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The Impact of Creativity on Primary, Secondary, and University Education in a Knowledge-Based Society

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Abstract. Due to the unfolding of the third technological revolution and the development of a knowledge-based society, there is an increasing demand for knowledge, particularly driven by the need for innovation. This has elevated the requirement for creativity, which, for the foundation of society, is reflected in education. The theme of this paper is the manifestation of creativity, innovative ability, and innovative thinking in the field of education, along with recommendations for promoting their development. Through literature research, the author aims to understand the impact of creativity on education at different stages and address the lack of creativity among young people by suggesting improvements to the educational model. After some kind of research, the result is that creativity will have different influences among ages. In primary school, teachers should pay more attention to their imagination; in terms of secondary school, teachers need to focus on students' hands-on ability; as for the college students, teachers ought to encourage them to innovate. So, in order to advance their creative ability to prepare a knowledge-based society in the future, the author also gives some scientific suggestions.

Keywords: creativity; education; knowledge society; impact.

1. Introduction

Information and technology have evolved and changed rapidly in the last few decades. Education needs to catch up with the new situation with creation and integrate it into curriculums. Also, innovation in education needs to follow the changing trend and solve educational problems effectively [1]. Creativity is widely acknowledged as vital for social and economic innovation and development as well as for people's happiness. Creativity is also core to progress in knowledge societies [2]. Individuals and societies that embrace creativity and experimentation are more likely to realize the benefits of knowledge-intensive societies [3].

The term creativity can be considered to be overused, often oversimplified, misrepresented and frequently interchanged inappropriately for related terms such as enterprise, innovation or different [4]. The term "knowledge society" is also frequently used as a metaphor (rather than a concept) to cover a wide range of studies. In this type of society, knowledge assets are far more important than things like land, labour output, or even financial capital. Human capital is believed to be the most valuable assets of this kind of society and a source of innovation and economic growth. When compared to a knowledge society, a knowledge-based society is distinct [5].

Therefore, creativity is a priority for education and is the main impetus of teenage education on 21st century learning. In this article, the author is going to reveal the learning characteristics among all ages of students, how creativity affects their learning, and give some suggestions on how to stimulate their creativity. That is, in the end, the result will help institutions and educators develop a better atmosphere in school as well as provide a wider path to the knowledge society.

2. The Impact of Creativity on Education

2.1. 7~12 Years Old

2.1.1. Characteristics of primary school students

Firstly, primary school students' attention is unstable, not long-lasting, and often closely related to their interests. Vivid and novel things are more likely to arouse their interest and attention, while they are not interested in more abstract concepts and theorems, and thus cannot easily concentrate for a long time. Secondly, the imagination of primary school pupils develops from a fragmentary and vague image towards an increasingly correct and complete reflection of reality. For instance, when they are making a plane, they are not satisfied with its simple structure. Instead, they tend to make it with engines, wings, pincer grasp and so on. The way of thinking of primary schoolchildren is gradually transitioning from concrete image thinking as the main form to abstract logical thinking, but their abstract logical thinking is still to a large extent directly linked to perceptual experience and has a large component of concrete image.

Therefore, based on the foundation of pupils' learning, creativity which affects classroom instruction plays a great role in the thinking approach.

2.1.2. Creativity affects the minds from 7~12 years old

In this period, pupils should use their imagination to create something new in their minds. According to Dewey, "The early germination of the child's ability is particularly valuable, and the way we guide the child's natural tendency in the early stage can fix the child's basic habits and build the foundation of future ability [6].” Primary school is the foundation period for developing students' creative abilities. Fostering creativity in children stimulates divergent thinking, which means that creativity is the process of thinking and reacting, the ability to bring imagined things to life, and the ability to recognize or transform the real world in a unique way. Thus, creativity is what motivates students in the learning process. At this stage, children tend to have some unrealistic ideas, but parents, teachers and the community need to keep encouraging children to put their ideas into practice and to keep trying out new things and new methods. Only in this way can exercise children's ability to improve in education, so that they can form the habit of communicating and cooperating with others, facing challenges and thinking proactively from an early age.

2.2. 12~18 Years Old

2.2.1. The characteristics in secondary school

As for junior high school students, they are curious, and love to show their own. Physiologically, students are active, easily distracted, love to express their views, and hope to get the teacher's praise, so teaching should seize this characteristic of the students, and take the initiative of the students. Junior high school students are in the process of physical and mental development, and growth, their emotions, feelings, thinking, will, ability and character are still extremely unstable and immature, with great plasticity and changeability.

As for senior high school students, the psychological development of senior high school students is increasingly influenced by society. They are interested in many phenomena in real life, fond of discovering new things, and very interested in making positive and negative comments on issues around them as adults do, and their participation in social activities is becoming more and more active. Their thinking goes far beyond the school, and they are becoming increasingly aware of the idea of being masters of the community and the country, and they attach particular importance to the choice of their future path in life.

