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ENCOURAGE THE CREATIVITY STARTING AT THE EARLY CHILDHOOD: THE MOST EFFECTIVE INVESTMENTS FOR QUALITY YOUNG RESEARCHERS IN THE FUTURE

Abstract: This article focuses on the concept of creativity in education seen through a critical lens as standing between dichotomies, misconceptions and possibilities for education and the stimulation of young researchers at the early age. Children are often required in schools to stick to standardised curriculums and therefore the place left for creativity is very restricted. But what does creativity mean? The term is often associated to the arts disciplines rather than scientific subjects such as maths or physics. As a matter of fact, the concept is rather complex. This paper argues the possibilities that creativity presents in special regard to education in schools, as a tool for personal and social development.

Key words: *creativity, education, misconceptions, scientific research, play, future, problem solving, innovation, development*

INTRODUCTION

In the recent decades there is a large interest in the educational and scientific arena in breaking traditional conceptions regarding creativity. The object of study refers to these traditional conceptions that have contributed in shaping a categorisation, or a form of mind-set, which determines the ability of thinking and precisely of being „creative". Creativity as a concept has been often associated with the discipline of arts rather than scientific fields, which poses an important problematic. Creativity is multidimensional and its applications or embodiments can be found anywhere. This quintessential element might also play a crucial role in fostering the human ability to build the future and face its unpredictable challenges. Different studies, as noted by Craft [1], emphasize the value of creativity when applied to educational contexts. The notion of „creativity" might present particular interest also

when referring to the stimulation of young researchers in different fields of science or academic research, since it could enable individuals to exercise scientific skills in a creative way since the early age. On the other hand, this concept still continues to arise conceptual confusion around it, making it always questionable. Schools and educational institutions, as well as society in general, are deeply affected by these conceptions that need to be challenged in order to facilitate the development of creativity of the individual.

The notion of being inspired, getting an idea or being creative is anchored deep in history of different cultures. Greek, Muslim, Christian and Judaic traditions see this concept as coming from a powerful and higher source [1]. On the other hand, during the Romantic era in Europe, creativity is rather seen as coming from the creative individual. Later on, people began to question the idea of creativity and the logic behind it as Craft [1] explains. The development of research through history has contributed in framing a discourse around the concept of creativity, thus making it a *universalised concept.*

As Craft [1] notes, different studies have tried to delineate the concept. Studies in the 1950s and 1970s focused mainly on the concept of „genius" and also tests of creative ability as well as on personality and discovering ways how to stimulate creative abilities [2]. According to Rhyammar and Brolin [3], as stated in Craft, Jeffrey and Leibling [2] research in creativity in the '80 s-'90 s „became rooted in a social psychological framework in which it is recognised that social structures affect individual creativity". With the work of Gardner [4] regarding the theory of multiple intelligences, the focus was to understand the creative mind in terms of intelligence. During the 1980 s and 1990 s a shift occurred putting an emphasis on cognition, personality and the creative individual, and specifically creativity in education. As noted in Craft, Jeffrey and Leibling [2] some researchers argue that creativity presents general traits and other argue that it is rather domain specific.

Regarding education, approximately in the mid-1990 s„there has been a growing recognition from policy-makers and commentators alike that learner creativity is an extremely important aim for education. The economic imperative to foster creativity in business has helped to raise the profile and credentials of creativity in education more generally" [1]. Later on in the UK, in 1998 the National Advisory Committee on Creative and Cultural Education (NACCCE) [5] was founded in order to further investigations into cultural education and creativity. Its purpose was to „make recommendations to the Secretaries of State on the creative and cultural development of young people through formal and informal education: to take stock of current provision and to make proposals for principles, policies and practice" [5]. Nowadays, with the development of technology, the future is becoming rather unpredictable and therefore, traditional educational methods are failing to prepare children adequately for future challenges. Even though creativity has received a lot of attention, it remains a vaguely understood and equivocated concept, which is still not enough employed in social contexts.

