

# Under the Background of Strengthening the Popularization of Science and Technology the Path to Improving Scientific Literacy among College Students in the New Era

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**Abstract:** *To achieve Chinese-style modernization, we need to develop new quality productivity, which must be centered on scientific and technological innovation. Colleges and universities should focus on enhancing students' scientific literacy, strengthening their scientific awareness and scientific literacy, so as to effectively enhance the country's scientific and technological competitiveness. To enhance the scientific literacy of college students, schools should establish a sense of primary responsibility; At the student level, it is necessary to stimulate active learning interest; A collaborative education mechanism needs to be established at the social level. Through the joint efforts of schools, students and society, create a better environment and conditions for improving the scientific literacy of college students.*

**Keywords:** College students, Scientific literacy, Popular science, Enhancement Path.

## 1. Introduction

At present, China is undergoing major changes unseen in a century. To achieve Chinese-style modernization, we need to develop new quality of productive forces, and new quality of productive forces must be centered on scientific and technological innovation. Colleges and universities should take it as their unshirkable responsibility to improve the scientific literacy of the entire population, popularize scientific knowledge, promote the scientific spirit, disseminate scientific ideas and advocate scientific methods among college students, and create a good atmosphere throughout society that talks about science, loves science, studies science and uses science.

## 2. The Significance of Enhancing Scientific Literacy

With the development of science and the progress of society, a series of new technologies such as new energy, artificial intelligence, biomanufacturing, green and low-carbon, and quantum computing are flourishing and profoundly changing our lives. The new technological revolution and industrial transformation are advancing in depth, having a significant impact on the global governance system and social development. Science has become an indispensable part of social life in the face of a complex, changeable and uncertain era, and having scientific literacy has become an important characteristic of modern citizens.

### 2.1 At the Individual Level of College Students, Enhancing Scientific Literacy is of Great Significance for Promoting Their Innovative Thinking and Problem-solving Abilities, Laying a Solid Foundation for Their Future Personal Career Development

Improving scientific literacy is of great significance to individual college students. It can not only help college students better adapt to the demands of future society, but also

promote their all-round development and improve their overall quality.

### 2.2 From a Social Perspective, Improving the Scientific Literacy of College Students Plays a Positive Role in Promoting the Scientific Literacy of Other People and Social Progress

As the new force of society, the scientific literacy of college students will directly affect the innovation ability and development level of society. Only with a high level of scientific literacy can college students better adapt to the development and changes of society and contribute their own strength to the development of society.

### 2.3 At the National Level, the Improvement of Scientific Literacy Among College Students is an Important Guarantee for the Future Development of the Country

In the context of globalization, competition among nations is no longer confined to economic, political and other aspects, but has gradually expanded to multiple fields such as science and technology and culture. Only with strong scientific and technological strength and innovation capabilities can a country remain invincible in the global competition. And college students, as the future and hope of the nation, their scientific literacy will directly affect the nation's scientific and technological strength and innovation ability.

## 3. Work Ideas for Improving Scientific Literacy of College Students

Science popularization in China has flourished, citizens' scientific literacy has improved rapidly, the pace of integrating science popularization into all areas and links of economic and social development has accelerated, and significant achievements have been made in promoting high-level scientific and technological innovation through high-quality development of science popularization. The

improvement of scientific literacy among college students plays a crucial role in the development of science popularization. We need to change our mindset, enhance our capabilities, radiate to society, and drive the improvement of citizens' scientific literacy, thereby promoting the development of science and technology in our country.

### **3.1 Change the Mindset and Increase the Importance and Participation of Colleges and Universities in the Scientific Literacy of College Students**

As the new journey of fully building a modern socialist country progresses, colleges and universities, as cradles of talent cultivation and strongholds of scientific and technological innovation, shoulder the responsibility of cultivating top-notch innovative talents. Through interviews and research with relevant departments engaged in science popularization education in colleges and universities, convey the working concepts such as "scientific literacy is one of the essential basic qualities for college students" and "scientific literacy is important to the country", guide colleges and universities to attach greater importance to cultivating scientific literacy among college students, and make enhancing scientific literacy among college students one of the important tasks.

### **3.2 Enhance Capabilities and Cultivate the Understanding of Scientific Knowledge, the Mastery of Scientific Methods, and the Formation of Scientific Thinking Among College Students of the New Era**

The enhancement of a country's scientific and technological competitiveness is of vital importance to its development. Based on previous research, this study conducts a series of popular science and cultural activities for the new era. Through the activities, popularize scientific knowledge to them, guide them to master dialectical scientific thinking, carry out practice with scientific methods, and contribute their due strength to the accelerated advancement of high-level self-reliance and self-strengthening in science and technology.