With the rapid development of their bodies, the obvious increase in their sense of self, and the development of their ability to think and act independently, senior secondary school students show a strong sense of autonomy in their psychology and behavior, and are eager to be liberated from the constraints imposed by parents. Additionally, they are beginning to make active attempts to break

away from their parents' protection and management. They have strong self-confidence and self-esteem, and they have their own opinions on life and society. They are no longer satisfied with the explanations of their parents and teachers, or the ready-made conclusions in books. They are not gullible or blindly obedient to the opinions of adults, and demand factual proofs and logical persuasions. They have the courage to express their personal opinions on many things and often argue for the sake of insisting on their own views.

2.2.2. Creativity serves as a practical skill

Creativity also plays an essential part in this period. Cultivating students' innovative capabilities stands as a primary objective within modern education. Although middle school and high school students are totally different, effective development of innovation skills through current learning and future life and work can secure them a rightful competitive advantage. During the secondary education phase, innovation skills are notably oriented towards practical skills. That is to say, this involves synthesizing acquired knowledge with an inherent curiosity and thirst for knowledge to gain a new whole, which is subsequently applied in practice, thus furnishing novel approaches to learning, and so forth. Simultaneously, from a macro point of view, students' innovative ability is the objective guarantee of the general innovative ability of the future society, and is the solid foundation for the progress of the future society.

Some teachers have realized that when introducing a new point of view, the secondary school students appear to be inactive and unwilling to think, plus they would not raise their hand to share some opinions. From this point of view, the cultivation of students' innovative abilities is very necessary.

2.3. University Students

2.3.1. The characteristics in college

University students have a strong sense of self, but are not yet mature. College students are at the end of socialization, they hope that their intelligence can be recognized and be paid attention to by society and others, so they don't like others to tell them what to do, for example, intervene or accuse them, especially continue to treat them as minors, and this kind of performance reflects the further enhancement of self-consciousness of college students. Due to the lack of knowledge, ability and experience in their own social life, their understanding of things shows a certain degree of one-sidedness and childishness, and often takes on the color of fantasy, which is not very practical.

Abstract thinking develops but is more subjective and one-sided. Abstract thinking is the process of reflecting the objective reality indirectly and generally by using concepts, judgement, reasoning and other forms of thinking in people's cognitive activities, which belongs to the stage of rational understanding. After 18 years of school education, college students are getting richer and richer in knowledge, and their abstract thinking is developing rapidly. This is mainly manifested in the fact that college students are able to treat everything around them dialectically when thinking and solving problems, and will not easily follow the opinions of others blindly. However, because of the fact that college students have little experience in social life, abstract thinking lacks the support of reality and is still one-sided to a certain extent.

2.3.2. Innovation capability of young adults

In the 21st century, the fundamental task of education development is to carry out knowledge innovation, education innovation and talent innovation, with talent innovation at its core. University is the cradle of training innovative talents. The innovation education of our universities is to cultivate college students' innovation ability, improve college students' innovation literacy, and enhance college students' innovation hands-on ability as the basic goal, especially in the present era of knowledge explosion and increasing uncertainties in the economic environment, the knowledge transfer of innovation education is weakening day by day and transforming in order to cultivate students' ability to find problems and solve problems. In order to adapt education to the development of college students' creativity, universities must form a new education pattern based on the

improvement of college students' innovative spirit and creative ability, and taking the improvement of college students' innovative thinking as the primary task in cultivating innovative talents.

3. The Impact of Creativity on Teachers

3.1. Promoting the Professional Development of Teachers.

Teachers have begun to be more active in developing their own creativity so that they can use innovative thinking to create new ways of teaching and learning in a lesson [7]. As a result, teachers have begun to change lesson modes of teaching, such as enlivening the atmosphere in the classroom, using interactive methods of teaching and learning, and reducing the amount of homework in order to encourage students to discover new things and so on.

3.2. Promoting Changes in Teachers' Attitudes about Teaching

Teachers' understanding of creativity and creative teaching is important for education, because creative teaching relies on teachers' knowledge and understanding of it, so a change in teachers' attitudes affects the teaching and learning process [7]. There is a great shift now. What teachers believe is that creativity can be developed and is not limited to early childhood, especially, they believe that creativity is an ability that most students can develop through education [2]. Educators are beginning to experiment with stimulating the imagination of learners, thinking innovatively and delivering learning in interesting ways [7].

4. Keys to Transforming Student Creativity

Enhancing students' creativity cannot be achieved overnight, but requires accumulation and continuous reforms in order to find a suitable model. The author will discuss the issue at the teacher level, the school level and the student level.