Following this sense, using creativity becomes crucial when thinking about development, economic growth or innovation. The objective of this paper is to (i) present a general idea of the concept of creativity specifically related to education, (ii)

provide an overview of some misconceptions and dichotomies related to this concept, as well as (iii) discuss critically what creativity presents in terms of possibilities when applied to educational contexts for social development and the stimulation of young researchers. Although a lot of schools around the world have started implementing creativity as part of their curriculums, there is still a big gap. Many schools continue to teach according to traditional methods and therefore, leaving no space for children to express their talents and creative powers, indirectly maybe harming their self-development. On the other hand, many schools implement creativity on curriculums only as being part of the arts discipline rather than science or other fields. A lot of children around the world, who are very creative, don't fit to the norms of traditional schooling and are often disadvantaged, because of the rigid structures and non-creative teaching. Many of these children, loose the connection to their creativity and talents due to the non-consideration of creativity as an important component of education. Creativity constitutes the baseline for inventiveness. Innovation and entrepreneurship, academic research, things which are really valuable and needed in nowadays continuously changing societies. Creativity is quite ubiquitous, it can be found anywhere and can be expressed in many different ways. It can be expressed through the arts, through business, the social sciences etc. There is no field where creativity does not apply to. Nevertheless it is rather treated according to a narrow perspective.

THE CONCEPT OF CREATIVITY AND ITS MEANING

The concept of creativity has been characterised through time by many different descriptions and definitions, but it has always been very difficult to find a precise definition of what exactly creativity means. It is quite evident that many relevant criteria exist that try to explain the nature of creativity, but on the other hand, there is no definitive, absolute and ultimate criteria.

The study of different creative people generates a broad perception and a variety of definitions. One of the most popular definitions, which, has in a way mostly influenced the perception of creativity on the past, is the definition given by Torrance (1969), mentioned in Craft [1], in which creativity is seen as a process of noticing a problem, finding solutions involving a process of testing, evaluating and concluding results. The whole process involves combining ideas together, while being original and going out of the box. This definition has been very influential, but is has been largely criticised [1]. Some of the contemporary definitions of creativity distinguish high creativity from ordinary creativity. Craft [1] makes a summary of different conceptualizations and definitions. High creativity is characterised as „an exceptional human capacity for thought and creation" [3] or as „a person's capacity to produce new or original ideas, insights, restructurings, inventions, or artistic objects, which are accepted by experts as being of scientific, aesthetic, social, or technological value" [6]. Craft [1] also mentions that high creativity may apply only to some extremely talented people and may be not of relevance when talking about education of all children. On the other hand, the ordinary, or also as described the „democratic" creativity could be more relevant to educational contexts, since it rec-

ognises that all pupils can be creative. Creativity is seen as a characteristic that everyone possesses and it can be developed.

Furthermore, another explanation of the notion is that the term is often designated as not implying any meaning on its own, but it has to be rather associated with the specificity in what this person is creative, because „the criteria of what is valuable in a certain sphere of activity differ from activity to activity" [7] Another point of view claims that the affirmation that the term „creativity" cannot be used without a specification, can also be turned down or challenged easily from cases such as Leornardo da Vinci who is a person who is creative in general and in many fields. White [7] argues that „creative still, even in this case picks out not something about a person's inner processes, but about what he publicly produces." For example, the author illustrates that „we call good artists and scientists creative, because they have produced something aesthetically or intellectually valuable" [7].

In some recent descriptions, such as the one according to the National Advisory Committee on Creative and Cultural Education — NACCCE [5], creativity is defined as imaginative activity that produces original and valuable outcomes. In this definition, both high and democratic creativity is seen as being part of the child and also society in general. Creativity is part of our everyday life and can be considered as relevant to everyone in individual and collective activities. To be creative it means to engage in ways of thinking and connections that break conventional boundaries of ways of thinking and imagining. Creativity occurs when the individual plays around with ideas, images, etc. and combines them into discovering new ideas or new ways. The imaginative activity plays an important role in the process of exploration of a variety of new and unpredicted relationships. For example, play and the imaginative activities appear as interconnected. „Playfulness can be viewed as an attitude of the mind, that survives play and becomes a personality trait of the individual thus enabling connections to be made between play, imagination and creativity" [8]. For example, children often explore new ways of perceiving the world around them through play and that's when creativity occurs.

