

Innovative Development and Practical Exploration of Digital Technology Empowering the Funding Education Work in Colleges and Universities

Siyu Wen*

Wenzhou Medical University, Wenzhou 325035, Zhejiang Province, China

*Corresponding author: Siyu Wen, wensiyu@wmu.edu.cn

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: In the higher education system, the work of developing funding education is a key link to helping students with financial difficulties grow up and become successful, and it is also an important starting point for implementing the fundamental task of fostering virtue through education. With the rapid development of digital technology, the work of funding education in colleges and universities has ushered in new opportunities but also faces many challenges. Traditional funding strategies and measures can hardly meet the diverse and personalized needs of students, which prompts colleges and universities to comply with the trend of the times, and actively integrate digital and information technology to promote the sustainable development of funding education work. This paper analyzes the current situation and problems of funding education work in colleges and universities, and puts forward a series of innovative initiatives: building a panoramic view of the funding education system and optimizing the management process path; improving the structure of funding education system and enhancing the effectiveness of precise funding; deepening the practical results of funding education and empowering students' diversified growth; strengthening the supervision barrier and safeguarding the fairness and justice of funding education work. The purpose of this research is to provide a reference for the work of funding education in colleges and universities, focus on exploring new paths of funding education, and promote funding education work to move towards a more scientific, efficient, and precise direction, to realize the transformation from protection-oriented funding to development-oriented funding.

Keywords: Digital technology; Higher education; Funding education; Innovative initiatives

Online publication: January 23, 2025

1. Introduction

In the current era when the digital wave is surging vigorously, digital technology is changing every aspect of

our lives and society at an unprecedented speed ^[1]. The report to the 20th National Congress of the Communist Party of China clearly put forward “accelerating the development of the digital economy, further integrating it with the real economy”, and mentioned “digitalization of education” for the first time, which undoubtedly points out the direction for the transformation and development in the field of education. As a major national plan, the digitization process of education is not only related to the quality improvement of education itself but also a crucial move to build a society and country of learning where lifelong learning is pursued by all. Against this backdrop, colleges and universities, as important positions in education, have actively responded to the call and promoted the innovative development of various works with the help of digital technology. Among them, funding education work in colleges and universities is an important link to ensure educational fairness and social justice. With the continuous increase of national and social funding for colleges and universities, the funding education system is becoming more and more mature, forming an all-round financial aid pattern with the government as the leading force and the wide participation of schools and society ^[2]. However, with the continuous development of society and the continuous innovation of science and technology, the shortcomings of the traditional funding model have gradually emerged, such as cumbersome processes, complicated materials, and so on. The in-depth integration of digital technology and funding education work in colleges and universities has greatly promoted the improvement of the funding education structure and the educational framework, helped to shape the all-round portrait of the funded students and the construction of cross-domain application scenarios, and can effectively achieve the full coverage and precise implementation of the funding, and fulfill the mission of “Three-Wide Education” in the new era. Therefore, an in-depth study of the innovative path of digital technology in funding education work in colleges and universities has extremely far-reaching practical significance and theoretical value.

2. Analysis of the current situation of digital technology empowering the funding of education work in colleges and universities

2.1. The traditional model of funding education work in colleges and universities and its limitations

In 2007, China promulgated the “Opinions of the State Council on Establishing and Improving the Financial Aid Policy System for Students from Families with Financial Difficulties in Regular Undergraduate Colleges, Higher Vocational Schools and Secondary Vocational Schools”, clearly defining the construction of a financial aid system covering “scholarships, student loans, grants, subsidies, and tuition fee reductions.” After more than ten years of implementation, this policy has effectively alleviated the educational difficulties of students from families with financial difficulties and significantly improved educational fairness. According to the “Report on the Development of Student Financial Aid in China in 2023”, in 2023, the cumulative number of students receiving financial aid across the country exceeded 160 million person-times, and the cumulative amount of financial aid reached more than 310 billion yuan. The scale of financial aid is showing a steady growth trend. However, although colleges and universities have already achieved a certain scale and stability in the investment of financial aid funds, there is still much room for improvement in using the existing financial aid resources to enhance educational effectiveness.

