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What hinders creativity? Investigating middle school students' perceived influence of barriers to creativity for improving school creativity friendliness

O que impede a criatividade? Investigando a influência percebida por estudantes do Ensino Fundamental II de barreiras à criatividade para melhorar a simpatia em relação à criatividade na escola

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ABSTRACT

In recent years, cultivation of students' creativity is a widely recognized goal of modern education. Yet, various barriers hinder the expression of creative ability within the school context. The influence of many barriers that research has identified may vary within different cultural contexts as well as in relation to individual creative ability. In this regard, the present study investigated the perceived influence of certain barriers to creativity on Greek secondary students in terms of their gender and creative ability. For the purposes of the study, 152 young adolescents completed the translated version of *Barriers to Personal Creativity* (ALENCAR, 1996; MORAIS *et al*., 2014), while their creative potential was evaluated by the graphic-artistic scales of the Evaluation of Creative Potential Battery (EPoC). Results demonstrated that barriers such as lack of time and opportunities, inhibition, shyness and lack of motivation were perceived by participants as common obstacles that

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considerably affect their creativity, whilst social repression was reported to be affecting their creativity to a lesser degree. In general, perceptions of obstacles to creativity did not appear to significantly affect students' creative potential or gender. In this regard, the perceived high influence of specific inhibitors to creativity reflected a climate in Greek schools which in general seems to be of limited friendliness towards creativity. Thus, interventions for enhancing students' creativity should focus on removing such barriers and improving the school climate.

Keywords: Creativity. Barriers. Creative ability. Motivation for creativity. Creative thinking.

RESUMO

Nos últimos anos, o cultivo da criatividade dos alunos é uma meta amplamente reconhecida da educação moderna. No entanto, várias barreiras impedem a expressão da capacidade criativa dentro do contexto escolar. A influência de muitas barreiras identificadas pela pesquisa pode variar em diferentes contextos culturais, bem como em relação à capacidade criativa individual. A esse respeito, o presente estudo investigou a influência percebida de certas barreiras à criatividade nos alunos do ensino médio grego em termos de gênero e capacidade criativa. Para os propósitos do estudo, 152 jovens adolescentes completaram a versão traduzida de Barreiras à Criatividade Pessoal (ALENCAR, 1996; MORAIS *et al*., 2014), enquanto seu potencial criativo foi avaliado pelas escalas gráfico-artísticas de Evaluation of Creative Potential Battery (EPoC). Os resultados demonstraram que barreiras como falta de tempo e oportunidades, inibição, timidez e falta de motivação foram percebidas pelos participantes como obstáculos comuns que afetam consideravelmente sua criatividade, enquanto a repressão social relatou estar afetando sua criatividade em menor grau. Em geral, as percepções de obstáculos à criatividade não pareciam afetar significativamente o potencial criativo ou o gênero dos alunos. Nesse sentido, a alta influência percebida de inibidores específicos na criatividade refletiu um clima nas escolas gregas que, em geral, parece ter pouca simpatia pela criatividade. Assim, as intervenções para aumentar a criatividade dos alunos devem se concentrar na remoção de tais barreiras e na melhoria do clima escolar.

Palavras-chave: Criatividade. Barreiras. Capacidade criativa. Motivação para a criatividade. Pensamento criativo.

Introduction

Creativity is considered to be a fundamental life skill that needs to be nurtured through education to prepare future adults so that they can thrive in a complex and uncertain world (PARKHURST, 1999; SHAHEEN, 2010). In this regard, developing creative thinking among school-aged children has been an essential part of building the 'human capital' that determines the 'wealth of nations' (KABANDA, 2014). In the past few decades, educational policies worldwide have included the development of creative thinking among the fundamental objectives of formal education (BEGHETTO; KAUFMAN, 2014). In school settings various inter- and extra-curricular educational interventions have been proposed to cultivate the creative abilities of young children and adolescents (COLLARD; LOONEY, 2014; CRAFT, 2005; GRAINGER; BARNES, 2006).

Some learning and pedagogical environments have been suggested to be facilitating and encouraging creativity to a higher degree (CORNER, 2012; JINDAL-SNAPE *et al.*, 2013). In Greece, for instance, although creativity development has been recognized as a curriculum objective (PARASKEVOPOULOS, I; PARASKEVOPOULOU, P., 2009) specific educational policies for promoting creativity have scarcely been implemented, and the extent to which creative thinking is practically promoted and encouraged in the classroom remains unclear and doubtful (HAYES, 2004; KAMPYLIS, 2010; PARASKEVOPOULOS, I.; PARASKEVOPOULOU, P., 2009; XANTHAKOU, 2012).