Many teachers often also refuse definitions of creativity, because they think that this can be somehow restricting children's ability to express themselves and be creative. The definition itself of creativity is somehow a boundary to its meaning and both the definition of the notion and the notion itself stand in a paradoxical relationship. Banaji and Burn [9] argue that the definitions of creativity in general are:

> „insufficiently precise to avoid familiar binary oppositions and contradictions in this area which construct creativity as, respectively, elite or democratic; originating from nothing or generic and transformative; spontaneous or taught and learned; universal or culture specific; imaginative and intuitive or knowledge and skills-based; ineffable and instinctive or quantifiable and testable." [9]

According to the authors, these oppositions are linked to the rhetorics of creativity, which are produced from different contexts, such as for example, research,

theories, policies and practice. There are many rhetorics and some of them for example, include the rhetoric of: play, technology, politics/democracy, the creative classroom, etc.

1) MISCONCEPTIONS AND DICHOTOMIES TOWARDS CREATIVITY

The development of creativity in childhood is deeply affected by the ideas about art, education, creativity and other relevant concepts. The need to reconsider the idea of creativity appears as crucial, since children are often marked of stereotypes, such as, not being creative, which obviously harms their potential, motivation and creative powers. The idea of creativity resides in many misconceptions of the notion and different dichotomous relationships. One of the first misconceptions as stated by Prentice [8] is that creativity is often associated with the artistic fields and the arts in general. Another important and main misconception is that creativity is seen as synonym of arts or being artistic. The author argues that although there is a huge range of possibilities within the arts, creativity is not exclusively just residing in the arts, as many people would assume. The discussion of the two terms „creative" and „arts" often suggests that they are rather synonyms. This misconception „contributes to a reinforcement of a false dichotomy between one field of human endeavour, the arts, in which creativity is regarded as being essential, and the other fields in which, by implication, it is not" [8].

In fields like mathematics for example, often the curriculum does not offer creative approaches to foster creativity in maths, since creativity is rather considered as being part of the „other half" such as music, art, drama etc. Mann [10] argues that the process of teaching Maths in schools „without providing for creativity denies all students, especially gifted and talented students, the opportunity to appreciate the beauty of mathematics and fails to provide the gifted student an opportunity to fully develop his or her talents." The author also stresses that behind Maths stands imagination. If creativity is not fostered, this could significantly harm the process of imagination and therefore, it also diminishes the process of thinking and being creative in finding solutions in Maths.

Another misconception regarding the notion of creativity goes back to the idea that people who are creative are rather a small amount in the population and often designating rather an elite of the population. These creative people are portrayed as bohemians, unconventional and special, making a difference from the majority of people who are usually not. Often, when someone is identified as being creative, many people associate the person as being in a different category than themselves or as being part of a state of „otherness". This is a cliché, which is often believed even in schools and therefore, many children think that creativity belongs only to the „intelligent" or to the „talented", which often blocks them to develop their own potential.

Furthermore, it is important to mention the dichotomy *work vs play*, which plays an important role in education and in defining curriculums. Usually, creativity is seen as belonging more in play, rather than in work or real subjects. This dichotomisation of the relationship between the two concepts play vs. work doesn't

allow creativity to be seen as something belonging to both. „The popular distinction that has been made between „play" and „work" trivializes the issues" as Siraj-Blatchford [11] notes. It is rather crucial to emphasise the importance of the relationship between play and creativity, because it could be objectified into stereotypes that are of serious outcomes. One of these stereotypes considers play rather as something belonging to childhood and it has to be replaced by work in adulthood. The second one considers that play is less efficient learning tool in comparison with learned theory and given info [8]. These social conceptions can be found in many contexts around the world and can be very harming to the development of creativity of every child. Play is often considered as not so important, for example in comparison to „serious" subjects. The experimenting nature of play is indeed very beneficial to creativity, since children and also adults can enable new ways of thinking from existing ideas. Unfortunately, such approaches are not so expanded and schools often tend to „conform" children into strict ways of achieving new knowledge.

