with equipment). At the end of each observed lesson, we calculated a total score of ticks for each item.

We observed each of the 30 participants in two lessons (a total of 60 observations). We chose specific lessons from the Greek PE Cross Thematic Curriculum Framework for Compulsory Education

(CTCF; PI, 2003) for Grades 1 and 2. After thorough discussions with experts in the field of PE, we decided to observe the same lessons for all PEds, to apply a subjective measure. As most relevant and suitable for the subject matter of the observation, we chose the 26th and 27th lesson plans from the psychomotor content guiding principle of the curriculum entitled Movement Expression and Motor Creativity. One week before each observation, we contacted the PEds to arrange the following issues regarding the teaching protocol:

- the exact day and time of the observation,
- the grade (G2) and the class (the same for both observations),
- the specific lessons (26th and 27th) with the specific order,
- maintaining the specific order of the activities of each lesson, and
- implementing the same content of the activities.

With all of the above, we made every effort to maintain the same conditions during each observation. Before the beginning of the research procedure, we visited every class for a lesson to get familiar with the children.

Results

We calculated the means and standard deviations for each of the 18 observed behaviors or actions of PEds for the total of 60 lessons. Table 1 shows the frequency of manifestation of each observable behavior per lesson and the mean and standard deviation of each behavior for the 60 lessons. Some teaching behaviors and actions manifested in most of the 60 lessons such as Items 9, 11, and 18, whereas other behaviors (Items 6, 12, 13, 14, 16, and 17) occurred in few lessons. On the contrary, Items 2 and 7 manifested at least one time in 51 and 45 lessons, respectively, and had the highest manifestation frequency for the 60 lessons. High in observation, but less frequent than the last behaviors, Items 3, 4, 5, 10, and 15 manifested in 43, 44, 37, 35, and 34 lessons, respectively. Despite their appearance frequencies in many lessons, their means ranged from 1.10 ± 1.19 to 2.65 ± 2.01, which indicates that behaviors manifested from one to almost three times per lesson.

Table 1

Frequencies, Means, and Standard Deviations for Each Creativity-Fostering Teacher Behavior

Item	The teacher:	At least one time	Never	Once	Twice	Three times	Four times	Five times	Six times	Seven times	Eight times	Nine times	M	SD
1	Teaches students the basics and leaves them to find out more for themselves.	30	30	16	8	3	2	1					0.90	1.19
2	Leaves open-ended questions for students to find the answers for themselves.	51	9	11	10	12	7	6	3	1		1	2.65	2.01
3	Provides opportunities to students to share ideas and views.	44	17	20	11	8	2	2	1				1.47	1.43
4	Provides opportunities for teamwork.	44	16	12	16	12	3			1			1.63	1.43
5	Emphasizes the learning of the basic knowledge/skills.	37	23	16	11	4	2	2	2				1.33	1.56
6	Makes sure the students learn the basics well, which is more important than covering the syllabus.	9	51	5	1	2	1						0.28	0.80
7	Follows up on students' questions with questions to make them think further.	45	15	13	12	7	6	2	4	1			2.05	1.89
8	Encourages students to do things differently although doing this takes up more time.	31	29	15	7	3	4	2					1.07	1.40
9	Encourages students to think in different directions even if some of their ideas may not work.	2	58	2									0.03	0.18
10	Likes students to take time to think in different ways.	35	25	15	12	5	3						1.10	1.19

Table 1 (cont.)