Although in recent decades there has been an increasing amount of literature on the development of creativity in educational contexts across the globe, much research has been focusing on identifying, understanding and removing what may be perceived as inhibitors of children's and adolescents' creativity (SADI; AL-DUBAISI, 2008). Research thus far has indicated a variety of potential inhibitors to creativity. Some barriers such as self-perceptions, motivation, lack of opportunities and leisure and social repression have been reported to be the principal and most common barriers, (FILA; PURZER; MATHIS, 2014; HILAL; HUSIN; AYED, 2013; KONSTANTINIDOU *et al.,* 2015; MARTIN, 1990; MORAIS; ALMEIDA, 2019; SADI; AL-DUBAISI, 2008). The influence of such factors may explain the variation of creativity between and within individuals to a large extent (AMABILE, 1996, 1998; BEGHETTO, 2010; CREMIN; BURNARD; CRAFT, 2006).

In particular, Martin (1990) demonstrated that various self-perceptions, such as self-confidence and creative self-efficacy, can be considered as critical individual barriers to creativity. Moreover, previous research has indicated that certain personality traits, such as shyness, conservatism and inhibition may prevent individuals' creative expression in a social context such as the classroom (MORAIS *et al.*, 2014; PUCCIO; GRIVAS, 2009). Individual barriers have been characterized as the strongest impediments that may affect creative motivation (CSIKSZENTMIHÁLYI, 1990; FILA; PURZER; MATHIS, 2014; HILAL; HUSIN; AYED, 2013; INTASAO; HAO, 2018; NORDIN; MALIK, 2015).

The role of intrinsic motivation has been also identified as a critical factor in personal creativity (AMABILE, 2012; PRABHU; SUTTON; SAUSER, 2008). In one of her major studies, Amabile (1985) argued that low intrinsic motivation tends to be a common barrier among individuals with low creativity. Low levels of intrinsic motivation for creativity remains a major "headache" for teachers and educational psychologists, since it cannot be adequately enhanced with verbal or material reinforcements (ALIAKBARI; SADEGHDAGHIGHI, 2013; AMABILE, 1996; FISHER; AMABILE, 2009; PINTRICH; DE GROOT, 1990; VALENZUELA VIANNA; ALENCAR, 2006).

Besides individual barriers, several contextual factors have been described as "environmental" obstacles to creative expression, such as lack of resources, strict deadlines, lack of leisure, heavy workload and lack of opportunities for creative expression (AMABILE, 1998; CRAFT, 2005; MORAIS *et al.*, 2014; PALETZ, 2012). Social repression has been also reported as a common obstacle to creative expression among young adults (ALENCAR, 2001; CRAFT, 2005; MORAIS *et al.*, 2014).

The influence of specific barriers to creativity may differ by gender (VERNON, 1989). For instance, Conti, Collins and Picariello (2001) observed that school-aged boys tended to achieve higher performance and higher motivation for creativity during competitive activities, whilst the same competitive activities were found to reduce girls' creative expression and involvement. On the other hand, girls' decision to act creatively seems to be rather related to their self-esteem and self-concept than to external verbal or material rewards (BAER; KAUFMAN, 2008). In this regard it has been assumed that males and females tend to perceive different factors as serious barriers to their creativity (ABRAHAM, 2016; BAER, 1998; BAER; KAUFMAN, 2008; CONTI; COLLINS; PICARIELLO, 2001; MORAIS *et al.*, 2014).

Identifying and removing barriers to creativity can be crucial for developing and revealing creative talents (GROTH; PETERS, 1999). Previous research demonstrates that highly creative people tend to find ways to cope

with barriers such as lack of resources or ambiguity (KOZBELT; BEGHETTO; RUNCO, 2010; PLUCKER; MAKEL, 2010; STERNBERG, 2006). However, the mediating role of perceived motivation and barriers in expressing individual creative potential has not been adequately studied.

Goals of the study

It has been argued that knowledge about the factors that potentially hinder the creativity of young students as described by their self-perceptions would benefit the effective design and implementation of specific interventions for creativity development (HOFF, 2014; PARAMITHA; INDARTI, 2014). Nevertheless, previous research in the area of barriers to creativity was mainly concerned with the perceived barriers of young adults, rather than on the barriers of children and young adolescents (AMABILE, 1996; NORDIN; MALIK, 2015; SIMONTON, 2000). Furthermore, the findings related to students' barriers to creativity have mostly been derived from teachers' perceptions and assessments (ALIAKBARI; SADEGHDAGHIGHI, 2013; KONSTANTINIDOU *et al.*, 2015) and not from children's self-perceptions. Especially in Greece, there is no such study has been carried out on barriers to creativity either with adults or with children.

