



# The Digital Literacy Education of College Students Under the Digital China Strategy

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**Abstract.** This paper analyzes the current situation, significance and predicament of college students' digital literacy education under the digital China strategy, proposes innovative paths to optimize digital literacy education from the perspective of improving college students' digital awareness, expanding their digital knowledge horizons, strengthening their digital skills training, and cultivating their digital ethics, and finally points out the problems that should be deepened and puts forward some prospects.

**Keywords:** Digital China strategy · College students · Digital literacy education

## 1 Introduction

Digitalization is reshaping the way of life, learning and production of human beings and it is an important inflection point and turning point in the history of human civilization. Digital literacy is the cognition and application of digital technology, digital life, and digital industry, and it also includes rebuilding the digital ideological and cultural system and reinstalling and upgrading the “operating system” of human civilization. New digital technologies led by 5G technology, such as big data, cloud computing, Internet of Things, artificial intelligence, etc., relying on the communication highway, are creating a new era of digitalization of virtual images of the real physical world. Under the digital China strategy, comprehensively improving the digital literacy ability and level of college students is an important part of the action to improve the digital literacy and skills of the whole people and is also a major measure to promote the vivid practice of educational modernization.

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## 2 Analysis of the Current Situation of Related Research

In November 2021, the “Action Plan for Enhancing Digital Literacy and Skills of the People” [1] was released, and strengthening the education and training of digital skills for the whole people and improving the digital literacy of citizens were included in the “14th Five-Year Plan” [2]. Digital literacy education has become a national strategy. Digital literacy refers to the awareness and ability to discover, evaluate and utilize digital resources effectively and appropriately. Research on digital China strategy and digital literacy has attracted widespread attention both in China and foreign countries: Liu Xiao (2021) proposed digital transformation and worker skills training; Zhao Zezhong (2021) proposed to improve digital literacy and implement “wisdom to help the elderly”; Wu Yancheng (2021) took the “Digital Survival” project of the library of The Open University in Britain as an example to propose a lightweight digital literacy education practice; Chen Yan (2021) believed that it is necessary to improve the digital literacy of college students in the post-epidemic era. Scholars express their opinions from different perspectives and digital literacy education is often discussed and given new meanings. However, few studies have explored the digital literacy education of college students from the perspective of digital China strategy. This paper will explore four aspects: digital awareness, digital knowledge, digital skills and digital ethics.

## 3 Analysis of the Value Contained

### 3.1 Providing Talent Support for the Construction of Digital China

The Party Central Committee and the State Council attach great importance to the construction of digital China and vigorously promote the national education digitalization strategy under the digital China strategy. Colleges and universities need to work hard to do a good job of digital literacy education for college students and meet the new challenges under the digital China strategy. Colleges and universities need to actively participate in the implementation of the spirit of documents such as the “Action Plan for Enhancing Digital Literacy and Skills of the People”, “Guiding Opinions on Promoting the Development of New Educational Infrastructure and Building a High-quality Education Support System”, etc., support the high-quality development of education with digital transformation and intelligent upgrading, popularize the digital literacy knowledge of college students, improve digital literacy and skills, and improve the information equity index. Colleges and universities should build digital literacy education for college students into general education that is essential to adapt to the development strategy of digital China and provide talent support for the construction of digital China.

### 3.2 Providing Intellectual Support for Digital Campus Construction

The digital campus construction is the modernization transformation of education in the new digital era. The digital campus platform is to build a digital space based on digital information and network to optimize and utilize teaching resources, collect, process, integrate, store, transmit and apply campus information, digitize teaching, scientific

research, management, technical services, and life services, expand the time and space dimensions of the real campus, improve the efficiency of campus operation, expand business functions, realize education informatization, and enhance core competitiveness. The digital campus construction urgently needs to improve the digital literacy of college students. It is necessary to lay the foundation for the profound knowledge of digital literacy, so that college students have a high level of digital professional knowledge and skills, establish a scientific view of data, and subtly transform digital literacy education into the inner strength of college students, so as to provide intelligence support for improving the digital campus construction.

### **3.3 Promoting the Lively Practice of Modernization Education with Digital Literacy Education**

“China’s Education Modernization 2035” proposes to “accelerate the educational reform in the information age”, and to promote the connotative high-quality development of colleges and universities during the 14th Five-Year Plan period requires deepening the reform of digital literacy education. Currently, there is an urgent need for high-quality digital literacy education. And the high-quality digital literacy education needs to be reborn from fire in the fusion of modern science and technology. In order to understand digitalization and deeply understand the connotation of digital campus construction through digital literacy education, the all-round integration of digitalization, visualization, contextualization, scenario, interactive experience and education and teaching is imperative. The digital campus construction integrates the innovation and reform of “digital + education”, which is a concrete embodiment of the implementation of the spirit of the National Education Conference and a vivid practice of promoting the modernization of education. The digital campus expands the educational concept, connotation, form and scope, and promotes the innovation of experiential digital teaching. To deeply understand and apply campus network, online classroom, resource library, education cloud, curriculum package, digital experiment, online examination evaluation, etc. through digital literacy education, and to constantly explore the new development of digital campus construction, inter-professional and inter-disciplinary development, new-type multi-integration, new model and new talents, the innovative digital literacy education is inevitable.