Item	The teacher:	At least one time	Never	Once	Twice	Three times	Four times	Five times	Six times	Seven times	Eight times	Nine times	M	SD
11	Provides opportunities for students to share their strengths and weaknesses.	4	56	4									0.07	0.25
12	Gives opportunities to students to judge for themselves whether they are right or wrong.	14	46	8	3	2		1					0.42	0.94
13	Follows up on students' suggestions so they know he/she takes them seriously.	16	44	11	4	1							0.37	0.69
14	Listens to students' suggestions even if these are not practical or useful.	15	45	11	3		1						0.35	0.73
15	Appreciates students when they put what they have learned into different uses.	34	26	13	7	6	2	3	1	2			1.47	1.87
16	Doesn't mind if students try out their own ideas and deviate from what he/she has shown to them.	16	44	8	4	2	1	1					0.52	1.07
17	Encourages students to take frustration as part of the learning process.	8	52	8									0.13	0.34
18	Encourages students who experience failure to find other possible solutions.	2	58	2									0.03	0.18

To decode the deriving results for the facilitation of the following discussion, regarding the observable behaviors we used indicators based on obvious questions:

What behaviors . . .

- had the highest appearance frequency in all 60 courses (appeared at least one time)?
- had the highest frequency per lesson?
- had the lowest frequency per lesson (the most lessons with no appearance/none)?
- had the highest frequency mean per course?
- had the lowest frequency mean per course?

Table 2 evidences the most noticeable behaviors according to these indicators.

Discussion

The purpose of this study was to delineate what behaviors and actions teachers demonstrate during their efforts to promote creativity in children. We chose to observe PEds because PE is thought to be one of the most fruitful subjects to cultivate students' creative potential, especially in primary education (i.e., Heilmann & Korte, 2010; Konstantinidou, Michalopoulou, et al., 2011). Based on the findings, leaving open-ended questions for students to find the answers for themselves was the most frequent observable behavior of PEds and occurred in 51 of 60 lessons. The specific behavior is important because it reflects teachers' promotion of students' independent learning and when exhibited in class it underlines a teacher who emphasizes the exploration method and more specifically divergent thinking ability. Open-ended questions and activities are considered key elements in nurturing children's creativity and leave room for children's independent thinking and opportunities for divergence (Torrance, 1981). As Johnston (2007) declared, open-ended activities provide children with opportunities for self-differentiation, with children choosing their actions and responses based on their own experiences, knowledge, and skills. This reflects the ownership of their learning. Konstantinidou, Zisi, and Michalopoulou (2014) used the term *enhancement of students' responsibility for learning*, which embraces many teachers' behaviors plus their choice to use open-ended questions and problems. In this way, teachers strengthen

Table 2

Prevalent Behaviors per Lesson or in Total of 60 Lessons According to Specific Indicators

Item	The teacher:	A Highest appearance (at least once)	B Highest frequency per lesson	D Highest frequency mean per lesson	C Lowest frequency per lesson	E Lowest frequency mean per lesson
2	Leaves open-ended questions for students to find the answers for themselves.	✓	✓	✓		
3	Provides opportunities to students to exchange ideas and views.	✓		✓		
4	Provides opportunities for teamwork.	✓	✓	✓		
7	Follows up on students' questions with questions to make them think further.	✓	✓	✓		
9	Encourages students to think in different directions even if some of their ideas may not work.				✓	✓
11	Provides opportunities for students to share their strengths and weaknesses.				✓	✓
17	Encourages students to take frustration as part of the learning process.				✓	✓
18	Encourages students who experience failure to find other solutions.				✓	✓

their students' independent thinking, freedom of self-expression, and self-confidence. Despite its importance, this behavior did not occur often. The mean frequency of appearance was close to three times per lesson ($M = 2.65 \pm 2.01$). This behavior had the highest frequency appearance in a lesson (nine times), but only in one case. Additionally, it was not present in nine lessons (the fewest lessons in which a behavior did not appear). Kampylis and Berki (2014), based on research findings, agreed that open-ended questions help students develop creative thinking and learning because they require students to find, analyze, combine, criticize, and evaluate knowledge, experiences, and information instead of simply recalling facts. Kampylis and Berki concluded, however, that on average only 20% of the questions asked in classrooms are open-ended, which is in line with the findings of this study.