Thus, this study aimed to examine the perceived barriers to creativity among Greek middle school students. Such an investigation would provide evidence that can be used as a starting point for identifying and removing obstacles in the classroom so that students can be enabled to develop and express their creative abilities. Our first objective was to examine the extent to which factors perceived by adults as barriers to creativity tend to be recognized as inhibitors of creative thinking and expression by middle school students. Another objective of the present study was to investigate the effect of gender, level of creative potential and school on the perceived influence of these specific barriers to suggest appropriate interventions for promoting creativity within educational settings.

Method

Participants

The sample consisted of 152 students from 4 middle schools of different areas of inner Athens with a mean age of 13.6 years old. The sample consisted of low secondary students from all three grades of the middle school, equivalent to the Brazilian elementary school II, (7th Grade16.4%, 8th Grade 49.3%, 9th Grade 34.2%) of both genders (52.6% female) and different origins (Greek 57.2%, non-Greek 42.8%).

Instruments

Participants completed the translated version of *Barriers to Personal Creativity* (ALENCAR, 2001), to determine their perceived barriers to creativity. *Barriers to Personal Creativity is* a self-report inventory that contains 44 items on a five-point Likert scale (1= "*not all true for me*" to 5 = "*very true of me*"). This inventory was originally devised in Brazil (ALENCAR, 2001; ALENCAR; FLEITH, 2003) but it has been used in other South European populations for studying teachers' and higher education students' perceived barriers to creativity to investigate the perceived opportunities to develop and express their creativity in educational settings (e.g. MORAIS *et al*., 2014, MORAIS; ALMEIDA, 2019). In the present study, an adapted Greek version was applied.

Regarding internal consistency, Cronbach's alpha was found to be high for the main sample with $\alpha = .91$ for all 44 items. In addition, this instrument includes 4 subscales, namely inhibition/shyness (15 items, $\alpha = .81$), lack of motivation (12 items, $\alpha = .73$), lack of time/opportunities (9 items, $\alpha = .72$) and social repression (8 items, $\alpha = .61$).

To assess the creative ability, the graphic scale of the battery *Evaluation of Potential Creativity* (EPoC) (LUBART; ZENASNI; BARBOT, 2013) was administered. EPoC is an up-to-date measurement tool of the creativity of children and young adolescents. The graphic scale of this instrument examines the two main processes of creative thinking, convergent and divergent thinking, both integrative and exploratory within four different challenges of creative graphic expression. EPoC graphic has been described as a non-biased by cultural influence instrument (LUBART; ZENASNI; BARBOT, 2013). The two tests of divergent thinking are assessed on a 7-point Likert scale according to the number of different drawings where 1 = "0 or 1 drawing" and 7 = "14 or more drawings". The other two tests of convergent thinking are evaluated according

to quality criteria of originality and adaptation on a 7-point Likert scale (1 = "very poor/ complete absence of ideas" to 7 = "very original idea").

Procedure

The research conduct had been approved by the Greek Ministry of Education (Permission code: 61407/Δ2/12-04-2016) under the proposal of the Institute of Educational Policy which examined ethics and methodology. Afterward, a letter was sent to the parents of the students including detailed information about the purpose of the study, the method of data collection, and assurance for anonymity and confidentiality. Written parental consent was obtained for all students involved.

Participants completed the given tasks working individually in the classroom under the supervision of the researcher within an hour. The first five minutes were spent on explanations about the research process and demands. Then, the participants had ten minutes to fill a translated version of *Barriers to Personal Creativity* inventory and the rest 40 minutes to complete the *EPoC* tasks.

Results

Initially, descriptive statistics were applied to provide information about students' perceived influence of common barriers to creativity. Overall, the sample reported "lack of time and opportunities (M = 3.32, SD =.65) and "inhibition or shyness" (M = 3.10 , SD =.64) as the two most prevailing obstacles to their creativity followed by "lack of motivation" (M = 3.07 , SD =.60) and "social repression" (M = 3.07 , SD =.60). Hereof, Greek secondary students pointed out both internal and social factors as frequent barriers to their creative thinking and acting.