## **4 The Predicament of Improving the Digital Literacy of College Students Under the Digital China Strategy**

With the development of data transmission network, digital utilization and sharing, and digitization of information resources, the digital China strategy technology is widely used and the digital literacy and skills education of college students are facing new challenges. The main predicaments are as follows:

### **4.1 The Uneven Digital Literacy of College Students**

Some college students have weak digital awareness, insufficient digital knowledge and digital skills, and vague digital ethics.

## **4.2 The Insufficient Effectiveness of Digital Literacy Education**

There is a lack of an effective mechanism, the main form of education is single, which is mainly dominated by lectures, and there is a lack of supporting specific training, special seminars, model appraisal and selection and other activities, and there is a utilitarian education tendency. Some colleges and universities don't have a reasonable grasp of the digital literacy education of college students and there are many problems, such as formalization, superficialization, political achievement, etc., being short of an interaction and win-win situation.

## **4.3 The Insufficient Investment in Digital Literacy Education**

There is also the problem of insufficient capital investment and human investment. The construction of digital technology software and hardware facilities in some colleges and universities is weak and there is a shortage of digital China strategic technology professionals. Digital literacy education for college students still has a long way to go.

# **5 Innovative Paths for College Students' Digital Literacy Education Under the Digital China Strategy**

Colleges and universities should implement the spirit of important documents such as the "Artificial Intelligence Innovation Action Plan for Colleges and Universities", the "Action Plan for Blockchain Technology Innovation in Colleges and Universities", and "The Construction Guide of Future Technical College (Trial)", promote the national education digitalization strategy in accordance with the 14th Five-Year Plan, combine with the school's high-quality development, reform and innovation, deepen the value of integrating digital literacy education into digital campus construction, integrate with the construction and prosperity of campus culture, follow the trend, take advantage of the situation, and take multiple measures simultaneously.

## **5.1 Improving the Digital Awareness of College Students**

A prerequisite for digital literacy education is the improvement of digital awareness. Digital awareness reflects college students' cognition, attitude, value orientation and judgment ability on data acquisition, as well as their sensitivity and insight to data and data sources. Strengthening the digital awareness education of college students under the digital China strategy is one of the ways to effectively improve the digital literacy ability and level of college students. To begin with, colleges and universities need to use the Internet and digital technology to conduct individualized and precise teaching and strengthen the dialogue between college students and information technology teachers. In addition, it is necessary to use the national smart education platform to carry out self-study and self-exploration, enhance the digital communication awareness of college students, build an official account, promote the organic combination of short video products, micro-communication methods and Convergence Media platforms, and promote the organic combination of interactive communication and visual presentation, so

that both online and offline can work along to provide a people-centered online digital literacy education. What's more, colleges and universities must consciously popularize data-related knowledge, policies and regulations to college students and promote the digital China construction strategy.

## **5.2 Expanding the Digital Knowledge Horizon of College Students**

Digital knowledge refers to knowledge related to modern digital technology and digital processing and analysis, that is, the theoretical basis of digital literacy, which provides a knowledge base for digital literacy. With the rapid development of digital technology, various edge disciplines and interdisciplinary disciplines continue to emerge, providing technical conditions for college students to expand their digital knowledge in an all-round way. This phenomenon, firstly, provides tailored professional digital knowledge training and learning for college students of different professional disciplines. Secondly, it provides strong technical support for college students' digital literacy education, so as to apply what they have learned and stimulate their interest in learning. Thirdly, it carries out theoretical research in the form of special projects, forums, lectures, etc., scientifically sort out and analyze authoritative achievements, expand the horizons of digital knowledge learning, tap innovative potentials, guide practice, and analyze and solve new problems in reality.

## **5.3 Strengthening the Digital Skills Training of College Students**

The core of digital literacy education is digital skills, including digital acquisition and utilization ability, digital processing display and evaluation ability, etc. Under the digital China strategy, improving the digital skills of college students has become an emerging driving force for the construction of digital campus. First, it is to improve the precise ability of college students to acquire digital data to ensure digital accuracy, consistency, timeliness, and relevance. Second, it is to improve the digital analysis and integration capabilities of college students, determine the type, subject scope, time span, etc. of the data required by college students combined with the characteristics of college students' majors through detailed data analysis, and identify valuable core digits by removing the false and keeping the true, and removing the rough and extracting the essence. Third, it is to improve college students' use of digital skills to solve problems, connect with industrial clusters such as digital economy, artificial intelligence, and "Internet +", and improve digital collection and sorting, digital governance, digital management, digital storage and application, digital resource construction, digital analysis and interpretation and other educational qualities [3].

## **5.4 Strengthening the Digital Ethics Education of College Students**

Digital ethics is the guideline for digital literacy, emphasizing that when using digits, one needs to abide by digital security laws and related digital ethics, enhance digital security awareness, protect digital privacy, use digital resources scientifically and accurately, and improve the ability to judge and evaluate digits.