### **3.3 Radiate to Society, Lead the Entire Population to Establish a Scientific Worldview and Methodology, and Promote the Spirit of Science and the Spirit of Scientists**

As college students of the new era, in addition to cultivating noble character and learning rich knowledge, we should also make achievements in the new era with a sense of patriotism and a sense of responsibility. This study plans to lead college students into rural areas, communities and primary and secondary schools through social practice activities, volunteer services, etc., to apply the knowledge they have learned to specific practices, and to popularize scientific knowledge, convey scientific ideas and promote the scientific spirit among more people.

## **4. Ways to Enhance Scientific Literacy among College Students**

### **4.1 At the School Level - establishing a Sense of Primary Responsibility**

Schools play a crucial role in enhancing the scientific literacy of college students. Colleges and universities should clarify their primary responsibility in enhancing the scientific literacy of college students, establish a complete scientific literacy education system, incorporate scientific literacy education into the overall educational planning of the school, formulate specific scientific literacy education goals and plans, and ensure that scientific literacy education runs through the entire academic career of students.

#### **4.1.1 Use the first classroom as the main channel and set up the Science Lecture Hall as a public basic course.**

By setting up the Science Lecture Hall, basic science courses are made compulsory and science literacy education is carried out in the form of classroom teaching. Experts and professors from various disciplines are invited to conduct science education in various disciplines in the form of lectures, such as art appreciation, philosophical thought discussion, exploration of historical civilization, mysteries of the physical world, exploration of natural science, etc., allowing students to have a wide range of scientific knowledge. Build a solid foundation of scientific knowledge, expose students to and learn scientific knowledge from multiple perspectives and disciplines, and broaden their scientific horizons. At the same time, disciplines can add science elective and practical courses in line with their specialties, closely integrating specialties with science education. Through interdisciplinary integration, science literacy education can be incorporated into professional courses, enabling students to experience the charm and practical value of science in their professional studies and providing more possibilities for professional development.

#### **4.1.2 With the second classroom as an important supplement, organize and carry out a series of activities of the Science Popularization Culture Festival to enrich the ways of enhancing scientific literacy.**

As an important supplement to the first classroom, colleges and universities should make full use of after-school time to provide students with diverse ways to enhance their scientific literacy. Colleges and universities can organize various activities such as science experiments, science and technology innovations, and science competitions, allowing students to participate and experience firsthand and enhance their scientific literacy through practical training; By organizing students to visit science and technology museums, laboratories and other popular science venues, students can have an intuitive understanding of the mysteries and power of science; Fun and interactive science popularization activities, such as science knowledge contests, science orienteering, science skits, etc., can be carried out to allow students to experience the charm of science in a relaxed and pleasant atmosphere; Make full use of online resources to establish online science popularization learning platforms, providing a rich variety of science popularization materials and video resources, allowing students to conduct self-study and exploration anytime and anywhere.

#### **4.1.3 With off-campus practice as an important extension, build platforms such as school-enterprise cooperation and school-local cooperation to expand the practical field of**

science literacy education.

Colleges and universities should actively build platforms such as school-enterprise cooperation and school-local cooperation, and extend scientific literacy education to the field of off-campus practice through cooperation with enterprises, research institutions, government departments, etc. By organizing students to participate in research projects, internships, social practices and other activities, students can be exposed to and understand scientific problems in the actual working environment firsthand, exercise the ability to solve practical problems, and enhance the practicality and practicality of scientific literacy. Colleges and universities can also cooperate with enterprises, research institutions, etc. to jointly carry out scientific and technological innovation and entrepreneurship activities, cultivate students' innovative consciousness and entrepreneurial ability, provide students with more practical opportunities and development space, let students feel the charm of science in practice, and cultivate practical ability and innovative spirit. While enhancing the scientific literacy of college students, popularize scientific knowledge to more people and improve the scientific literacy of the entire population.

#### **4.2 At the Student Level - stimulating Active Learning Interest**

In the process of enhancing college students' scientific literacy, students' intrinsic motivation is crucial. Students, as the main body of scientific literacy improvement, need to exert their own initiative and proactiveness.

4.2.1 Establish correct scientific concepts and recognize the importance of science for personal growth and social development.

