

## Creativity In Physical Education

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**ABSTRACT:** Education is a process that aims to ensure the development of each individual's capabilities and potential. The education system assumes that creativity is one of the skills to be developed. However, often the operationalization of this competence seems to be viewed in a decontextualized form in Physical Education. Therefore we seek through a literature review, understand and analyze the different approaches to creativity in physical education, never forgetting that all actions have consequences and that they could condition the development of our students. The analysis carried out found no way to assess creativity, so we think that we need to rethink the physical education as a discipline as well as the methodologies and processes used, as the current model is not in line with what you want to - develop a creative man, able to adapt to new situations, in school and society.

### Introduction

Education has as its main objective the harmonious development of the capacities and potential of each individual in order to prepare it for get to have a profitable performance in a changing world. Education today is no longer a process of transmission of knowledge and the school has a crucial role and must develop methodologies that favor building effective learning processes.

It was based on these assumptions and considering that the educational process is comprehensive and very complex, we decided to analyze it and understand it at the level of general education and physical education in particular, specifically with regard to creativity.

According to Lopes (2013, p.57), "We can not at the level of intentions (eg, law, government and school programs Programs) want to develop the ability to adapt to different contexts, decision making, critical and reflective spirit, creativity, autonomy, etc. and then do not develop methodologies and have a practice that permits".

From the analysis that we conducted, we found that most of the solutions did not answer to our problem, so we need to understand the contexts and interrelate them so that we could find coherent and workable answers.

Fernando, et al. (2010, p.225), argue that education should be "thought of as an awakening to the knowledge and the field study methodologies and work".

These authors also refer us "is teacher's role to prepare and lead a process in which a permanent change is needed, without losing an evolutionary sense, a critical analysis of the way processes to give appropriate responses and adjusted in due time" (Lopes et al., 2010, p.6); this is one reason why we consider extremely important the topic under study.

In this context we have to take into account that evolution requires new ways of thinking that lead to other forms of action, and have the ability to adapt to any situation, giving appropriate answers to each specific and creating solutions tailored to tomorrow different.

With this work we seek to contribute to understanding what is creativity and how it is developed and evaluated in our schools, as this meeting contemplated in physical education programs in Portugal.

It is explicit in the law of the portuguese education system bases in articles 7 and 8 of law no. 46/86, the objectives for teaching, namely:

"Ensure a common general education to all Portuguese to ensure the discovery and development them of their interests and skills, reasoning ability, memory, critical thinking, creativity, moral sense and aesthetic sensibility, promoting individual fulfillment in harmony with the values social solidarity."

In general terms and in a functional perspective consider that creativity can not be devoid of intentionality a goal and gives this perspective we consider to be creative, it is "to be able to balance different solutions" to meet an objective.

Thus we seek to understand and analyze the different approaches to creativity, their origin, as can be evaluated in order to know what is done to know the relevance of the methods used, know what you want to achieve, never forgetting that all acts they have consequences.

### **Methodology**

Based on the above, the methodology followed to achieve the stated objectives was as follows:

We conducted document analysis on the study of the subject in order to understand the interaction with other factors that it encompasses.

As a means to operationalize this issue, we looked creativity, approaches and theories, definitions and its assessment;

We have presented an overview of each of the frames in order to be able to characterize and understand the same;

Depending on the previous point made a reflection on the creativity in the educational process at the level of motor physical expression.

### **Development**

In addressing the theme of creativity, we tried to understand how this is developed and evaluated in our schools, in the light of the described in the programs of physical education of Portugal.

Are explicit in the education act, articles 7 and 8 of law no. 46/86, the objectives for teaching, namely "the development of interests and skills, reasoning ability, memory, critical thinking, creativity, moral sense and aesthetic sensibility, promoting individual fulfillment in harmony with the values of social solidarity "(p.3069).

According to the above, we can see that creativity is one of the skills to be developed, but often the operationalization of this competence appears to be undervalued or viewed a decontextualized way.

Fernando, et al. (2010) affirm that education should awaken to the knowledge is not limited to the acquisition of information, and the creativity essential to this process of development.