The second most frequently observed teacher behavior was following up on students' suggestions with questions to make them think further. This behavior occurred in 45 of 60 lessons. The mean frequency of appearance was close to two times per lesson ($M = 2.05 \pm 1.89$) and the highest frequency appearance was seven times in a lesson. Similar to the aforementioned behavior, when teachers use this technique, they do not want to give ready solutions and answers to their students. On the contrary, teachers want to enhance students' independent thoughts and searching for solutions and answers based on their own problem identification and finding. These thinking skills put students at the core of the learning process and they thus become more responsible for the learning outcome. This behavior of teachers was also embraced in a previous study under the umbrella of enhancing students' responsibility for learning (Konstantinidou, Zisi, & Michalopoulou, 2014). They explained that this teacher behavior implies students' enforcement of thinking about their own thinking (metacognition skill), which results in the development of their autonomy as learners. The tendency toward autonomy and independence is a personality trait that is one of the most consistent and connected with the expression of creativity (Feist, 1999).

Enhancing communication and collaboration were also frequently observed PEd behaviors. The third most frequently observed behaviors were providing students opportunities to exchange ideas and views and providing students opportunities for teamwork. The

former behavior was observed in 44 of 60 lessons, with a mean frequency of appearance tending to once per lesson ($M = 1.47$) and a maximum appearance of six times per lesson. The latter behavior was also observed in 44 of 60 lessons, with a mean frequency of appearance approaching two times per lesson ($M = 1.63$) and a maximum appearance of seven times per lesson. The aforementioned behaviors denote teachers' tendency to promote a socially integrated and collaborative approach for learning. These behaviors are oriented toward the socialization of students by enhancing their participation in this process. Teachers who give students opportunities for exchanging ideas and opinions focus on the social integration of their students. Through teaching for students' social integration, teachers facilitate the ego strength, which tones up the students' self-confidence and allows them to follow intrinsic interests (Runco, 2007). On the other hand, teachers who provide students opportunities for group activities focus on encouraging cooperation. Cooperation and communication are crucial social competences required within a 21st century knowledge-based society ("Recommendation," 2006).

The top most unseen behavior was encouraging students to think in different directions even if some of their ideas did not work. The specific behavior did not show up in 58 of 60 lessons and had an almost nonexistent mean frequency of appearance ($M = .13$, $SD = .18$). The other item (10) for flexibility promotion manifested at least one time in 35 lessons and had a mean frequency of appearance of 1.10 ($SD = 1.19$). This fact advocates that flexibility (the subscale on which the behaviors were anchored) was not cultivated in the observed lessons. Flexibility is one of the most popular qualities connected with creativity. According to Thurston and Runco (1999), it is an important aspect of the creative cognitive process, as in the divergent thinking model (fluency, flexibility, originality), that allows the individual to see all parts of a problem and supports open-mindedness.

The behaviors of the subscale of Positive Management of Failure (Items 17 and 18) also manifested only a few times. The former was observed only in eight lessons ($M = .13$, SD $= .34$) and the latter only in two lessons ($M = .03$, $SD = .18$). Davis (1999) included anxiety and fear inside the emotional barriers of creativity and identified low frustration tolerance as a recurrent negative trait of creativity. Either

as temporary states, caused perhaps by problems with peers, parents, pressures, and worries at school, or as permanent states such as the feelings of fear of failure, being different, criticism, and rejection, these emotional barriers should vanish in a school environment that fosters creativity. A surprising fact revealed in previous research in the field of PE creativity (Konstantinidou, Zisi, Katsarou, & Michalopoulou, 2014) is that PEds have identified several emotional barriers of students that may cause their frustration and disappointment, thus their fear to express themselves creatively. Keeping in mind that PEds sense their students' frustration and fears, we were disappointed that we did not observe this kind of behavior (removing frustrations from children once they appear) in this study. Lack of this behavior perhaps left some frustrated children away from creative challenges and potentials.