Repeated measures ANOVA showed a statistically significant within-subject main effect of the different types of barriers to creativity with F (3, 148) = 55.80, $p < 0.05$, partial $\eta^2 = 0.53$. To investigate the source of this significant effect, a Bonferroni's test for post hoc comparisons demonstrated that barriers relevant to "lack of motivation", "lack of time/opportunities" and "social repression" significantly differed from each other at the 0.05 significance level. Barriers related to "inhibition/shyness" significantly differed from "lack of time/ opportunities", and "social repression" ($p < 0.05$). However, no statistically

significant differences were found between "inhibition/shyness" and "lack of motivation" ($p > 0.05$). The above finding implies that the examined barriers are not perceived as equally important except for "inhibition and shyness".

Analysis of participants' responses to EPoC graphic tasks demonstrated that the sample tended to display low to moderate creative potential in total taking into account the 7-point scoring scale. As seen in Table 1, higher scores were found in tests of "exploratory" and "integrative convergent creative thinking" than in tasks related to "divergent creative thinking", which may indicate a tendency for conformity.

TABLE 1 – DESCRIPTIVES OF STUDENTS' CREATIVE ABILITY (N = 152)

	M(SD)	*95% CI*
Divergent exploratory thinking (abstract form)	1.93[a] (1.02)	[1.76 2.09]
Divergent integrative thinking (concrete form)	1.90[b] (1.03)	[1.74 2.06]
Convergent exploratory thinking (abstract forms)	3.60[ab] (1.87)	[3.30 3.90]
Convergent integrative thinking (concrete forms)	3.15[ab] (1.61)	[2.90 3.41]
Total Creativity	2.64 (.89)	[2.50 2.79]

Note: Means with the same superscripts are significantly different from each other.
SOURCE: Prepared by the authors.

Repeated measures ANOVA revealed that the within-subject main effect of the different types of creative thinking was statistically significant, F (3, 148) = 39.66, $p < .05$, $\eta^2 = .45$. A Bonferroni post hoc analysis was conducted to investigate the source of this significant effect. Analysis showed that means of "divergent integrative thinking", "convergent exploratory thinking", and "convergent integrative thinking" significantly differed from each other ($p < 0.05$). "Divergent exploratory thinking" was found to significantly differ from the other variables, except "divergent integrative thinking" ($p > 0.05$).

To examine the effect of gender on students' perceived barriers to creativity, a series of analyses of variance (ANOVA) was conducted. The results showed that "lack of motivation" as a perceived barrier to creativity was significantly affected by gender (F (1, 150) = 6.86, $p < .05$, $\eta^2 = .044$). It appeared that male students perceived "lack of motivation" more often as an obstacle to their personal creativity (M = 3.21, SD = .58) than their female peers (M = 2.95, SD = .60). No statistically significant gender effects were found for the other perceived barriers. Thus, the specific cultural and school context seemed to be less challenging and stimulating for boys' creativity.

To investigate the effect of specific school contexts on students' perceived influence of the aforementioned barriers to creativity, a series of analyses of

variance (ANOVA) was conducted. The results showed that students' perceptions of specific barriers to creativity did not significantly differ by school. Therefore, it could be assumed that those four schools were characterized by a similar creative climate.

To investigate the possible effect of creative ability on students' perceived influence of common barriers to their creativity, the sample was divided into three groups according to students' levels of creativity. The "low creativity group" consisted of students with the lowest 20% of the total scores on the EPoC creativity tasks and total scores from 4 to 7. Respectively, the "high creativity group" consisted of students of the top 20% of the total scores on EPoC tasks, with a score of 14 or above. The rest of the students, with total scores between 8 and 13, were classified as the "average creativity group". All three groups significantly differed to each other in terms of their creative ability (F (2,149) = 321.04, $p < .001$).

A series of analyses of variance (ANOVA) showed that there was no statistically significant effect of students' scores in EPOC on their perceived influence in any of the examined barriers to creativity. This finding may confirm that there is a common climate among all four schools examined, which is perceived as less creativity friendly by students regardless of their level of creative potential.

Discussion

As mentioned above both creative self-perceptions and perceptions about the contextual creativity friendliness may affect to some extent the decision of individuals to think and act creatively (ALENCAR; FLEITH; MARTINEZ, 2011; ELISONDO, 2016; ZIEGLER, 2012). The value of identifying and understanding such perceptions is not only theoretical but also practical since it may lead to targeted and effective intervention for enhancing creativity within the classroom (COLLARD; LOONEY, 2014). In this respect, this study attempted to contribute to the poor existing research regarding perceived influence of specific barriers to creativity by focusing on Greek secondary students.