According to Barros & Barros (1972), Physical Education consists in stimulating creative activity the student.

If we consider that students should carry out activities in a creative manner, it should be valued and encouraged, according to what is expressed in physical education programs. But to know what it is to be creative, let's start by understanding the same which their origin and definitions. For only knowing what we are dealing with we can monetize and make better use of our work.

### **Settings**

We are referring to the bibliography we can say that there are different ways of defining creativity; below are some of the definitions found and how best to help understand this issue.

To Ghiselin (1952, p.2), creativity "is the process of change, development, evolution in the organization of subjective life".

Torrance (1965, p.16) states that, "creativity is the process of becoming sensitive to problems, deficiencies, gaps in knowledge, disharmony, identify the difficulty, seek solutions, formulating hypotheses about the deficiencies, test and re-test these hypotheses, and finally communicating the results".

According to Samulski, D. et al. (2001, p.57) creativity "is manifested in the sense of something unexpected, innovative or outside the normal patterns of action that the athlete can perform in the mode in which it is inserted".

According Lowenfeld (1970, p.62): "the definition of creativity depends on who expose Often, researchers are somewhat limited in their explanations, stating that creativity means flexible thinking and fluency of ideas,. Or may also be the ability to convey new ideas or see relações things in new and in some cases creativity is defined as the ability to think differently from others ".

Stein (1974) cited by Alencar (1995, p.149) argues that "creativity is the process that results in a new product, which is accepted as useful and / or satisfactory for a significant number of people at some point in time".

Taking into account other creative concepts Novais (1977, p.19), refers to that Guilford states that "creativity in a narrow sense, refers to the skills, which are characteristics of the creators individuals such as fluency, flexibility, originality and divergent thinking, relating process to isolated and evaluated factors and variables ".

for Novais (1977, p.24), Rogers contributed greatly to the study of this topic, "reinforcing the thesis of self-realization, motivated by the urgency of the individual to perform, to express ... a person is creative in that it realizes its potential as a human being".

In turn Saunders (1984, p.19), warns that:

"Create freely does not mean being able to do everything and anything at any time, in any circumstances and in any way. We see the free being as a structured and highly selective condition as a condition always linked to a present intention, though perhaps unconscious, and values to an individual and social time. When you create, you define something hitherto unknown. interconnect to multiple aspects and may differ from one another ".

Sternberg (1985) analyzed the creativity, in order to identify the beliefs and conceptions of different subjects about the same. He noted the degree of distinction that subjects were between three concepts: "intelligence," "wisdom" and "creativity".

It is important to distinguish creative intelligence, Torrance (1976, p.22) developed a study where they were distinguished:

"Highly creative children (identified by our creative thinking tests) highly intelligent (identified by the Stanford-Binet, a test applied individually). The highly creative group ranked in the top 20 percent on the creative thinking, but not as intelligence. The highly intelligent group ranked in the top 20 percent on the intelligence, but not as creativity ".

Seabra (2007, p.5) states the following features for creative individuals:

"Lack of conventionalism (have the free spirit, to be unorthodox);

Integration (be able to integrate different information, to relate disparate ideas or unrelated theories);

Aesthetic and imagination like (enjoy artistic expressions, write, compose music, paint, have "good taste");

Flexibility and Decision (being able to make decisions after evaluating pros and cons, ability to change direction);

Insight (knowing how to be, know the social norms of relationship);

Motivation and interest for the recognition of others (be energetic, want others to recognize the work, have clear objectives) ".

As stated Bahia (2005, p.334), often creativity "it is referred to as something impossible to define, describe or be copied, because the creative acts do not meet the criteria of frequency and predictability so dear to all sciences that aim to overcome the description stage of phenomena for the explanation of the same".

As we can see many authors have discussed studies related to creativity, showing different points of view, more related to cognitive area while others operate more as a way of solving problems.

Many of the displayed settings, associate creativity exclusively to innovation, which seems to be somewhat limited, since, as we can see the creativity encompasses a much broader process of thought.

### **Theories / Approaches**

The research carried out seem to emerge two approaches, one a more psychoanalytical dimension and another in a more psychometric aspects.

