Thinking and Innovation of Teenagers' Sci & Tech Education Approaches Based on Innovative Thinking Training

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ABSTRACT. Adolescence is an important crossroad that determines students' future development and personal choice. Many people benefit from their chances in adolescence for life, but more people miss the opportunity. Improving young people's scientific literacy is an important guarantee to improve national innovation ability. Knowledge innovation provides new theories and methods for human beings to understand and transform the world, and it is the inexhaustible motive force for human civilization progress and social development. Innovative thinking refers to the thinking process of solving problems with novel and original methods, which is one of the important symbols of scientific literacy. Based on the current situation of Sci & Tech education, this paper discusses the methods of youth Sci & Tech education, and puts forward some suggestions on youth Sci & Tech education from the perspective of cultivating innovative thinking. In the cultivation of young people's innovative thinking in Sci & Tech, we should grasp the connection among universities, middle schools and primary schools, and at the same time, we must construct innovative thinking cultivation methods and put forward specific plans in the process of thinking cultivation.

KEYWORDS: Innovative thinking, Sci & tech education, Scientific literacy

1. Introduction

Teenagers, as the key to talent training in China, play an important role in building a powerful country in the future. At the same time, innovation, as the internal driving force of national development, is of great significance to stimulate national vitality and improve national competitiveness [1]. Adolescence is an important crossroad that determines students' future development and personal choice. Many people benefit from their chances in adolescence for life, but more people miss the opportunity [2]. Improving young people's scientific literacy is an important guarantee to improve national innovation ability. From a personal point of view, the scientific literacy of teenagers is closely related to their achievements in adulthood and lifelong learning. Therefore, improving the scientific literacy of young people should be highly valued and widely concerned by government management departments, the public, educational institutions and other departments, and the whole society needs to make joint efforts [4]. Innovative thinking refers to the thinking process of solving problems with novel and original methods. Through this kind of thinking, we can break through the boundaries of conventional thinking, think about problems with unconventional or even unconventional methods and perspectives, and put forward different solutions, thus producing novel, original and socially significant thinking results [5].

Science education is the main way to cultivate young people's innovative thinking. Besides subject teaching and experiment, teachers need to master Marxist materialist dialectics and world outlook, and correctly guide the direction of science education and young people's innovative thinking training [6]. Teenagers are the future development and hope of China. It is a complex systematic project to carry out scientific and technological innovation education activities in schools to cultivate teenagers' scientific interest, scientific attitude, scientific spirit, innovative personality, innovative thinking and innovative ability [7]. To cultivate young people's innovative thinking, we must do a good job in scientific education of various specific disciplines. Cultivating young people's innovative thinking ability is an important way to improve their scientific and technological quality, a new requirement for deepening education reform and comprehensively promoting quality education, and a historical responsibility given to every educator by the times [8]. In the process of Sci & Tech education, using innovative thinking can better complete innovative practice activities. In turn, the experience of innovative practice activities further promotes the formation of students' thinking [9]. Based on the current situation of Sci & Tech education, this paper discusses the methods of youth Sci & Tech education, and puts forward some suggestions on youth Sci & Tech education from the perspective of cultivating innovative thinking.
2. The Significance of Cultivating Innovative Thinking

Innovation is the soul of a nation and the inexhaustible motive force for the prosperity of a country. Therefore, it is of great practical and historical significance to cultivate young people's innovative thinking ability, not only from the teaching reform itself, but also from cultivating innovative talents to adapt to the development of Sci & Tech and social progress. General Secretary Xi Jinping pointed out sharply in the conference report that “carrying forward the scientific spirit and popularizing scientific knowledge”. He emphasized that the education strategy in the new period should “firmly implement the strategy of rejuvenating the country through science and education, the strategy of strengthening the country through talents, and the strategy of innovation-driven development”, and believed that the general outline of education objectives in the new period should focus on “cultivating a large number of strategic scientific and technological talents with international level, leading scientific and technological talents, young scientific and technological talents and high-level innovative teams” so as to effectively “promote the construction of a community of human destiny” [10]. In order to better implement General Secretary Xi Jinping's ideological strategy in the new period of socialism with Chinese characteristics, led by the Ministry of Education and responded by various educational institutions, three basic strategies were put forward in an all-round way, namely, to keep the road of socialism with Chinese characteristics unshakable in the new era, to start building a modern socialist country in an all-round way and to build a well-off society together. Figure 1 shows the network structure system of talent innovation ability training management.