The findings of the present study are in line with previous research which demonstrated insufficient resources, lack of motivation, and shyness as the strongest perceived barriers to creative thinking and expression, whilst social repression has been referred to as a less frequent obstacle (ALENCAR, 2001; ALENCAR; FLEITH; MARTINEZ, 2011).

"Lack of time and opportunities" for creative expression, was reported as the most prevailing barrier which discourages Greek secondary students from thinking and acting creatively. This finding can be interpreted through the broader perspective of previous research findings which has shown the creative dynamism of curricula may be stifled and opportunities for creative expression are likely to be restricted in schools oriented towards standardized testing and assessment based on academic criteria (DAVIS, 2013; ROBINSON; ARONICA, 2016). A performative school culture for pursuing attainment to a strict academic level has been described as conflicting to creative approaches of thinking and learning (CORNER, 2012).

Greek schools seem to have all the characteristics of a creativity unfriendly educational context which leads to a lack of time and opportunities for creativity. Firstly, Greek curricula do not provide an accurate definition of creativity nor specific guidelines for developing creativity in the classroom. Cachia, Ferrari and Punie (2010) in their Europe-wide research demonstrated that the lack of both a clear definition of creativity and appropriate educational tools in curricula has led to limited opportunities for creativity within the school context in various European countries including Greece. Greek curricula have been reported by educators to be inflexible and strict and therefore an important obstacle to promote students' creativity (KONSTANTINIDOU *et al.*, 2015). Besides curricula, Greek teachers have limited knowledge of the appropriate tools and techniques for identifying and promoting creativity in the classroom (KAMPYLIS, 2010) indicated. Lack of time and heavy homework seems to be also a current characteristic of Greek middle school. According to OECD (2011), the Greek educational system is among those that require students to spend a large amount of time weekly in after-school lessons in mathematics, science and language-of-instruction subjects. Thus the prevalence of lack of time and opportunity as a barrier to creativity for Greek secondary students is not a surprising finding.

"Inhibition", "shyness" and "lack of motivation" were reported to follow in the order importance of barriers faced by Greek secondary students. These have also been frequently recognized as barriers to efforts for creativity in previous literature (ALENCAR, 2001; ALENCAR; FLEITH; MARTINEZ, 2011; BANAJI; CRANMER; PERROTTA, 2013; KONSTANTINIDOU *et al.*, 2015; MORAIS *et al.*, 2014). Students tend to feel shy and inhibited to express their creative ideas if they know that creative ideas would not be comprehended and appreciated by teachers. It has been reported that creativity tends to be restricted in Greek secondary schools (PARASKEVOPOULOS, I; PARASKEVOPOULOU, P., 2009) and that students are mostly being educated and assessed out of their creativity (ZBAINOS; BELOGIANNI, 2018). In

this regard, students are rarely being challenged to express original and novel ideas since creativity seems to be less valued or awarded in the classroom resulting in low motivation. Much more, schools may enhance inhibition and shyness since, spontaneous expression of creative ideation may be perceived by teachers as a deviant behavior that needs to be restricted for the desired compliance in the classroom to be facilitated (PARASKEVOPOULOS, I.; PARASKEVOPOULOU, P., 2009), so that the academic goals of curricula can be efficiently reached on time (KONSTANTINIDOU *et al.*, 2015). For reinforcing motivation for creativity and enhancing creative expression, therefore, schools ought to promote openness to cultural stimuli, interest in different views, incentives, and rewards (DUBINA; RAMOS, 2013).

Nevertheless, quite surprisingly, despite the educational context with the characteristics mentioned above, Greek students did not appear to place as high importance to "social repression" as to the aforementioned hindrances to creativity. They reported that the influence of factors related to social repression, such as limited social recognition and reward of creative ability have a negative effect on expressing creativity, yet to a lesser degree compared to the other types of barriers examined. This finding may imply that students tend to perceive the school climate of Greek secondary schools as indifferent to creativity, where creative thinking and innovative expression are not overtly oppressed or rewarded. Previous research carried out with adults has also demonstrated that social repression was perceived to be a present but less important obstacle to creative behaviors (ALENCAR, 2001; ALENCAR; FLEITH, 2003; CRAFT, 2005; MORAIS *et al.*, 2014).