The prescribed ideas in schools often serve to prepare children for their future in the adult working world and these ideas often smash their self-expression and motivation in exploring new imaginative ways in achieving new knowledge. Moreover, as mentioned in Prentice [8], „a dichotomous relationship between outmoded views of work and play is no longer sustainable in a society in which the boundaries between different categories of activity and modes of engagement are becoming increasingly flexible".

Nowadays the borders between work and no work or leisure and learning are being blurred due to the social dynamic of societies and new information technologies. Therefore, boundaries between social institutions such as school or workplace are less evident and creativity can apply everywhere. Although many social policies tend to emphasize the necessity of teaching children in schools how to be creative and learn how to use it, there exists on the other hand a certain propaganda and framing of the curriculum of schools that tries to put emphasis on „important subjects" focusing more on competencies such as literacy or numeracy. This somehow contradicts the initial purpose to increase children's creativity. It rather restricts it and contributes to a very narrow and standardized curriculum.

CREATIVITY AND EDUCATION

Education in general and particularly formal education is described as constituting a basic right and need of every child, but on another level it arises many issues and restrictions when it comes to fulfilling its initial aim, which is to form future generations who are original thinkers, are capable of self-fulfilment and contribute to society. Formal education has been criticised due to its „framing powers" towards children. It has been characterised as oppressing the individual expression of children and instead favouring a rather conformist view of life. Furthermore, formal education has been mostly focused on achievements and therefore it has been often a barrier to the development of the creative potential. On the other hand, nowadays, many things have changed and it is very difficult to define

what knowledge is crucial and is needed for the future, since the future itself is very unpredictable. In addition, in different parts of the world, children and also adults face different life difficulties. The knowledge and life skills that these individuals achieve in schools need to adjust and respond to the need of a specific context. Educators around the world face many challenges in preparing and educating children and a significant change in the pedagogical structure is needed. The traditional structures of education are not prepared and do not respond well to the new changes in society and restrict the roads to creativity.

Article (29), in the CRC, states that „education of the child shall be directed to the development of the child's personality, talents and mental and physical abilities to their fullest potential" [12]. Educators around the world are being constantly challenged to improve their teaching methods and approaches in order to facilitate the achievement of knowledge, the ability to learn and develop for every child. Teaching methods are often responsible of the future development of life skills in children and their self-fulfilment. Children should be in principle able to express their own potential and further it through the pedagogical and didactical help of teachers. Therefore, education plays an important role in motivating and extracting „each creative-intelligence" and talents of each child and put it to life. This demands a change in the pedagogical posture of a teacher, or educator. In reality though, many teachers don't put a big value on creativity in schools and tend often to dedicate little efforts or pedagogical strategies in order to flourish the creativity of every child. This has consequent outcomes on the development and fostering of creativity.

Pedagogies that support every child's creativity can enable many possibilities regarding learning abilities when introduced in school curriculums. These pedagogies could be used as a powerful tool to enhance the involvement of children in higher level thinking skills and can also encourage them to express better themselves. Furthermore, creativity is a process of learning. It is not separated from the achievement of knowledge as many teachers and adults would think. It does not harm learning, but rather, it promotes learning by the child through the child. Guilford [13] states that „a creative act is an instance of learning … a comprehensive learning theory must take into account both insight and creative activity".

Fostering and introducing educational reforms related in order to promote creativity is very beneficial, but sometimes it is not enough. Beside the fact that creativity could bring many beneficial outcomes for children, it can also face a lot of limits and restrictions when introduced in education. Craft [14] suggests that there are many difficulties and some potential limitations to the fostering of creativity in education, which need to be considered seriously. These limitations include difficulties of terminology and definition of creativity, conflicts that reside between policy and practice, limitations in curriculum organisation, and also limitations stemming from a centrally controlled pedagogy. Therefore, educators are faced with several professional dilemmas that need to be thought well before introducing creativity in education. Such dilemmas include for example, the fact that creativity is seen as a universal thing when in fact it cannot be applied everywhere

the same way, because contexts are very different and diverse and also very specific according to the culture.

