

CREATIVE THOUGHTS ARE THE MEANS TO BRING ABOUT INNOVATIONS IN EDUCATION


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Since the end of the 1990s, creativity has become a growing area of interest once more within the educational community and the society at large. Creativity is identified as a major aim of education throughout the world. Creativity and innovation are becoming increasingly important for the development of the 21st century knowledge society. They contribute to economic prosperity as well as to social and individual well-being and are essential factors for a more competitive and dynamic country. Education is seen as central in fostering creative and innovative skills. Creativity and innovation can play an important role in the knowledge society. Creativity is conceptualised as a skill for all. It is an ability that everyone can develop and it can therefore be fostered or, likewise, inhibited. Educational actors have the power to unlock the creative and innovative potential of the young. This article provides the theoretical grounding for creativity and innovation to thrive in a school environment, proposing a series of central factors, which can support the shift towards a more creative and innovative education.

KEYWORDS: Creativity, Innovation, Knowledge Society.

INTRODUCTION

Wholesome development of a child is the primary concern of any established educational system. The academic development of the individual is the most important component of wholesome development.

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"It must be remembered that the purpose of education is not to fill the minds of students with factors..... It is to teach them to think, and always, to think for themselves".

-Robert Hutchins

Thinking on the above lines we can say the roots of a creative society are in basic education. The sheer volume of facts to be digested by the students of today leaves little time for a deeper interrogation of their moral worth. The result has been a generation of technicians rather than visionaries, each one taking a career rather than an idea seriously. The answer must be reform in our educational methods so that students are encouraged to ask about "know-why" as well as "know-how". Once the arts are restored to a more central role in educational institutions, there could be a tremendous unleashing of creative energy in other disciplines too.

According to Encyclopaedia of Education (Deighton, 1971), "It is of obvious importance to society that creative talents are to be identified, developed and utilised. The assessment, motivation and guidance of children and youth with creative abilities are important in achieving traditional, educational, psycho-therapeutic and social goals".

The different approaches to creativity suggest that creativity is a process or product, which is both new and appropriate (or which has value). Originality and value are the main traits of a creative process or product. Creativity is seen as the source of innovation, and innovation in turn as the implementation of creativity. Figure 1 shows a summary of these characteristics; in the outer circle what creativity requires, in the inner shape what creativity is.

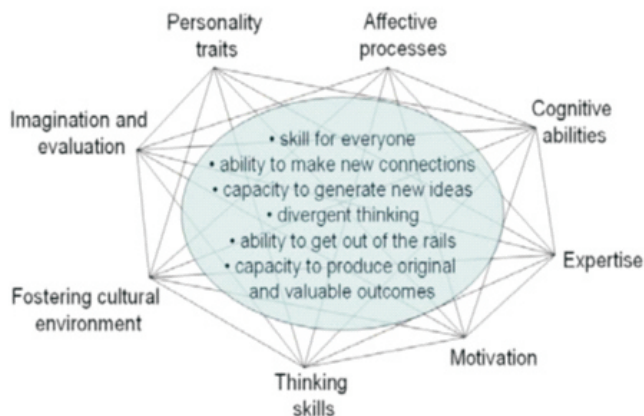


Figure 1. What Creativity is and What it Requires.

The modern trend in the system of education is to encourage creativity. The very future of the nation depends upon the creative men and women. To foster creativity, the methods of teaching are to be modified and new techniques are to be adopted. In this connection Kessler (2000) has argued that it is essential to create suitable climate and skill for fostering creativity. Scientific creativity visualizes new solutions to the problems of today and tomorrow's work force, social fabric and environment.

According to Torrance (1962), "The future of our civilization depends upon the quantity of creative imagination of our next generation". Everyone wants that creative talents of this country should rise to that level which may provide solutions to the problems, and provide millions their basic necessities. In order to meet these problems, our schools should train the children to find original solutions along with production of leaders who will realize the uniqueness of nation's problems and find unique solutions for betterment and prosperity of the country.

CREATIVITY IN THE CLASSROOM – WHAT DOES IT LOOK LIKE?

When students are being creative in the classroom they are likely to:

- Question and challenge. Creative pupils are curious, question and challenge, and don't necessarily follow the rules.
- Make connections and see relationships. Creative pupils think laterally and make associations between things that are not usually connected.
- Envision what might be. They imagine, see possibilities, ask 'what if?', picture alternatives, and look at things from different viewpoints.
- Explore ideas and options. Creative pupils play with ideas, try alternatives and fresh approaches, keep open minds and modify their ideas to achieve creative results
- Reflect critically on ideas, actions and outcomes. They review progress, invite and use feedback, criticize constructively and make perceptive observations.