Students should recognize that science is not only the accumulation of knowledge systems, but also a powerful tool for promoting social progress and solving real-world problems. Therefore, students should establish correct scientific concepts, view science learning as a necessary path for personal growth and social development, and enhance their consciousness and sense of responsibility in learning science. We should change our traditional understanding of science, abandon the wrong notion that "science is useless", actively engage in science learning, and improve our scientific literacy and comprehensive abilities through continuous learning and practice. Students of science and engineering, as well as humanities and social sciences, should pay attention to the development of science, understand its application in various fields, view problems from a scientific perspective, and cultivate critical thinking and innovation ability.

4.2.2 Develop the ability to learn independently, actively participate in various science lectures, and constantly broaden the scientific perspective.

Students should fully exert their autonomous learning ability, actively utilize library, online resources, etc., participate in various scientific knowledge lectures, keep abreast of the latest scientific trends, and broaden their scientific horizons. At the same time, students can also engage in academic

symposiums, research projects and other activities to have face-to-face exchanges with experts and scholars, gain a deeper understanding of the methods and processes of scientific research, and enhance their scientific research literacy and ability. In addition, students can join student organizations such as science clubs and science and technology interest groups to discuss scientific issues with like-minded classmates, share experiences and insights in science learning, and jointly enhance their scientific literacy. Students should make full use of all kinds of learning opportunities provided by the school and society to continuously accumulate scientific knowledge and cultivate scientific thinking and innovation ability.

4.2.3 Actively engage in scientific practice, apply theoretical knowledge to practice, and enhance the practicality of scientific literacy.

Students should actively participate in various scientific practice activities, such as science experiments, technology making, science competitions, etc. Through hands-on operation and practice, they can deepen their understanding and mastery of scientific knowledge and enhance the practicality of scientific literacy. At the same time, students can also apply scientific knowledge to solve practical problems through social practice and volunteer service activities, etc., to enhance the practicality and social value of scientific literacy. For example, student teams can be organized to carry out social practice activities with the theme of science popularization in primary and secondary schools, rural areas, etc., to bring scientific knowledge out of the campus to serve the society and enhance the public's awareness and understanding of science. In this way, not only can students' scientific literacy be enhanced, but also their sense of social responsibility and dedication can be cultivated.

#### **4.3 At the Social Level - establishing a Collaborative Education Mechanism**

Society, as an important environment for enhancing scientific literacy, needs to create a favorable atmosphere for popular science. The government, universities, enterprises, research institutions, etc. should enhance communication and collaboration to form a joint force of education with shared resources and complementary advantages, and jointly create a cultural atmosphere that respects science to provide a strong guarantee for the overall improvement of scientific literacy among college students.

4.3.1 Strengthen the construction of science popularization facilities, build science popularization education bases, and provide students with rich places for science popularization practice.

All levels of government and relevant departments should increase investment in science popularization facilities and build a number of science popularization education bases with local characteristics, such as science and technology museums, museums, planetariums, etc., to provide students with intuitive and vivid science popularization learning experiences. At the same time, enterprises, research institutions and other social forces are encouraged to participate in the construction of science popularization

facilities to form a diversified supply system of science popularization resources to meet the diverse science popularization needs of students. Vigorously promote and leverage the educational function of science popularization facilities, guide students to actively participate in science popularization activities, and organize various learning and practical activities during weekends and winter and summer vacations, allowing them to experience the charm of science through hands-on practice and cultivate interest and love for science.

4.3.2 Carry out popular science publicity activities to enhance college students' understanding and interest in science and guide them to transform knowledge into practical applications.

The government, colleges and universities, the media, etc. should jointly carry out various popular science publicity activities such as popular science lectures, popular science exhibitions, popular science films, etc., to popularize scientific knowledge to the public through vivid and interesting ways and enhance the public's understanding and interest in science. In addition, activities such as science knowledge competitions and essay contests can encourage college students to convey scientific knowledge to more people in a lively and interesting way by writing science articles, shooting science videos and designing science games, further stimulating their love and pursuit of science and guiding them to transform the scientific knowledge they have learned into practical applications. To enhance their scientific literacy and practical abilities.

4.3.3 Give full play to the role of social organizations, encourage social forces to participate in science popularization, and form a diversified pattern of science popularization education.

In the process of enhancing the scientific literacy of college students, the government, universities, enterprises, research institutions and other parties need to work together to form a mechanism of collaborative education. Social organizations, as a bridge connecting the government and the public, play an indispensable role in popular science education. The government should introduce relevant policies to encourage and support the participation of social organizations in science popularization. By introducing social capital and private funds, a diversified investment pattern for science popularization should be established to provide more support and assistance for the improvement of scientific literacy among college students. In addition, social organizations and volunteers can play an active role in science popularization by conducting various science popularization activities and volunteer services to provide more practical opportunities and training platforms for college students.

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