At present, there are problems in multiple aspects of the funding work in colleges and universities that urgently need to be solved to achieve the goals of more efficient, fair, and precise funding education. In the funding application process, most colleges and universities still rely on offline methods. When students prepare applications and supporting materials, situations such as the lack of official seals or inconsistent information often occur. The complicated materials are not only difficult to verify but also increase the burden on the staff ^[3].

Research shows that the financial aid review in colleges and universities is mostly completed within one to two months after students enroll. However, some colleges and universities may continue to delay after processes such as review, committee confirmation, and public notice. Students from extremely poor families undoubtedly bear the double pressure both economically and psychologically.

Moreover, the ways of funding education in colleges and universities also lack innovative vitality. Financial aid staff have the phenomenon of “tedious paper materials and resistance to emerging high-tech tools”, which to some extent hinders the improvement of the efficiency and quality of the funding work. In the evaluation process, the composition of evaluation groups and evaluation methods vary from one college or university to another. Most members of the evaluation groups are student cadres or roommates. Such a personnel composition is likely to lead to emotional factors interfering with rational judgment, thus resulting in unfair evaluation results. Some poor students give up applying due to the psychological pressure caused by the semi-public evaluation method, resulting in the failure of financial aid resources to accurately cover the students who really need them and forming loopholes in the work.

From a systematic perspective, the high mobility of the personnel responsible for the funding work is a major problem. In colleges and universities, counselors are often the main force in student funding work. The change in the team of counselors is likely to lead to frequent replacements of funding management personnel, seriously affecting the stability and continuity of the work. Meanwhile, although colleges and universities will adjust the funding policies according to the policies of higher authorities and actual situations, the formulation of funding management policies is still imperfect. There is a lack of clear standards for the quality requirements of funding management personnel, and there is also a lack of supervision on the standardization of the funding management process, resulting in a relatively low level of application of information technology. All these problems indicate that the funding management work urgently needs improvement and enhancement in terms of standardization and precision to serve students from families with financial difficulties better and ensure the smooth implementation and high-quality fulfillment of the funding education work.

2.2. The current application status of digital technology in the funding education work in colleges and universities

In the current era, digital technology has deeply integrated into all walks of life and has become an indispensable and crucial resource. The funding of education work in colleges and universities is no exception. With the help of digital technology, colleges and universities can conduct real-time and precise monitoring of students' economic situations, consumption behaviors, and learning trends, providing a solid basis for the timely optimization and adjustment of funding strategies. Meanwhile, it can also accurately grasp students' ideological trends, innovate the presentation forms of ideological and political resources, and enhance the effectiveness of ideological and political education. However, it cannot be ignored that although student funding work in colleges and universities has achieved remarkable results under the impetus of the information wave, some problems and shortcomings that cannot be overlooked have still emerged and urgently need to be solved to achieve the high-quality development of the funding education work.

With the rapid development of information technology, the funding work in colleges and universities has accumulated a large amount of data, covering multiple dimensions such as students' family economic situations and consumption patterns. However, due to the complex and diverse data sources and the poor compatibility between the funding information system and the information systems of other departments within the university,