According to different literature, it is defended and argued that all children are born with different creative abilities, but only some of them develop their creative potential and are going to be capable of applying it. In order to develop this creative ability, it needs to be nurtured and it is very much depending on the context of every child. White [7] notes that „most children creative growth is checked by parents and teachers rigid insistence on following explicit rules in other areas, e. g. art." According to the author, if such rigid structures and rules are broken by teachers and parents, children will develop better their creative abilities and they will learn to use them better in practice.

Nowadays, with the increased amount of new technologies and flexible societies, creativity appears as a crucial and as one of the most needed elements for preparing new generations in solving any future problems that will arise. Creativity can prepare children with different and flexible skills that are necessary to face a future which is quite unpredictable [15]. Fostering creativity in education is meant to target many issues such as different unresolved problems in different and diverse contexts and also resist or even thrive in an uncertain environment, which is changing very fast. Furthermore, the development of creativity enhances the human capital which according to Adam Smith enhances also the wealth of nations [16]. In his book *Out of our Minds: Learning to be creative*, Robinson [17] explains the enormous need of implementing an education that opens up the mind of every child in order to develop his/her potential of creativity. The author additionally argues that it is of extreme importance that the educational system is transformed. Children cannot be prepared for the needs of the 21st century in a school system that is designed to answer the needs of previous decades and it's consequently old-fashioned for this generation of children and for the future ones. The author also stresses that nowadays creativity is crucial not only in terms of the future, but also for the self-definition and development of every child. „The challenge now is to transform the education system into something better suited to the real needs of the 21st century. At the heart of this transformation there has to be a radically different view of human intelligence and of creativity" [17]. Reconsidering creativity in education would stimulate in addition the spirit of research and critical thinking, which is fundamental when considering the future and the development of the society. Stimulating creativity since the early age can be very beneficial for „awaking" young researchers who need to use their creative skills in order to succeed in the process of exploring new dimensions and discovering new solutions. According to Abd-el Khalick and Ledermann [18] scientist employ their creativity in all the dimensions of scientific research. Every researcher needs to use his/her creativity in order to come up with new ideas and develop a scientific understanding.

Every child has the capacity to develop creative thinking. Experimenting with new ideas can develop capacities, enrich the lives of children. This contributes to a better and sustainable society. According to Mills (1959), as stated in Craft, Jeffrey and Leibling [2], „the current creativity issue has generated an empowerment culture", making possible a switch of responsibility for social change from the govern-

ments/global forces to the individual. „Empowerment is seen as essential to survival and once again the locus of creativity is seen as lying within the individual" [2] It appears that creativity and the process of creative thinking, when introduced in education, can be of great importance and could bring important changes in the society. Richard [19] notes that:

> „If we can engage each of our students passionately in genuine intellectual problems worthy of reasoned thought and analysis and continually help each student to become a more judicious critic of the nature and quality of his or her thought, we have done all we can do to make likely both the critical and the creative development of each student. It is stimulating intellectual work that develops the intellect simultaneously, as both creator and evaluator: as a creator who evaluates and as an evaluator who creates." [19]

DISCUSSION

There is a very broad range of concepts and actions that are defined as being creative and that creativity itself as a notion cannot be strictly defined. Although many people from different fields of study have tried to delineate what the concept means, there are no absolute and final criteria, but rather different approaches and analysis of the concept from different angles. Nevertheless, creativity appears as a very important human capacity that can help children develop their potential and reply to the needs and problems of the 21st century. Therefore, the role of creativity, when implemented in educational contexts, has been outlined as crucial and as beneficial in the process of stimulating creative future young researchers and individuals.