Providing opportunities to students to share their strengths and weaknesses was also one of the most unobservable behaviors. The particular behavior did not show up in 56 of 60 lessons and had a tremendously low mean frequency of appearance ($M = .07$, $SD = .25$). This behavior (Item 11), together with Item 12, reflected the subscale of Evaluation. As Cropley (1999) mentioned, strict evaluation is often seen as anti-creative, though total failure to ask students whether their ideas are realistic or effective is not the best way to promote creativity. Students, by sharing strengths and weaknesses of their results, become involved by self-monitoring their personal work, a process of deep awareness of assets or flaws of their own way of thinking. Teachers should expose students to such procedures if they want to nurture creative minds. Besides the previous most and least observable teacher behaviors, all of the others (a) mostly appeared once or twice in one to 16 lessons, (b) never appeared in 23 to 51 lessons, and (c) had a mean frequency of appearance ranging from .20 ± .80 to 1.33 ± 1.56.

At this point, it is worth reminding that we chose the observed lessons from the Greek PE CTCF (PI, 2003) and purposely selected them because they were designed to enhance movement expression and motor creativity. Regarding teachers' behaviors and actions for promoting students' creative potential, a lot can be said, but, as this study reveals, not so much can be done. The "translation" of theory into practice concerning creativity promotion in PE from the aspect

of teachers' behaviors seems to be problematic. Craft (2005) explained how policy scaffolding and research findings support teaching for creativity in curriculum and pedagogy, but raised many issues about the constraints and tensions in the translation of policy into practice and the formation of policy from practice. Disconnected curriculum and curriculum organization may disaffect teaching for creativity. In this study, this could greatly explain the teachers' inadequate behaviors for fostering creativity. From browsing the PE CTCF (PI, 2003), we found that it could create confusion about creativity conception and approach. Konstantinidou, Zisi, Katsarou, & Michalopoulou (2014) raised various contradictions, conflicts, and questions concerning the approach of creativity and its promotion through this curriculum. In the PE CTCF, creativity can be seen as a subject or be promoted through some subjects in PE; as a goal or an objective of some activities; as part of the axis of the cognitive domain; as an ability, a skill, or a combination of them; or as a process, an outcome, a situation, or a capability of students themselves. The term *creativity* and other synonyms are mainly used in some lesson plans of the psychomotor content guiding principle (development of basic movements and fundamental movement skills) and in others such as music and education, mainly for Grades 1 and 2. In the curriculum for higher elementary grades, the particular terms are used less often. On the contrary, *creativity* and other related terms are excluded in sports and games and in training of sports skills, and in the unit of traditional dances, creativity occupies a tiny place as the objective of specific activities. This disarray inside PE curriculum does not happen only in Greece. Lavin (2008) pointed out that the only aspects in the English PE curriculum that relate to creativity are in dance, games, and gymnastics. Art or art-related subjects have been traditionally connected with creativity (Aljughaiman & Mowrer-Reynolds, 2005; Diakidoy & Kanari, 1999; Kampylis et al., 2009), and Konstantinidou, Zisi, and Michalopoulou (2014) mentioned that it is possible that the orientation of the PE CTCF toward dance, music, movement activities, fundamental motor abilities, drama, and dance improvisation cultivates and subconsciously nurtures teachers' misconception, which may stand as a barrier and inhibitor of them promoting students' creativity.

Teachers' inadequate fostering of students' creativity might also be explained through PEds' personality and qualifications.

Konstantinidou, Zisi, and Michalopoulou (2014) identified this factor as a blocker. Together with inappropriate teaching methods and styles for fostering creativity, (a) lack of knowledge and experience coming from academic and vocational training and (b) negative personality traits, which reflected their lack of interest and motivation, along with different fears, were heightened barriers for teachers. Education and limited knowledge about the subject are considered to be the most common barriers to creativity in education (Kampylis et al., 2009) and other work sectors (Groth & Peters, 1999), as well. As opposed to these barriers, knowledge and training on creativity-related issues support teachers to understand and promote creativity (de Alencar, 1991).