it is difficult to comprehensively and accurately assess students' actual needs, which increases the complexity of the funding work^[4]. Digital technology, as a key means and effective approach to achieving precise funding, is of self-evident importance. However, there are still deficiencies in the depth and effectiveness of precise funding at present. Colleges and universities have a single method for analyzing funding data and fail to dig deeply into the information and correlations behind the data, resulting in a lack of scientific argumentation and data support for funding education decisions, unable to meet the diverse needs of students or fully exert the maximum effectiveness of funding education. In the information environment, the student funding work has made certain progress in aspects such as the precise identification of funded students, the accurate input of data information, and the precise distribution of funding funds. However, the work in aspects such as psychological counseling, spiritual care, ability improvement, and the cultivation of a sense of responsibility for funded students is relatively weak, and a complete and systematic training system has not yet been formed. This unbalanced development trend has seriously hindered the comprehensive realization of the goal of precise funding. In addition, against the backdrop of the wide application of digital technology, the issues of the security and privacy protection of students' data have become increasingly prominent and have become a key problem in funding education work. Moreover, colleges and universities have limited technical levels in key links such as data collection, storage, and analysis, and the reserve of professional talents is also relatively scarce, which has largely restricted the in-depth application and innovative development of digital technology in the practice of funding education and has become one of the bottlenecks for colleges and universities to improve the quality of funding education.

All in all, colleges and universities must face these problems squarely, actively take effective measures, strengthen technological research and development as well as talent cultivation, optimize the data management and analysis system, reinforce the mechanism for protecting students' privacy, and continuously improve all aspects of the funding education work. Only in this way can the great potential of digital technology in the field of funding education in colleges and universities be fully unleashed, and the scientific, precise, and efficient development of the funding education work be achieved, thus providing a powerful guarantee for students' growth and success.

3. The innovative path of digital technology empowering the funding of education work in colleges and universities

3.1. Building a panoramic view of the funding education system and optimizing the management process path

The concept of the value of big data expounded by Viktor Mayer-Schönberger in his book "Big Data: A Revolution That Will Transform How We Live, Work, and Think" makes researchers realize that big data is not only a technical means, but also a manifestation of innovative thinking and powerful cognitive abilities, namely "big data thinking" and "big data skills". In the work of funding education in colleges and universities, the application of such thinking and skills is of crucial importance. Establishing a sound funding information system is the foundation for the application of digital technologies. Building a unified and standardized data platform can promote data interaction and circulation among various departments within the school, achieve data sharing, and provide all-round and in-depth data support for the work of funding education, thus solidifying the foundation for the scientific formulation and precise implementation of funding policies^[5].

Firstly, this funding information system can systematically integrate key data such as student's basic information, academic performance, and family economic status. By analyzing these data, it can gain insights into students' real needs and existing problems, providing a reference basis for formulating personalized funding plans.

For example, if data analysis indicates that students in a particular region generally have mental health problems, more resources for mental health education can be allocated in the funding plan ^[6]. In addition, the system can collect feedback information and effectiveness evaluation data after students participate in funding activities, to optimize and adjust the existing assistance measures promptly. For instance, through a detailed analysis of the actual situation of students participating in work-study programs, it can identify which work-study positions are more popular among students and which aspects still need to be improved urgently, making the funding work more in line with students' actual needs and development expectations.

It is worth mentioning that with the help of new media platforms, students can complete funding applications online, including filling in forms and submitting relevant materials. The simplification of this process has greatly improved the convenience and efficiency of funding applications ^[7]. Meanwhile, teachers and reviewers can also complete the approval work online through these platforms, which not only improves the efficiency of approval but also makes the approval process more transparent ^[8]. Moreover, the system can also be used to promptly announce the progress and effectiveness of funding projects, greatly increasing the openness and transparency of the projects and further enhancing students' satisfaction and recognition of the funding work.

3.2. Improving the structure of the funding education system and enhancing the effectiveness of precise funding

The core essence of the funding education system lies in ensuring the fair distribution of educational resources, stimulating students' internal motivation, and promoting their all-round growth ^[9]. To strengthen the effectiveness of the funding management system, the top priority is to build a complete and rigorous application, review, and distribution process to accurately identify the students who truly need funding and allocate the funding amounts reasonably ^[10]. Meanwhile, supervision over funds should be strengthened, a sound supervision mechanism should be established to put an end to the abuse of funds. In addition, efforts should be focused on strengthening the comprehensive evaluation and effective monitoring of the funding education work. Diversified scientific methods such as data analysis and questionnaire surveys should be fully utilized to conduct a comprehensive assessment of all aspects and the overall effectiveness of the funding work, to detect and solve problems promptly. The intensity of publicity and education work should be increased to enhance teachers' and students' awareness and understanding of funding education and promote the standardization and sustainable development of the funding work.