Many educational systems around the world are being constantly challenged to be reformed. But this appears as not sufficient, since schools could still continue to crash or marginalize the potential and creative talents of many children. Transformation or a change of mentality towards teaching would be a better solution and the need to reconsider creativity as real potential for communities and schools is very important. Even nowadays education continues to be considered as a firm line, following strict and linear rules that lead to the preparation for the future. This mentality often brings about a traditional and non-tolerant way of education which does not prepare children for the future and their talents. In order to support children who don't fit to the norms of traditional schooling approaches and rigid curriculums there is a need of applying new creative approaches that support creativity and diversity. Every school needs to somehow develop its own approaches to the issues that they face as one specific contexts or community. The huge challenge and difficulty is that there is no absolute and strict model of creativity to follow. Schools are different and they face different need even if they are in the same neighbourhood or same state, so approaches to creativity have to be diverse and treated differently according to children's needs. According to Durrant (2012) as presented by Davis [20], there is a big need of a counter culture to the „standardization, universalism, individualism and deficit-based nature of recent educational reforms".

Promoting creative thinking and encouraging creative capacities of every child can be used as a strong tool to engage children in learning new things and exploring their creative abilities. When children are involved in their own learning that's when creativity occurs and adults, caretakers or teachers play there an important role. Motivation and also self-esteem can be deeply ameliorated when children are stimulated to think in a creative way and are encouraged to reflect on their own actions, feelings or intuition. Torrance [21] indicates that creative learning can improve concentration, motivation and also achievements. In order to promote and support creativity there is a need to adjust the pedagogical tools and strategies that teachers use. Strategies found to be important in pedagogical approaches to creativity according to Craft [1] include:

— having adequate space and time

— fostering self-esteem and self-worth

— offering learners mentors in creative approaches

— involving children in higher level thinking skills

— encouraging the expression of ideas through a wide variety of expressive and symbolic media

— encouraging the integration of subject areas through topics holding meaning and relevance to the children's lives

Even though creativity still nowadays in many contexts continues to be largely associated to the discipline of the arts, it is not just about arts. Implementing creativity in schools it is not enough if it is only targeted into specific subjects such as art classes or painting. The change of mentality has to be done in all subjects taught in schools and it has to be evident in subjects such as Maths or Chemistry. Creativity is important in science as much as it is in arts. Children need to use creativity in every subject and there teachers play an essential role in accompanying children through this journey of creativity. According to Kampylis and Berki [22], „like a farmer sowing seeds, someone creates conditions for children to grow as creative and critical thinkers. Creativity cannot be taught „directly", but educational practice can provide the means, opportunities and a fertile environment for the creative mind to flourish".

CONCLUSION

Creativity, when nurtured and developed as an adaptable or flexible component of education, can be a very ingenious and brilliant capacity of humanity. Education can be used as a powerful tool to create conditions for individuals to discover their creative abilities and develop them. Every child should be capable through the help of education to discover their inner creativity and benefit from learned knowledge in order to be capable of flexibility and creative thinking in the uncertain future. The use of creativity can open new doors and new opportunities in a world where new problems and social changes will require new creative ways of thinking and solutions. This does not mean that anyone will be a scientist and will discover new solutions, but it is important to value creative thinking as a process which applies in different domains and spaces of life. In addition, education should be a tool

to help individuals discover and be in harmony with their own element of being. Although this is often not the case, since creativity is restricted from the rigidity of school curriculums and a lot of other aspects, there is still hope left for creativity. When implementing creativity in education, teachers or educators would need to reconsider the notion from many different perspectives and also need to rethink the limits when applied to education. The role of teachers is therefore fundamental. The implementation of new creative ways of teaching and promotion for creativity, rather than supporting delimited ideas of what education or creativity should be, is crucial when looking to the future and stimulating new ways of thinking. Creativity needs to be encouraged since the early childhood and a lot more importance needs to be given to school curriculum balance among science and art education subjects. In addition, more power needs to be given to the child, more freedom in order for exploration and discovery to take place. What appears as crucial, is to try to rethink education and its priorities, how knowledge is transmitted and how could it bring out children's creativity in order to stimulate the sense of innovation, which is so fundamental for encouraging young people's interest in science and research.

There is still a lot to be done and many dilemmas need to be resolved and taken care of, but already the process of reconsidering the whole system with special regards to creativity can provide a good start.

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