Regarding the effect of gender on perceived barriers to creativity, the present study did not find much significant variance. The only significant difference between the two genders was related to "lack of motivation", which was perceived as a stronger obstructer to boys' creativity compared with girls'. This finding is in line with previous research which has found some variation in perceptions of males and females related to motivational stimulation for creativity (BAER, 1998; BAER; KAUFMAN, 2008; CONTI; COLLINS; PICARIELLO, 2001; MORAIS *et al.*, 2014). For instance, expecting ungraded feedback and evaluation has been reported to have a positive impact on motivation for creativity of male adolescents but seemed to decrease the motivation of their female peers implying a peculiar "social psychology of gender creativity" (BAER, 1997, 1998).

Finally, as regards the measured cognitive processes by EPoC, divergent thinking scores appeared to be extremely low and significantly lower than convergent creative thinking scores. This finding may be interpreted by the fact that Greek students are not familiar with tasks that demand creative ideational

fluency which is cultivated in contexts that promote risk-taking, unconformity, and curiosity. Furthermore, in this study, the perceived influence of specific inhibitors was found not to be significantly affected by students' level of creative potential. This finding was quite surprising given that previous literature has indicated that various individual and environmental barriers to creativity may affect both creative thinking and expression (AMABILE, 1996; COLLARD; LOONEY, 2014; HENNESSEY; AMABILE, 2010). It seems that in the schools of our sample prevails a generalized climate of limited creativity friendliness that affects most individuals across the creative ability range (HUNTER; BEDELL; MUMFORD, 2007).

Educational recommendations and practical implications

To conclude, examining the perceived influence of various factors within a systemic approach of creativity could contribute to the attempt not only to implement efficient interventions for creativity development within educational settings but also to further form creativity-friendly actiotopes for individuals. As creative friendly actiotopes constitute subjective constructs, taking into account the students' personal needs and perceptions remain critical (FLEITH, 2011; ZIEGLER, 2012; ZIEGLER; VIALLE, 2009). To promote originality, novelty, and creative thinking, modern schools should be transformed into contexts where creativity is valued and pursued within flexible curricula and by removing potential inhibitors. Building a supportive climate to creativity is essential to the stimulation and encouragement of creative attitudes in school (PETER-SZARKA, 2012) and this is what Greek schools should focus on to overcome barriers and allow for student creativity to be expressed.

To improve school creativity friendliness, central educational policies should set up and offer the appropriate circumstances. In this regard, a broad and clear definition of creativity and appropriate guidance on how to nurture it should be provided within curricula. Furthermore, educational policies should be regularly reviewed and revised to promote the changeable learning needs of modern societies and facilitate the development of the 21st-century key competencies. Changes in the curriculum should be followed by further reforms on the central educational culture and principles of educational assessment to allow teaching flexibility and, also, value and award creative thinking.

Training teachers to be able to identify, assess and promote creativity in the classroom is an essential part of building creativity-friendly schools. Although

developing creativity is a given learning objective in Greek secondary school, there are no suggested guidelines or teaching tools to help teachers implement it in practice. Guidance tools should accompany curricula to orientate teachers' intervention to develop and encourage creativity. Moreover, teacher training programs should be applied to provide personalized guidance, creative teaching experiences, and opportunities to understand and value creativity. The findings of the present study can contribute to the effort to develop creativity-friendly contexts for students where efficient interventions for creativity may take place. As creative friendly environments constitute subjective constructs, it is essential to take into account students' personal needs and their perceptions of their barriers to creativity (FLEITH, 2011; ZIEGLER, 2012; ZIEGLER; VIALLE, 2009). Therefore schools worldwide in general, but in particular Greek schools should focus on how to remove perceived barriers by building a supportive climate to creativity is essential to stimulation and encouragement of creative attitudes in school (PETER-SZARKA, 2012) to promote originality, novelty, and creative thinking.

Limitations and indications for future research

The present study investigated the perceived influence of specific factors as barriers to creativity among secondary students, a topic that has not been previously examined for the Greek population. However, the small size of the sample restricts the extent to which findings can be generalized for the population of Greek adolescents. To fully understand the role of specific elements of the perceived environments for creativity, further investigation into larger samples is needed.

Besides, self-report instruments usually fail to reveal other latent factors that may affect an individual's ability or decision to realize their potential (PAULHUS; VAZIRE, 2007), so future research must apply various methods, both quantitative and qualitative, to investigate the impact of various factors as inhibitors to creativity which may not be deprived or observed by self-report methods.

Another limitation is that EPoC tasks, used to assess students' creativity, have not been standardized for the Greek population to ensure validity and reliability of the collected data. Future research needs to use a combination of instruments appropriate and standardized on the Greek population.

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