CREATIVITY – ITS PLACE IN EDUCATION

The inclusion of creativity into educational policy documents is evidence of the fact that the focus on creativity is not merely a matter of paying "lip service" to the system of education but rather taking action. In Canada "creative thinking" is outlined as one of the common essential learning aspects. In Kentucky, USA, one of the learning goals is to enable students to "use creative thinking skills to develop or invent novel, constructive ideas or products". In France, schools in lower secondary are expected to develop in children the "taste for creation." In

Florida (USA) one of the goals of restructuring the schools was to provide students opportunities “to learn and apply strategies for creative thinking”. Similarly, in Japan the school curriculum has included development of creativity since the Second World War. In China creativity has become an important component of education since 2001 and its development has become a “priority”. In Hong Kong, the education policy proposal includes creativity as “higher order thinking skills”. In Turkish education the concept of creativity is being discussed more and more, however attempts to enhance it through education are limited. In Ireland a strategy paper was developed called “Unlocking Creativity” for developing creativity and education.

Keeping these progresses in view our devolved government should have the courage and the faith to back human imagination, our innate creativity, as the most potent force for individual change and social vision. I believe we should make the development of our creative drive the next major enterprise for our society as this has the potential to be a new civic exercise on par with health, housing and education – the commitment to providing and valuing creative expression for all.

Thinking on these lines we should bother about the following as to where our education system is at present:

- Our school system is a thinly disguised conspiracy to quash creativity.
- We are at an inflection point. We seem to be re-inventing everything – except the school system, which should (in theory) underpin, even lead the rest.
- The main crisis in schools today is irrelevance.
- Our educational thinking is concerned with; 'what is'. It is not good at designing 'what can be'.

In education, the term creativity is often used but seldom defined. As Beghetto (2005) points out, teachers might ask students to use their creativity in the design of a project, or might refer to a student's response as creative, without explaining what they mean. A lack of definition of this concept might result in erroneous assumptions, leading teachers and students to identify creativity only with talent, the arts and personal characteristics. The first step towards creative learning and innovative teaching requires an understanding of the meaning of creativity for education and its implication. This entails a threefold procedure:

- 1) A de-construction of several current myths about creativity, which are leading to a shared misunderstanding of the issue
- 2) A discussion and framing of the implications of "newness and value" in the

educational context.

- 3) An emphasis on the process instead of the product.

ENCOURAGING CREATIVITY IN THE SCHOOL CULTURE

It is important to reduce or eliminate the factors that inhibit the creative activity of teachers and learners and give priority to those that encourage it. There are, in education, extraordinarily high levels of prescription in relation to content and teaching methods. There are huge risks of de-skilling teachers and encouraging conformity and passivity in some. We should:

- Take account of the readiness and capacity of the staff to engage with the nature and scale of change you have in mind.
- Build trust and foster mutual respect by valuing each other's ideas and opinions and backing this with action. Even small acts can make a difference.
- Be imaginative in the way you help teachers to understand what creativity for learning means and what the principles of good teaching are that promote it.
- Involve creative individuals from within and beyond the school. Plan a programme of outside visits and visitors for each class every year.
- Remember that the head teacher's leadership is vital in stimulating debate and motivating staff to accept change.
- Do as much as you can to create a learning environment in the classrooms and shared spaces that supports and celebrates creativity for learning and reinforces the values and aspirations of the leadership team.
- Integrate development into existing systems within the school
- Link your plans for the development of creativity for learning to the school improvement plan and invest in it. Set realistic time scales and clear success criteria. Invite enthusiastic members of staff to take a lead in its development but maintain an inclusive and whole-team approach. Monitor progress over time and feedback to staff.
- Consider using creativity for learning as one of the key objectives for each member of staff in their cycle of performance management. Regard creativity as a priority for everyone's professional development and the induction of new staff. Ensure that appraisers are well informed and supportive of the programme of development.
- Give students extended, unhurried time to explore and do their best work. Don't interfere when students are productively engaged and motivated to complete tasks in which they are fully engaged.
- Create an inviting and exciting classroom environment. Provide students

with space to leave unfinished work for later completion and quiet space for contemplation.

- Provide an abundant supply of interesting and useful materials and resources.
- Create a classroom climate where students feel mistakes are acceptable and risk taking is encouraged. Appropriate noise, mess and autonomy are accepted.

To encourage the above is likely to require a change in the way schools are run and the way teachers teach.

ENABLING INNOVATIVE TEACHING AND CREATIVE LEARNING

"The most powerful way to develop creativity in your students is to be a role model. Children develop creativity not when you tell them to, but when you show them."