Given the complexity of university funding work, precise positioning and customized services have become the key breakthroughs. Make full use of digital technologies to optimize the identification standards and processes for students with financial difficulties in their families, and achieve all-round precision in funding. By collecting and deeply analyzing data on students' academic performance, living conditions, and mental states at various stages, a comprehensive profile of the assisted students can be drawn to achieve precise screening. For example, through online surveys and other means, the needs of students with financial difficulties can be grasped, relevant funding information such as scholarships and grants can be pushed to them in a timely and precise manner, and suitable part-time and internship opportunities can be recommended. For students with academic difficulties, take full advantage of the online education platform to provide them with a rich variety of online tutoring courses and learning resources ^[11]. For students with heavy psychological burdens, various online psychological counseling methods such as text and video can be used to provide them with professional psychological support ^[12]. In addition, universities should also implement precise funding according to students' individualized needs, whether it is the distribution of scholarships and grants or the arrangement of work-study programs, which should be

precisely aligned with students' actual situations to maximize the effectiveness of the funding work. Meanwhile, the real-time update and dynamic adjustment functions of digital technologies can keenly sense changes in students' situations and flexibly adjust the funding plans to ensure that the funding work can always closely meet students' actual needs and provide a powerful guarantee for students' growth and success^[13].

3.3. Deepening the practical results of funding education and empowering students' diversified growth

Under the educational background of the new era, colleges and universities have constructed a brand-new funding education model, which highly integrates poverty alleviation, aspiration cultivation, and intelligence enhancement, and digital technology plays a key role in this process. This model is not only manifested in providing students with necessary financial support but also in careful spiritual cultivation and effective ability improvement. On the one hand, it effectively alleviates the economic pressure and provides a material guarantee for students' studies; on the other hand, it constructs a comprehensive support and education framework, provides students with diversified and personalized assistance and support means, and promotes the all-round development of students^[14].

While providing economic support for students, colleges and universities should make full use of the combination of online and offline methods and actively offer rich and diverse training courses. These courses closely focus on the professional fields of students and aim to teach practical and cutting-edge professional skills. Students can flexibly and independently choose to participate in training courses according to their own study and life schedules, and then have a thorough understanding of the employment market demand dynamics of the industry they are in^[15]. Based on an accurate grasp of the market, students can formulate personal learning plans and strategies to cope with market changes, thus effectively improving their career planning ability and adaptability in the complex and changeable market environment, and laying a solid foundation for future career development. For example, by using digital technology to establish an online psychological counseling system, many deficiencies in traditional offline psychological counseling, such as time and space limitations and students' concerns, can be overcome^[16]. Through the combination of online and offline channels, customized psychological counseling services are provided to students to enhance their psychological resilience and health level. This comprehensive psychological support is beneficial to students' subsequent academic exploration and smooth integration into society. At the same time, inspiring model figures to participate in the publicity activities of typical and touching cases of sponsorship, giving full play to the main role of students in the process of sponsorship and education, inspiring the enthusiasm of more students through the power of examples, cultivating a large number of model leading figures, realizing the positive transformation from "being sponsored" to "sponsoring others", and making the effectiveness of funding education take root.

3.4. Strengthening the supervision barrier and safeguarding the fairness and justice of funding education work

Transparency and fairness are the lifelines of the funding education work in colleges and universities. In the era of new media, colleges and universities should make funding information fully public, including the interpretation of funding policies, application requirements, review processes, and the publicity of results, to ensure that the information is fairly and openly accessible so that students and parents can consult it at any time and to ensure that every student can obtain funding in an equal and fair environment^[17]. For example, when publicizing the review results, an anonymous method can be adopted for release. This can not only fully respect and protect students'

personal privacy but also effectively safeguard the fairness and objectivity of the results, and avoid unnecessary disputes and misunderstandings, thereby winning more trust and support from students and parents and motivating students to participate in funding activities actively.