First of all, college students need to establish correct digital values. They should abide by digital laws, correctly handle the relationship between human and digits, society and digits, and abide by digital management and sharing policies and regulations when utilizing intellectual achievements protected by intellectual property rights. It is strictly forbidden to plagiarize, modify and counterfeit the digital achievements of others and college students need to be educated to obtain digital benefits between digital sharing and intellectual property protection in compliance with laws and regulations.

Secondly, college students should form a scientific view of digital technology. Today, many international organizations publish digital citation norms. Colleges and universities should educate college students that they need to abide by relevant digital ethics in digital use, protect digital privacy, ensure that sensitive digits are not leaked, be clear about what digits they have the right to obtain, follow digital standards, and pay attention to using the correct citation format when using the work of others.

Finally, college students should form a correct view of digital security. They should master the relevant knowledge of digital ethics and develop and use digital information reasonably and legally. Colleges and universities should educate college students to improve their ability to distinguish digital information, ensure the security of stored digits, make sure that the digits won't be modified, ensure that digital sources are correct and reliable, guarantee the integrity of the digits, ensure that the correct digits are obtained in a timely and safe manner, and ensure that the digits are not leaked.

## **6 Problems that Should be Deepened in the Digital Literacy Education of College Students Under the Digital China Strategy**

### **6.1 Strengthening the Management of Digital Literacy Education for College Students**

The improvement of college students' digital literacy and skills is closely related to the scientific management mechanism of digital literacy education. It is necessary to explore effective safeguard measures, strengthen the top-level design of digital literacy education, build a three-level organizational system of schools, colleges and departments, and grassroots organizations, strengthen the research and deployment, supervision, guidance, and organizational leadership of digital skills training for all college students, build a standardized and effective management and accountability mechanism, set up expert groups, and strictly implement institutional supervision. Colleges and universities should strengthen the main responsibility mechanism of party organizations at all levels and realize the work pattern of unified leadership of the party committee, joint management of the party and government, and joint participation of the whole school.

The first is to combine data management capabilities with leadership, adapt to data culture, form quantitative thinking, and achieve scientific management and sharing of digits. The second is to reform the management system, introduce a scientific incentive mechanism, and improve the overall level of digital literacy education. The third is to encourage college students to actively participate in digital literacy and skills education and to give material and spiritual rewards to outstanding college students in a timely manner.

## 6.2 Creating a New Ecology of Digital Literacy and Skills Education for College Students

Colleges and universities can learn from the advanced experience of developed countries to promote practical and theoretical innovations in digital literacy and skills education for college students, and combined with the type of digital literacy education in the school, cultivate college students' digital literacy according to local conditions, and create the most influential digital literacy education development and utilization portal, the most credible digital literacy education literature resource promotion platform, and the most branded interactive community [4].

The first is to provide a digital, panoramic, and immersive educational space, adopting diversified teaching curriculum strategies, classified design, and layered teaching. According to the digital literacy level of college students, colleges and universities can design teaching plans and curriculum evaluation systems for literature retrieval courses to enhance the digital identification, utilization and evaluation capabilities of college students. The second is to open a column of "Digital Literacy Education" on the official campus website, release relevant information on the WeChat official account, and continuously introduce cutting-edge, ideological and normative digital literacy education materials, and create a new paradigm of digital literacy education with scene-based experience [5]. The third is to carry out digital literacy education training and symposium for college students online and offline and adopt differentiated training methods to conduct digital literacy training for college students of different majors and grades.

## 7 Conclusion

Colleges and universities should strive to lead the digital future of education with the digital China strategy, promote the digital literacy education of college students to keep pace with the times with new ideas, new concepts and new methods, strengthen the digital construction of education and teaching resources such as digital classrooms, smart libraries, smart dormitories, and smart restaurants, innovate the digital literacy education and skill improvement model of college students, improve the digital skills of college students, promote the ability of college students to discover, acquire, evaluate, manage, utilize and integrate digital scientifically, let digital technology become a force for "goodness", promote college students to become active practitioners of data culture and achieve the unity of knowledge and action, cultivate the good digital literacy level of college students, and improve the comprehensive quality and ability of college students in the promotion of digital literacy education.

They also need to dig deep into the various elements of improving the digital literacy of college students, coordinate and match the new characteristics of digital literacy education for college students under the digital China strategy, be in line with the digital thinking under the digital China strategy, regard the improvement of the digital literacy and skills of college students as a strategic task, carry out the integration of digital literacy education and digital education practice activities such as digital education management, digital education evaluation, digital teaching content, digital teaching methods, digital teaching models, digital education and scientific research, etc., comprehensively promote digital literacy education into classrooms, into teaching materials, and into

minds, do a good job in the various tasks of the digital literacy education for college students, transform various advanced data culture and digital theoretical knowledge into the effectiveness of digital literacy education for college students, combine with the actual development of digital literacy and skills education for college students, form a fruitful work pattern, and continuously expand the space of digital literacy education for college students [6], so as to provide new momentum for the high-quality development of digital China construction.

**Authors' Contributions.** This paper is independently completed by Jialian Wang.

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