-Robert J Sternberg

Teaching for creativity is not an easy option, but it can be enjoyable and deeply fulfilling. It can involve more time and planning to generate and develop ideas and to evaluate whether they have worked. It involves confidence to improvise and take detours, to pick up unexpected opportunities for learning; to live with uncertainty and to risk admitting that an idea led nowhere. Creative teachers are always willing to experiment but they recognize the need to learn from experience. All of this requires more, not less, expertise of teachers.

Teaching with creativity and teaching for creativity includes all the characteristics of good teaching – including high motivation, high expectations, the ability to communicate and listen and the ability to interest, engage and inspire. Creative teachers need expertise in their particular fields but they need more than this. They need techniques that stimulate curiosity and raise self-esteem and confidence. They must recognize when encouragement is needed and confidence threatened. They must balance structured learning with opportunities for self-direction and the management of groups while giving attention to individual. We humans have not yet achieved our full creative potential primarily because every child's creativity is not properly nurtured. The critical role of imagination, discovery and creativity in a child's education is only beginning to come to light and, even within the educational community, many still do not appreciate or realise its vital importance.

Creative teaching may be defined in two ways: firstly, teaching creatively and secondly, teaching for creativity. Teaching creatively might be described

as teachers using imaginative approaches to make learning more interesting, engaging, exciting and effective. Teaching for creativity might best be described as using forms of teaching that are intended to develop students own creative thinking and behaviour. However it would be fair to say that teaching for creativity must involve creative teaching.

These whole-school curriculum events improve pupils' motivation and disposition to learn. For example, some of the pupils were so enthused with learning; they wondered why such special weeks could not become normal practice. There was more energy than usual in the classrooms, with pairs and groups of pupils working dynamically together with a shared sense of purpose. The curriculum is enriched during these events, through visitors with special skills and experience, workshops for developing particular skills, which are then put to immediate use, and opportunities to visit other people and places. It would not be possible to sustain such a level of intensity all of the time, but there is much that teachers and pupils can learn from these events. The open-ended nature of some of the learning, for example, which could be worrying for some teachers, is demonstrably effective at developing a range of skills such as pupils asking and following up their own questions, responding to problems in unusual ways, seeing new possibilities and exploring ideas.

It becomes evident therefore that looking for manifestations of creativity and innovation is challenging for several reasons:

- Creativity and innovation are processes which do not always result in tangible outcomes and as a result it can be difficult to find evidence of them;
- Creativity and innovation are exposed to subjectivity, arbitrariness and interpretation; thus making it challenging to compare data;
- Policies are not necessarily mirrored in practice; encouraging creativity and innovation in policies is not enough, as there is a need for a support mechanism.

The fostering of creativity and innovation does not uniquely rely on the intention of educators and pupils, as there are several conditions to be met before a creative and innovative environment can be promoted. In this sense, policies and common practices may provide the circumstances for creative learning and innovative teaching or, on the contrary, obstruct them. It is therefore interesting and necessary to examine which conditions can trigger creative learning and innovative teaching in order to support and allow them to spread. As Burke (2007) puts it, "if creativity is difficult to define, one certain thing is that it is possible to create the conditions in which creativity is more likely to thrive".

An assessment of creativity and innovation in educational practices cannot rely on the fortuitous and incidental number of individuals with the will and the inspiration. It was hence decided to investigate and assess the "enablers" for change. This will allow an understanding of the basic conditions for fostering creative learning and innovative teaching. By "enablers" we understand the circumstances or the support mechanisms that allow creative learning and innovative teaching to emerge or that facilitate creativity and innovation. Enablers are: Environment; Curriculum; Individual skills; Teachers; each area is presented through Table 1 that summarizes this concept.

Table 1
Enablers of Creativity.

Enablers	Description
Creativity as an asset in terms of environment	<p>An environment that recognises creativity in the individual.</p> <p>A tolerant environment, where Teachers are the key but students are at the centre of the stage. Fostering an environment that allows students to be able to know when to be original and when to conform.</p> <p>A non-threatening learning environment giving a good reason to engage in tasks.</p> <p>Recognise students' interest. Environment that rewards hard work but allows fun</p> <p>Environment that recognises and welcomes creativity as a source of deep knowledge and as a thinking skill. Valuation of creativity from all stakeholders. Awareness of what creative learning and innovative teaching mean and entail</p>
Creativity along the curriculum	<p>Give the same importance to core and foundation subjects. Address creative learning in all Subjects.</p> <p>Creativity is not just for primary school. The frame and conceptualisation of creativity shall be coherent from primary to secondary school curricula.</p> <p>Motivation is a main trigger for creativity. Students learn best when they see the relevance of what they are doing and when they are intrinsically interested in the activity or task.</p> <p>A good curriculum that promotes creativity needs to consider, among other things, also students interests</p>
Adapting format to the changing needs of students	<p>Today's learners learn in a different way. They are surrounded by technologies. They understand differently. There is a need to change the format at greater pace than in the past.</p> <p>Creativity can be understood both as a product and a process. Focusing on the process allows for the development of thinking skills and for cultivating the right climate for creative learning and innovative teaching.</p> <p>Have high expectation from students, for both their learning and their creative potential. This will help students' self-esteem and trigger their motivation. Belief that everyone has the potential to be or become creative.</p> <p>Need of a learner-centred pedagogy, personalisation and individualisation of learning, allowing pupils to have a say in the fashioning of tasks.</p>