Within these approaches are referred to different theories, which succinctly spent the reference.

The creativity according Skinner (1970) can be explained by determining the history of contingencies and genetic history of the organism. The mind is considered as doing what the body is not able.

According Kneller (1973), Guilford defends a theory of creativity of psychology that is distinguished from the others, since it divides the capacity into categories (the memory capacity and the ability of thought). In turn, the ability to think, according to the author, is divided into cognitive skills and productive capacities, which are responsible for convergent thinking and the divergent.

According to Guilford (cited by Kneller, 1973, p.53):

"Productive capacities are of two kinds, convergent and divergent. The first is driven by the thought that moves towards a certain or conventional response. The second, by the thought that moves in different directions in search of a reply. We can conclude, therefore, that the convergent thinking is where it offers the problem where there is a standard method to solve it, known thinker, and where you can guarantee a solution within a finite number of steps. Divergent thinking tends to occur where the problem is still to be discovered and where there is still no means settled to solve it. Convergent thinking implies a single correct solution, while the divergent can produce a range of appropriate solutions ".

Then it can be said that the convergent thinking, is considered as the one that is used when "implies a single correct solution" to the problem, and divergent thinking, as one that is capable of producing "a range of appropriate solutions."

In a more psychoanalytical perspective, Alencar (1995, p.17), says, "by analyzing the behavior of people who have made creative contributions, it was found that the great original ideas or products occur especially in people who are properly prepared, with broad field of knowledge on a particular area or existing techniques".

The same author relates two phases for creativity: "inspiration", considered more important and requires the abandonment of logical-rational thought, and the "development", characterized by logic and rigorous assessment. In another aspect of the theory, it relates to creativity with invention, defending that the emergence of a new product is essential for a definition of creativity.

Another theory is the humanist, and emerged as a protest against the limited human images, defended by psychoanalysis and by behaviorism. This theory emphasizes the intrinsic value of the individual - to become and autorrealizar-by exploring the differences and talents of every being. Alencar (1995, p.54), "understands the creative process as the emergence of a new rational product, which arises from the individual's uniqueness, on the one hand, and materials, events or circumstances of his life, on the other. What is the essence of creativity to it is originality or uniqueness ".

The humanistic approach distinguishes between "primary creativity, secondary and integrative." Since the primary corresponds to the inspiration phase occurs spontaneously and; the secondary is based on systematic work and accumulated knowledge; and finally the integrative comprises the previous two (Alencar, 1995).

The same author also refers to some creative process conceptions, based on some authors as Poincare (1902), Helmholtz (1974), Wallas (1926), Smirnov & Leontiev (1960); these phases or stages established for the creative process, arguing there are three. The first (preparation or saturation), which are brought together actions and sensations, and the problem is investigated in all directions, the second (lighting, incubation or research) which is referred to the maturation of the problem, the time of carrying out new combinations and third (checking, lighting or solution) that is identified as a proposal for the verification phase.

Based on these approaches, we find that no author refers to the part of physical education in particular, but we can say that we are in line with the two approaches, and this can be seen in a psychoanalytic perspective, more humanistic or else psychometric (Simões , 2012).

### **Evaluation**

The evaluation is considered part of the educational process, essential in any proposed Education. This is linked to the teaching and learning process.

Often the assessment is only seen as a mere allocation of notes, giving students a "label" and not as a means to the same guide your practice going this way to meet the real needs of their students.

We now present some studies on this subject.

Torrance (1976) based his studies in engineering tests and reviews of the creative potential, analyzing IQ tests where no differences between the creative ability and the level of intelligence of some children.

Creative thinking test Torrance (TPCT) is a battery of figurative and verbal tests constructed to evaluate creative thinking, based on creativity tests developed by Guilford, particularly in terms of divergent thinking (Cropley, 1997; Piirto 1998 ; Sternberg & O'Hara, 1999).