The findings of this study have proved—with only a small exception—that teachers express behaviors associated with the *encouragement of the responsibility of learning*, meaning the enhancement of autonomy, independence, and social integration during learning processes for the sake of promoting creativity. On the other hand, teachers' behaviors that enhance flexibility, a top indicator of creative achievements, which implies a person uses divergent thinking skills, and positive management of failure and frustration, which may remove emotional barriers and inhibitors of creativity, were almost absent during observations. Also, behaviors such as opportunities for deviation, lack of rush and criticism, delay on students' ideas and suggestions, motivation to master factual or basic knowledge and skills, and taking students' ideas and suggestions seriously were largely absent.

Conclusion

PEds' inadequate fostering of students' creativity might be due to insufficient academic base knowledge and training and insufficient continuous professional development in contemporary issues such as creativity. Of course, education and training alone cannot make the difference in teachers' effectiveness on creativity promotion. Creativity should be more valued in education circles. Educational institutions, interrlated bodies, and teachers themselves need to take multifaceted action through policies and initiatives to further teaching behaviors that foster creativity; otherwise, creativity will remain hidden to our young world citizens.

References

2008 joint progress report of the Council and the Commission on the implementation of the 'Education and Training 2010' work programme—'Delivering lifelong learning for knowledge, creativity, and innovation,' 2008 O.J. C 86/1.

Aljughaiman, A., & Mowrer-Reynolds, E. (2005). Teachers' conceptions of creativity and creative students. *Journal of Creative Behavior, 39,* 17–34. https://doi.org/10.1002/j.2162-6057.2005.tb01247.x

Australian Curriculum, Assessment, and Reporting Authority. (2014). The Australian curriculum. Retrieved from http://www.australiancurriculum.edu.au/

Barahona, E. (2004). Validity study of the Pedagogical Practices for Creativity questionnaire (CPPC). *Psykhe, 13*(1), 157–174.

Bolden, D. S., Harries, A. V., & Newton, D. P. (2010). Pre-service primary teachers' conceptions of creativity in mathematics. *Educational Studies in Mathematics, 73,* 143–157. https://doi.org/10.1007/s10649-009-9207-z

Cleland, F. E. (1994). Young children's divergent movement ability: Study II. *Journal of Teaching in Physical Education, 13,* 228–241. https://doi.org/10.1123/jtpe.13.3.228

Cleland, F. E., & Gallahue, D. L. (1993). Young children's divergent movement ability. *Perceptual and Motor Skills, 77,* 535–544. https://doi.org/10.2466/pms.1993.77.2.535

Commission of the European Communities. (2007). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: Promoting young people's full participation in education, employment, and society* (COM (2007) 498). Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM%3A2007%3A0498%3AFIN%3AEN%3APDF

Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council of 22 May 2008 on promoting creativity and innovation through education and training, 2008 O.J. C 141/17.

Craft, A. (2005). *Creativity in schools: Tensions and dilemmas.* London, England: Routledge. https://doi.org/10.4324/9780203357965

Craft, A., Cremin, T., Burnard, P., & Chappell, K. (2007). Developing creative learning through possibility thinking with children aged 3–7. In A. Craft, T. Cremin, & P. Burnard (Eds.), *Creative learning 3–11 and how we document it* (pp. 1–13). London, England: Trentham.

Cropley, A. J. (1997). Fostering creativity in the classroom. In M. A. Runco (Ed.), *The creativity research handbook, Vol. 1* (pp. 83–114). Cresskill, NJ: Hampton Press.

Cropley, A. J. (1999). Education. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (Vol. 1, pp. 629–642). San Diego, CA: Academic Press.