Table 1 Contd.

Teachers-Valuing Creativity in Students	Teachers need to welcome creativity, acknowledging the balance between originality and value. They need to make it clear for students that creativity is well received. Teachers require technical support, extra time and supporting material to integrate technologies in their teaching. Time away from curriculum, to innovate, assimilate, try and explore. Training is fundamental to acquire new skills, techniques and method to be innovative and creative, support professional development
Technology Skills / Training	Technology skills as a prerequisite for both creative learning and innovative teaching for students and teachers. New opportunities offered by new technologies. Allow users to express their creativity, make it available to a large audience and get feedback and recognition. Networking and collaboration between teachers across different countries. Appropriation of technology can foster creativity and innovation only when users develop a positive attitude in adapting new technologies.

Curriculum development should be a well-established feature of the work of any school including the above enablers, but schools will be at very different stages as far as creativity for learning is concerned. They Should:

- Be clear about the freedom they have to design a curriculum that is distinctive to their particular needs and circumstances.
- Define the limits of the changes they envisage: blue-sky or small-scale? They need to decide whether to tackle creativity for learning across the whole curriculum or restrict change initially to a few subjects, aspects or events.
- Begin from a position of everyone knowing the strengths and weaknesses of the curriculum as it is in the school now.
- Manage timetables to allow sustained periods for learning for part of the time, so that pupils can follow lines of enquiry and review, discuss and refine their work.
- Go for excellence through depth, by giving some aspects of the curriculum more emphasis than others.
- Consider the implications of their plans for medium- and short-term planning, class timetables and the pattern of the school day. If the arts are to be an important part of their plans etc.
- Allocate an appropriate amount of curriculum time and a specific budget as an entitlement for all pupils.
- Ensure that the vision of the curriculum that emerges is one to which the students can aspire.

LIMITS TO CREATIVITY IN EDUCATION

There are four limits to creativity in education.

1. What does it mean? The limitations of terminology. A challenge in any discussion of creativity, which could be thought of as a 'limitation' to the concept, is the difficulty of terminology.
2. Conflicts in policy and practice. The tightening of control around both curriculum and pedagogy, as well as other aspects of the management and financing of schools.
3. Limitations in curriculum organization? We might ask, to what extent is the fostering of creativity limited by its subject context? Is it, for example, possible to foster creativity in physical education, mathematics, information and communications technology and English, equally?
4. Limitations stemming from centrally controlled pedagogy? Clearly, the fostering of creativity may be subject to the pedagogical limitations, as may any aspect of the curriculum.

However, the challenges posed by holding creativity as a goal may be greater than those posed by other curriculum areas.

CONCLUSIONS

This article has provided an overview of how creativity and innovation are conceptualised in the context of education and the emergence of a knowledge society. The existing research on creativity and innovation is broad, complex and addresses multi-faceted concepts. For this study, creativity and innovation are understood as interrelated concepts; the first refers to a product or process, which shows a balance of originality and value, and the second to the implementation of such a process or product in a given sphere.

Creativity and innovation in education are not just an opportunity, but also a necessity. This work highlights an inclusive and democratic perspective of creativity, which sees all people as capable of being creative from early childhood. However, whether people develop their creativity depends on the kind of training they receive. Accordingly, creativity should be understood as a skill, which may be developed through creative learning and innovative teaching. The fostering of such skills depends substantially on the development of curricula, where a balance among the different subject areas, between prescription and freedom and in agendas should be a priority. Assessment in schools also needs to be addressed as current methods often do not take into account creativity and may even stifle it. In conclusion, this article explores the role and function of creativity and innovation in the educational

domain and the factors, which are likely to enable or inhibit creative learning and innovative teaching. Finally, it analyses the role and potential of curriculum and in particular, social computing, in fostering creativity and innovation in education.

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