The TPCT consists of 10 activities, seven verbal and three figurative in two parallel forms, A and B. In the verbal activities subjects give the answer in writing and figurative component subjects must complete drawings. Listing criteria initially proposed by Torrance they were based on Guilford work on creativity, so considering the fluency, flexibility, originality and elaboration (Torrance & Safter, 1999). Later were also introduced emotional indicators in the evaluation of creativity (expression of emotion, fantasy, movement, unusual perspective, internal perspective, context of use, combinations, extension boundaries, expressive titles and analogies / metaphors), now appearing creativity with a cognitive and other emotional component (Nakano, 2006; Safter & Torrance, 1999; Wechsler, 2002).

Qualitative creativity assessment has been carried out by analyzing the biographies, observations or free interviews. "The importance of this approach as a step generating hypotheses about the person, the process and the creative product was emphasized by Yau (1995), in reviewing studies using this approach" (Wechsler, 1998, p. 4).

According Wechsler (1998), the battery of tests of the multidimensional assessment of creativity is constituted by four instruments. This test aims to assess cognitive and affective aspects related to creativity, were used internationally and designated "Thinking Creatively with Pictures and Thinking Creatively with words." In Portugal they were called "Thinking Styles and Create" and "Adjectives autodescritores".

In Portugal, Bahia (2005), appears in the evaluation of creativity, the battery Proving I reason Differential, Ribeiro & Almeida (1992), these are tests of divergent thinking: numerical, spatial, verbal, figurative -abstract. Also in 2001, Morais presents a study focused on the relationship between cognitive variables and creative performance.

As stated Bahia (2005, p.355), "the reason is assessed creativity is not limited to identifying creative because, by itself, an assessment of creativity is not enough. It must include not only other type of assessment of cognitive functions but also include self assessment".

Analyzing creativity, we found that different conceptions are established for it, giving it an interdisciplinary nature, which makes their study more challenging.

In order to scroll through the other path is extremely important there is a different relationship with knowledge, a change in attitude that involves the full range of stakeholders in the process, thus seeking a full and pleasant development, where the student is able to situate and discuss the issues you want to solve and not merely to repeat solutions that are presented to solve problems in a predefined manner and pre-formalized.

We were expecting to find different tools to understand how it can be worked on and developed creativity, but after analysis it seems there is no way to assess creativity in physical education; at least of research conducted we did not find any reference to such.

We think however that it is urgent to find mechanisms to assess creativity since, apart from you acknowledge great importance, it is contemplated in the programs of physical education and the law of the education system bases. We are aware that for this to happen, they have to select properly variables and indicators that allow us to equate it can be monetized, that allows to make a diagnosis, a proper prescription and a process evaluation.

To assess creativity in physical education, in general terms, we should consider some variables and some indicators, such as number of individuals involved, what each does, distance between them, implemented dynamic, used offsets, steps, gestures, jumps, contacts, expressiveness, performance capacity, understanding of movement, articulation, which must be selected depending on the scope of its action. In the evaluation we must also always take into account what the immediate and mediate goals, since it can never fail to take into account the intention of the action.

The function of the teacher is no longer merely be a transmitter of knowledge but a catalyst processes; but only the understanding and explanation of the phenomena in their functional aspects allows a conscious action on them and their use. To take on this role is necessary to master specific areas of knowledge and a set of tools that allow it to perform these functions effectively, in particular as regards the assessment.

### **Considerations**

Evolution requires new ways of thinking that lead to other forms of action, they are helping to better adapt to increasingly complex situations. Transitive and giving appropriate answers to each specific, creating tailored solutions.

After analysis on creativity, we found no way to assess creativity in physical education at least of research conducted did not find any reference to such.

Thus to understand how it can be crafted and controlled creativity, we would expect to find different instruments.

It is the understanding and explanation of the phenomena in its functional aspects, which allows a conscious action on them and their use, because the function of a teacher is no longer a knowledge transmitter but a catalyst processes.

It is essential that the educational process is designed and thought in order to understand the implications of the idealized situations have in the training of individuals and what capabilities that allow us to develop and control processes using expeditious means.

We are aware that for this to happen, you have to find indicators, variables that allow us to equate how it can be monetized, that allows to make a diagnosis, a proper prescription and then an evaluation of the process. This may be a job to do in the future and that we believe very relevant to education.