Moreover, colleges and universities should continuously strengthen the supervision of funding work, and build a scientific evaluation system to ensure the effective implementation of funding policies ^[18]. With the help of digital technologies, monitor the flow and usage of funding funds in real time, establish and improve convenient and efficient reporting and appeal mechanisms, and encourage teachers and students to actively participate in supervision to correct all kinds of problems emerging in the funding work promptly and ensure the smooth progress of the funding work. While strengthening the management of funding work, colleges and universities cannot neglect the ideological and political education of the assisted students, which is of great significance for improving their self-management abilities and comprehensive qualities ^[19]. Through the dynamic monitoring of digital technologies, track and evaluate the effectiveness of the funding education work in real-time and solve potential problems promptly. Most importantly, colleges and universities must build a strict and reliable digital technology management system to effectively ensure that the security and privacy of students' personal information are not violated. In all aspects such as data collection, storage, and use, it is necessary to strictly follow the requirements of laws and regulations, and implement comprehensive and meticulous information security management measures to ensure the legality, integrity, and confidentiality of data ^[20]. Simultaneously, continuously strengthen technical protection, enhance the reserve of technical strength and the construction of talent teams, and focus on improving the ability and quality of counselors. Through carrying out systematic and comprehensive training, give full play to the role of counselors as a bridge and bond in student funding work and make the funding education work solid and detailed.

4. Conclusion

The continuous development of digital technology has brought broad development space and innovative opportunities for funding education work in colleges and universities. Against this backdrop, if colleges and universities want to give full play to the advantages of digital technology, they must unswervingly promote innovative practices and continuously optimize work models and methods. To promote the funding education work to achieve high-level development, efforts need to be made in multiple key aspects: building a panoramic view of the funding education system and optimizing the management process path; improving the structure of the funding education system and enhancing the effectiveness of precise funding; deepening the practical results of funding education and empowering students' diversified growth; strengthening the supervision barrier and safeguarding the fairness and justice of funding education work. Meanwhile, educators should be clear that although digital technology has powerful functions and great potential, it is just an auxiliary tool in funding education work in colleges and universities. How to skillfully and efficiently use this tool, closely combine it with the actual situation of the funding education work in colleges and universities, give full play to its advantages, and avoid falling into the misunderstanding of putting technology above everything else has become a key issue. This requires colleges and universities to have an in-depth understanding of the characteristics, needs, and challenges of their funding education work in the practice process, accurately position the application of digital technology on the main points and difficulties in the actual work, and through continuous attempts, adjustments, and optimizations, achieve the in-depth integration of digital technology and the funding education work to achieve the best work results.

Given this, colleges and universities still have a long way to go in the exploration and practice of the field of funding education. They need to continuously maintain the enthusiasm for learning and the spirit of innovation, closely follow the development pace of the digital era, constantly adapt to the new requirements and challenges put forward by the times, and actively explore new models of funding education that are more scientific, efficient, precise and warm-hearted, to contribute to the cultivation of socialist builders and successors with all-round development in morality, intelligence, physique, aesthetics, and labor.

Funding

2024 + Basic Public Welfare Scientific Research Project of Wenzhou Science and Technology Bureau (Soft Science Research) + Research on the Path of Ou Yue Culture Integrating into the Developmental Funding Work in Colleges and Universities under the Background of Big Data + R20240038

Disclosure statement

The author declares no conflict of interest.