4.1. Avoiding the "Dark Side" of Creativity

In an effort to quickly increase student creativity, many teachers have been overly hasty and thus backfired. In fact, recognizing the dark side of creativity has important theoretical and practical implications. Ignorance or denial of the dark side of creativity, or even a lack of awareness, is harmful to individuals, organizations and society. For it may cause evil creativity like exploitation, crime, terrorism, and so on, which society finds difficult to cope with are created [8]. Therefore, as for teachers, while inspiring students to be creative, it is important to guide them to develop the right concepts and not to use their creativity where it should not be used. It is not true that more creativity is better; its advantages or disadvantages should be judged in the light of its role in the cultural progress of society [8].

4.2. Promoting Personalized Learning and Optimizing Teaching Strategies

4.2.1. Changing the classroom teaching model from the students' perspective

“The knowledge society places new demands on human development, which is to develop people who can learn and invent, innovate and create knowledge [9].”

In fact, this is not only the pure pursuit of knowledge, but also includes students' dialectical thinking about the truth. As a link between the knowledge of teaching materials and teaching objectives, the reasonable choice of classroom teaching methods can be derived from the importance attached to the realistic demand to fulfill the aim of cultivating talents through the knowledge society. Classroom teaching should reform the way of knowledge transmission and mastery. As a result, it can be used by asking more questions, encouraging students to discover issues, letting students become critics of inherent knowledge, and teachers should provide good educational guidance for the creation and understanding of new knowledge [10]. Firstly, the teaching process starts with the introduction of a

subject, that is, a certain issue that needs to be explored together and concluded in this classroom. From this point of view, the teacher needs to distil a theme from all the new knowledge for discussion, which will be linked to the knowledge that has been taught and needs to be learnt. On this basis, the teacher needs to change the role, put himself/herself in a lower position, and explore the issue together with the students, so that they can discover new thoughts in the students' questions and answers [10].

4.2.2. A teacher-led, student-deductive teaching mode

A teacher-led, student-deductive teaching model can be constructed. This mode is to place a problem in a situation, the students act as some roles in it in order to leave a deep understanding of the knowledge point. This process not only exercise the students' creative ability, and thinking ability, but also develop their teamwork ability, because students are really into the situation to experience, and creativity is built [10].

4.3. Creativity through Aesthetics

Schools should establish a learning environment with a strong intellectual atmosphere in terms of scene decoration, such as putting up posters, windows of knowledge, and so forth, and adding elements such as canvases with a sense of science and technology and a sense of ethnicity. The practice has proved that many major creations, often arise from the sudden emergence of a spark of thought, which is so-called "inspiration". Inspiration is not a mysterious thing, but a form of creative thinking. It is a promotion in thinking that occurs after the human brain has been thinking and exploring, and it always pops out when the gradual process of thinking activities [11]. Aesthetic education plays an important role in the development of intuition. Because of it, students will form a kind of aesthetic state under the cultivation and infection of art forms over a period of time. In this state, students will produce a variety of images in their brains, with new creations through a little arrangement. Therefore, society should consciously use aesthetic education to promote the development of students' keen sensibility, profound insight, and unique imagination [11].

4.4. Proactive Construction of Creative Minds

The characteristics and advantages of information itself not only provide a completely new basis and direction for material creation and energy creation, but also offer nearly unlimited possibilities and space for contemporary human invention and creation [12].

First, students can mix knowledge from different subjects to boost creativity. They should think of problems from various angles, noting both similarities and differences. They should also consider problems broadly and in detail, changing perspectives for different conclusions. Next, using unconventional thinking, they can envision ideal scenarios and extreme conditions, which can either simplify or complicate the problem. For example, when developing a product, imagine how it might be pounded if a child took it, how it might be bumped and damaged on the battlefield or how evil people might want to destroy it and so on. By doing so, creative ideas will be come across.

5. Conclusion

Research shows that students of different age groups have varying learning conditions, and the level of creativity that needs to be stimulated also differs at different ages. Therefore, schools and society, while attempting to foster student creativity, should take into account the age group they are in. However, when it comes to improving teaching, the approaches are similar across all age groups. This improvement primarily stems from the perspective of teachers, the standpoint of the school, and the students themselves. In summary, society is progressing, and everyone's creativity is constantly developing. Each entity should play an appropriate guiding role. This is not only important for students, but also acts as a driving force for society to achieve a knowledge-based society as quickly as possible. Additionally, it will be a great benefit to the human capital as well. In this article, the author did not study preschool and early childhood education, which is a regrettable omission. It is

hoped that in future research, this scope can be expanded, and experimental components, such as conducting surveys in schools, can be incorporated into future studies.

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