Students trained in China often have a good grasp of book knowledge, but their practical ability and innovative spirit are still relatively lacking. This should arouse educators' deep thinking. The Association for Sci & Tech and youth Sci & Tech educators are actively working with local education departments, schools and families to achieve the image of win-win cooperation, hoping to promote compulsory youth Sci & Tech education activities, stimulate young people's scientific emotions, and provide fresh blood for the development of Sci & Tech innovation in China. As the key stage of talent training, strengthening the cultivation of innovative thinking in adolescence will play a multiplier role and effect. It is necessary to build an education that everyone can adapt to and participate in in the cultivation of talents, so as to comprehensively and effectively improve the overall quality of students. In the new period, the Ministry of Education has successively established the strategy that “the youth Sci & Tech education is the basic project to cultivate and improve the scientific quality of all students” and “the youth Sci & Tech education of the Association for Sci & Tech is carried out on the basis of school Sci & Tech education and provides a beneficial supplement for school Sci & Tech education”. This makes the Sci & Tech education work of the Association for Sci & Tech further developed.

3. The Main Integration Orientation and Optimization Measures of Sci & Tech Education and Innovative Thinking

3.1 Strengthen the Practical Guiding Role of Sci & Tech Education Activities

Most parents still keep their traditional ideas, and they recognize local schools and education departments more. In
their cognition, the Sci & Tech education work of the Association for Sci & Tech is still in an unacceptable and emerging industry. To reform education and teaching well under the new situation, the first step is to update teaching methods and models, so as to dig deep into students' potential in thinking innovation and better cultivate students' heuristic thinking. The uniqueness of Sci & Tech education for young people in the Association for Sci & Tech makes their Sci & Tech literacy accumulate to a certain extent. Compared with traditional educational institutions represented by schools, Sci & Tech education for young people in the Association for Sci & Tech is not mandatory. It will neither force teenagers to participate in youth league building activities, nor assign corresponding assignments to teenagers. At the same time, the uniqueness of the youth Sci & Tech education work of the Association for Sci & Tech makes it extremely cohesive and appealing. Adhere to the integration of young people's Sci & Tech education with traditional courses, deepen curriculum and teaching reform, improve education and teaching system, continuously improve teaching methods, and develop young people's interests, innovative thinking and independent learning, independent thinking, cooperation and communication skills throughout the whole process of education and teaching. In order to effectively promote the development of young people's scientific and technological literacy training, the Association for Sci & Tech should take the initiative to undertake the social responsibility for local education development, students' families and exploring the future road of the country, and focus on the current difficulties and difficulties in young people's scientific and technological education.

3.2 Undertake the Social Responsibility of the Youth Sci & Tech Education Work of the Association for Sci & Tech

In the activities of Sci & Tech, it is necessary to set up and enhance teenagers' innovative thinking consciousness as an important link of systematic thinking training, integrate Sci & Tech education into various disciplines, and guide school work with scientific thinking and methods. In the daily education and teaching of schools, it is necessary to ensure the class hours and quality of Sci & Tech education courses, put an end to the phenomenon that the main courses occupy Sci & Tech education courses, and improve the teaching quality of Sci & Tech education courses. Different from conventional thinking, reverse thinking is to think about a problem in reverse. Sometimes it is difficult to get an answer when thinking about a problem from the front. However, when thinking about this problem from the opposite direction or opposite angle, it may be suddenly enlightened. Divergent thinking is a thinking activity based on the existing knowledge structure and experience mode. For teenagers, it is an important method to train divergent thinking by starting from the requirements of questions and exploring various answers in different directions. Compared with the school Sci & Tech curriculum, the Sci & Tech education work of the Association for Sci & Tech has natural practical advantages, which makes the scientific literacy of the young people tend to be practical, and helps to form a good complement and fill with the theorization of the school Sci & Tech curriculum. The school should establish and improve a long-term mechanism for popularizing Sci & Tech, further strengthen the construction of teachers for social Sci & Tech counselors, and improve their professional quality.

4. Conclusions

In the new period of China's development, the party and the state put forward a series of new requirements with guiding significance, strategic significance and pioneering nature for the Sci & Tech education of the association for Sci & Tech and youth. The cultivation of students' innovative thinking should be trained and improved from various aspects, levels and angles. To carry out scientific and technological education activities for young people, we should integrate the strengths of various institutions, cultivate young people's spirit of loving, studying, stressing and using science, and improve their overall scientific literacy. In order to effectively promote the development of young people's scientific and technological literacy training, the Association for Sci & Tech should take the initiative to assume social responsibility for local education development, students' families and exploring the future road of the country. The cultivation of students' innovative thinking is a long-term process, and teachers should persevere and put the cultivation of innovative thinking into daily classroom teaching. The school should establish and improve a long-term mechanism for popularizing Sci & Tech, further strengthen the construction of teachers for social Sci & Tech counselors, and improve their professional quality. The cultivation of innovative thinking requires teachers to constantly sum up and try in practice, and make specific changes in the way of cultivating innovative thinking in combination with different situations, so as to better train young talents.

References