References

- [1] Rao AM, 2022, Hold High the Great Banner of Socialism with Chinese Characteristics and Strive in Unity to Build a Modern Socialist Country in All Respects. *People's Daily*, October 26, 2022, 1.
- [2] Wei WW, Niu K, 2019, Research on the Application of Big Data Technology in the Field of Education. *Industrial & Science Tribune*, 18(2): 64–65.
- [3] Wang SD, Hu D, 2021, A Comparative Study on Student Financial Aid in Chinese and American Colleges and Universities in the Stage of Popularization of Higher Education. *China Higher Education Research*, 2021(7): 63–69.
- [4] Liu Y, Feng C, 2024, An Analysis of the Innovative Paths for Digital Technology to Empower the Work of College Counselors in Educating Students through Financial Aid. *Employment and Guarantee*, 2024(10): 10–12.
- [5] Hu SJ, 2024, Research on the Strategy of Subsidized Education in Higher Vocational Colleges from the Perspective of New Media. *Journal of News Research*, 15(5): 175–178.
- [6] Ma YY, Xu YY, 2024, The Application of Digital Technology in the Development Oriented Funding and Education of Universities. *Journal of Hubei Open Vocational College*, 37(7): 164–165 + 168.
- [7] Luo LL, 2018, Research on Precise Financial Aid for Impoverished College Students from the Perspective of Big Data. Intellectual Property Publishing House, Beijing.
- [8] Tang XC, 2021, Research on the Improvement of the Abilities of College Students with Financial Difficulties in Their Families through Developmental Financial Aid. *Journal of Western*, 2021(18): 134–136.
- [9] Xie WT, 2024, Research on the Targeted Funding Education in Colleges and Universities from the Perspective of Big Data. *Journal of Huainan Vocational Technical College*, 24(1): 125–127.
- [10] Jiang YZ, Zhang CY, Xie XY, 2024, Practical Paths for the Work of Educating Students through Precise Financial Aid in Colleges and Universities in the New Era—Taking Hunan Railway Professional Technology College as an Example. *New Silk Road*, 2024(16): 235–237.
- [11] Tian X, 2024, Mechanism Innovation in the Digitalization of the Work of Educating Students through Financial Aid in Colleges and Universities. *China Science and Technology-Economy News Database: Education*, 2024(11): 179–

182.

- [12] Ke JX, Li RX, 2023, The Application of Digital Technology in the Development Oriented Education of Colleges and Universities. *Shanxi Electronic Technology*, 2023(4): 61–63.
- [13] Lu D, 2024, Research on the Digital Empowerment of the System of Educating Students through Financial Aid in Colleges and Universities. *Journal of Guangxi College of Education*, 39(5): 65–72.
- [14] Jiang QH, Yuan XY, 2024, The Motivation and Prospect of the Digital Transformation of the Model of Educating Students through Financial Aid in Colleges and Universities. *Jiangsu Higher Education*, 2024(7): 88–95.
- [15] Hu YQ, 2024, Examination and Reflection on the Work of Educating Students through Precise Financial Aid in Colleges and Universities under the Background of the “Great Ideological and Political Course”. *Bridge of Century*, 2024(17): 32–34.
- [16] Lu KK, 2024, Research on the Precise Financial Aid Work for College Students Based on Big Data Technology. *New Silk Road*, 2024(3): 223–225.
- [17] Yang YL, 2024, An Analysis of the Paths to Improve the Efficiency of Educating Students through Precise Financial Aid in Colleges and Universities from the Perspective of Digital Reform. *Health Vocational Education*, 42(19): 13–16.
- [18] Quan HY, 2024, Exploration of the Practical Paths and Methods of the Work of Developing and Educating Students through Financial Aid in Colleges and Universities in the New Era. *Employment and Guarantee*, 2024(2): 175–177.
- [19] Feng XY, 2022, Research on the Construction and Path of the Financial Aid and Education System for “Three-Difficult Students” in Colleges and Universities from the Perspective of New Media. *Star of the Century—Communication Edition*, 2022(15): 187–189.
- [20] Li L, 2021, An Analysis of the Working Model of Educating Students through Financial Aid in Colleges and Universities under the Background of the Micro-era. *Policy Research & Exploration*, 2021(7): 69–70.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.