Davis, G. A. (1999). Barriers to creativity and creative attitudes. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (Vol. 1, pp. 165–174). San Diego, CA: Academic Press.

de Alencar, E. M. S. (1991). Training teachers to teach. *European Journal of High Ability, 1,* 222–226. https://doi.org/10.1080/0937445910010214

Diakidoy, I. A., & Kanari, E. (1999). Student teachers' beliefs about creativity. *British Educational Research Journal, 25,* 225–243. https://doi.org/10.1080/0141192990250206

Education and training 2010. (n.d.). Retrieved from http://europa.eu/legislation_summaries/education_training_youth/general_framework/index_en.htm

Education and training 2020. (2016). Retrieved from http://europa.eu/legislation_summaries/education_training_youth/general_framework/ef0016_en.htm

Feist, G. J. (1999). Autonomy and independence. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (Vol. 1, pp. 157–163). San Diego, CA: Academic Press.

Ferrari, A., Cachia, R., & Punie, Y. (2009). *Innovation and creativity in education and training in the EU member states: Fostering creative learning and supporting innovative teaching. Literature review on innovation and creativity in E&T in the EU member states (ICEAC).* Seville, Spain: European Commission, Joint Research Centre, Institute for Prospective Technological Studies.

Fleith, D. S. (2000). Teacher and student perceptions of creativity in the classroom environment. *Roeper Review, 22,* 148–153. https://doi.org/10.1080/02783190009554022

Fryer, M., & Collings, J. (1991). Teachers' views about creativity. *British Journal of Educational Psychology, 61,* 207–219. https://doi.org/10.1111/j.2044-8279.1991.tb00976.x

Gay, L. R., & Airasian, P. W. (2000). *Educational research: Competencies for analysis and applications* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Groth, J. C., & Peters, J. (1999). What blocks creativity? A managerial perspective. *Creativity and Innovation Management, 8,* 179–187. https://doi.org/10.1111/1467-8691.00135

Heilmann, G., & Korte, W. B. (2010). *The role of creativity and innovation in school curricula in the EU27: A content analysis of curricula documents* (JRC61106 Tech. Note). Seville, Spain: European Commission, Joint Research Centre, Institute for Prospective Technological Studies.

Johnston, J. (2007). Differentiation. In J. Johnston, J. Halocha, & M. Chater (Eds.), *Developing teaching skills in the primary school* (pp. 99–118). Maidenhead, England: Open University Press.

Kampylis, P., & Berki, E. (2014). *Educational practice series: 25. Nurturing creative thinking.* Geneva, Switzerland: UNESCO, International Bureau of Education, International Academy of Education.

Kampylis, P., Berki, E., & Saariluoma, P. (2009). In-service and prospective teachers' conceptions of creativity. *Thinking Skills and Creativity, 4*(1), 15–29. https://doi.org/10.1016/j.tsc.2008.10.001

Kokotsaki, D. (2011). Student teachers' conceptions of creativity in the secondary music classroom. *Thinking Skills and Creativity, 6,* 100–113. https://doi.org/10.1016/j.tsc.2011.04.001

Konstantinidou, E. (2012). *Creativity in primary education: Perceptions and behaviors of physical educators* (Unpublished doctoral thesis, Democritus University of Thrace, Komotini, Greece). Retrieved from http://www.openarchives.gr/view/2704822

Konstantinidou, E., Gregoriadis, A., & Grammatikopoulos, V. (2011, May 6–8). *Exploring children's ways of creative expression: A qualitative approach of physical educators' perception.* Presentation at the OMEP European Conference, Nicosia, Cyprus.

Konstantinidou, E., Gregoriadis, A., Grammatikopoulos, V., & Michalopoulou, M. (2013). Primary physical education perspective on creativity: The nature of creativity and creativity fostering classroom environment. *Early Child Development and Care, 184,* 766–782. https://doi.org/10.1080/03004430.2013.818 989

Konstantinidou, E., Michalopoulou, E., Aggelousis, N., & Kourtesis, T. (2011). Creativity in elementary physical education: A qualitative approach of teachers' perceptions. *Inquiries in Sport & Physical Education, 9*(2), 84–100.