## References

- Alencar, E. 1995. "Criatividade". 2 ed. Brasília: Editora UnB.
- Bahia, S. 2005. "Entre a teoria e a prática da criatividade". Editora: Relógio D'Água Editores.
- Barros, D.; Barros, D. 1972. "Educação Física na Escola Primária". 4 ed. Rio de Janeiro: José Olympio.
- Cropley, A. 1997. "Fostering creativity in the classroom: general principles". Creskill: Hamplon Press.
- Fernando, C.; Lopes, H.; Vicente, A.; Prudente, J. 2010. "O Desporto como fator de desenvolvimento regional, o caso concreto da RAM- compreender o instrumento desporto". 16º Congresso da APDR (pp. 210-228). Funchal: Universidade da Madeira.
- Ghiselin, B. 1952. "The creative process". Berkeley: University of California Press.
- Kneller, F. 1973. "Arte e ciência da criatividade". São Paulo: IBRASA.
- Lopes, H.; Fernando, C.; Vicente, A.; Prudente, J. 2010. "A função do docente de Educação Física". In A. P. Albuquerque, Educação Física, Desporto e Lazer- Perspetivas Luso-Brasileiras. Maia: ISMAI, 2010.
- Lopes, H.; Vicente, A.; Simões, J.; Barros, F.; Fernando, C. 2013. "A Funcionalidade do Processo Pedagógico". Revista da Sociedade Científica de Pedagogia do Desporto, 1 (2): 54-65.
- Lowenfeld, V. 1970. "Desenvolvimento da capacidade criadora". São Paulo: Mestre Jou.
- Nakano, T. 2006. Teste brasileiro de criatividade infantil: Normalização de instrumento no ensino fundamental. Dissertação de doutoramento não publicada, PUC-Campinas, Campinas.
- Novaes, M. 1977. "Psicologia da criatividade". 4. ed. Petrópolis: Vozes.
- Piirto, J. 1998. "Understanding Those Who Create". 2 ed. Tempe, AZ: Great Potential Press.
- Portugal. "Lei de Bases do Sistema Educativo" (Lei n.º 46/86 de 14 de outubro), alterada pelas Leis n.ºs 115/97, de 19 de setembro, e 49/2005, de 30 de agosto.
- Samulski, D.; Noce, F.; Costa, V. 2001. "Principais correntes de estudo da criatividade e suas relações com o esporte". Movimento, Porto Alegre. 7(14): 57- 66.
- Seabra, J. 2007. Criatividade. Revista Portal dos psicólogos, 2007. [www.psicologia.com.pt](http://www.psicologia.com.pt).
- Simões, J.; Fernando, C.; Lopes, H. 2012. Criatividade na Educação Física – Que Importância para o Futuro da Escola Pública? In CIE, & A. Bento (eds.), "O Futuro da Escola Pública". Funchal, Região Autónoma da Madeira, Portugal: Centro de Investigação em Educação-Universidade da Madeira.
- Skinner, B. 1972. "Creating the creative artist. In: Skinner B. F." (Org.). Cumulative records: A selection of papers – Third edition (1972). New York: Appleton- Century-Crofts.
- Sternberg, R. 1985. "Beyond IQ: a triarchic theory of human intelligence". New-York: Cambridge University Press, 1970.
- Sternberg, R.; O'hara, L. 1999. "Creativity and Intelligence". In: Sternberg, R. J. (eds.): Handbook of Creativity (pp. 251-272). Cambridge University Press.
- Torrance, E.; Safter, H. 1999. "Making the creative leap beyond". Buffalo, NY: Creative Education Foundation.
- Torrance, E. 1965. "Rewarding creative behavior". Englewood Cliffs: Prentice-Hall.
- Torrance, E. 1976. "Criatividade: medidas, testes e avaliações". São Paulo: IBRASA.
- Wechsler, S. 1998. "Avaliação multidimensional da criatividade: uma realidade necessária". Psicol. Esc. Educ. 2 (2) Campinas.
- Wechsler, S. 2002. "Avaliação da criatividade por figuras e palavras: Testes de Torrance". Campinas: Impressão Digital do Brasil Gráfica e Ed.