Konstantinidou, E., Michalopoulou, M., Aggelousis, N., & Kourtesis, T. (2013). Primary physical education perspective on creativity: The characteristics of the creative student and their creative outcomes. *International Journal of Humanities and Social Sciences, 3,* 234–247.

Konstantinidou, E., & Tsoumpouktsoglou, E. (2014, December 6–7). Ανάπτυξη Εργαλείου Παρατήρησης Διδακτικών Συμπεριφορών κι Ενεργειών ΚΦΑ για την Προαγωγή της Δημιουργικότητας [The development of CFTB: Observation checklist for creativity fostering teachers' behaviors]. In *Proceedings of the 15th national conference of EGVE* (pp. 50–55). Thessaloniki, Greece.

Konstantinidou, E., Zisi, V., Katsarou, D., & Michalopoulou, M. (2014). Barriers and inhibitors of creativity in physical education. *European Psychomotricity Journal, 7*(1), 17–31.

Konstantinidou, E., Zisi, V., & Michalopoulou, M. (2014). Preliminary psychometric properties of the CFTIndex in Greece: The perspective of physical education. *Early Child Development and Care, 185,* 409–426. https://doi.org/10.1080/03004430.2014 .930452

Lavin, J. (2008). *Creative approaches to physical education.* London, England: Routledge.

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28,* 563–575. https://doi.org/10.1111/j.1744-6570.1975.tb01393.x

National Advisory Committee on Creative and Cultural Education. (1999). *All our futures: Creativity, culture, and education.* London, England: Department for Education and Employment.

Organisation for Economic Co-Operation and Development. (1996). *The knowledge-based economy.* Paris, France: Author.

Organisation for Economic Co-Operation and Development. (2009). *Creating effective teaching and learning environments: First results of TALIS.* Paris, France: Author.

Pedagogical Institute. (2003). *A cross thematic curriculum framework for compulsory education.* Retrieved from http://www.pi-schools.gr/programs/depps/index_eng.php

Qualifications and Curriculum Authority. (2004). *Creativity: Find it, promote it! Promoting pupils' creative thinking and behavior across the curriculum at key stages 1, 2, and 3: Practical materials for schools.* London, England: Author.

Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning, 2006 O.J. L 394/10.

Runco, M. A. (2007). Foreword: Encouraging creativity in education. In A. G. Tan (Ed.), *Creativity for teachers: A handbook of teachers* (pp. vii–ix). Singapore, Singapore: World Scientific Publishing.

Soh, K. C. (2000). Indexing creativity fostering teacher behaviors: A preliminary validation study. *Journal of Creative Behavior, 34,* 118–134. https://doi.org/10.1002/j.2162-6057.2000.tb01205.x

Tan, A. G. (2001). Singaporean teachers' perception of activities useful for fostering creativity. *Journal of Creative Behaviour, 35,* 131–148. https://doi.org/10.1002/j.2162-6057.2001.tb01226.x

Thurston, B. J., & Runco, M. A. (1999). Flexibility. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (Vol. 1, pp. 729–732). San Diego, CA: Academic Press.

Torrance, E. P. (1981). *Thinking creatively in action and movement.* Bensenville, IL: Scholastic Testing Service.

UK Department of Education. (2013). National curriculum. Retrieved from https://www.gov.uk/government/collections/national-curriculum

Ward, T. B. (2007). Preface: The multiple roles of educators in children's creativity. In A. G. Tan (Ed.), *Creativity for teachers: A handbook of teachers* (pp. xviii–xxx). Singapore, Singapore: World Scientific Publishing. https://doi.org/10.1183/1025448x.00040-preface

Wyrick, W. (1968). The development of a test of motor creativity. *Research Quarterly, 39,* 756–765. https://doi.org/10.1080/10671188.1968.1061660