



Research on Strategies for Improving Digital Literacy of Vocational College Teachers in the Digital Background

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Abstract. Improving the digital literacy of vocational college teachers is a systematic project that requires not only the cultivation of awareness, knowledge, and skills, but also the construction of a social digital community with a shared future, the creation of an orderly macro digital environment, and the collaborative efforts of the government, schools, and teachers to establish a sound and diverse governance structure. At the same time, it is necessary to effectively stimulate the internal drive of vocational college teachers to improve their digital literacy, set different training goals according to different needs, and provide diverse training resources and flexible training methods to effectively promote the improvement of digital literacy of vocational college teachers. Simultaneously develop an evaluation system that is in line with the actual situation of vocational colleges.

Keywords: Digital literacy; Improvement strategy; Evaluation system.

1 Introduction

As early as 1994, since Israeli scholar Yoram Eshet Alkalai, an Israeli scholar, proposed the concept of "digital literacy" in 1994, research on digital literacy has attracted attention from all walks of life. Paul Gilster officially proposed the term "digital literacy" in his book "Digital Literacy" in 1997 [1]. The European Commission, UNESCO, and others have defined it from a technical perspective. With the development of information technology, the popularization of digital tools, and the arrival of the global digital wave, digital literacy has become an essential survival skill for citizens to participate in economic and social life in the 21st century. The enhancement of digital literacy, which occupies an important link in the overall improvement of civic literacy, has also become a competency for teachers.

2 A Review of the Current Status of Research at Home and Abroad

According to CNKI's search of Chinese and foreign literature, we can see the current research status of digital literacy standards and evaluation. As of April 2024, the number of papers with "digital literacy + teachers" as the theme is 1,395; The search for "digital literacy + higher vocational teachers" was carried out, and the total number of articles was only 24. Rangel Baca Adriana et al. (2013) constructed and empirically tested an evaluation tool for digital literacy among higher education professors [2]; Yang Shuang et al. (2019) conducted a study on the evaluation of digital literacy of college teachers, and proposed to construct an evaluation index system of digital literacy of college teachers[3]; Jorge V á zquez Javier et al. (2021) studied the current status of digital skills among university teachers in different regions of Ecuador [4]; He Jian (2021) analyzed the constituent elements of digital literacy of higher vocational teachers from three levels: foundation, professional and identity, and proposed the "314" structural model according to the characteristics of "dual-teacher" of higher vocational teachers[5]; Yi Ye and Xue Feng (2022) believe that the evaluation standards for digital literacy of vocational education teachers should be formulated, and a lifelong learning community should be established in which digital technology and professional skills support each other[6]; Jiang Miao and Li Jing (2024) conducted a survey and found that the current digital teaching innovation ability of university teachers is relatively low[7]; Lin Ren (2024) also conducted research on the path of cultivating digital literacy among university teachers from the perspective of digital transformation in education[8]; Bin Lei (2024) analyzed the expectations and response strategies for improving the digital literacy of teachers in Shaanxi universities under the background of "Trinity"[9]; Zhou Yang (2024) studied the current challenges and improvement paths of digital competence among university teachers in the digital age[10]. It can be seen that the research on the digital literacy of vocational college teachers is still insufficient, and the research on the digital literacy of higher vocational teachers is also very necessary today, when vocational education accounts for half of the national higher education.

3 The Significance of Improving Teachers' Digital Literacy

3.1 Improving Teachers' Digital Literacy is an Important Part of Improving the Digital Literacy of Citizens in the Whole Society

In the 21st century, digital technology has become rapidly popularized in various fields, and people's survival methods and roles in society have undergone great changes. With the emergence of a new generation of digital technologies such as big data, the Internet of Things, artificial intelligence, and 5G, the education sector has also begun to think about the competencies and literacy that talents needed by the future society, especially in digital literacy. In August 2017, the International Library Union (IFLA) released the IFLA Declaration on Digital Literacy, which for the first

time systematically expounded the importance of digital literacy at the international level, emphasizing the profound impact of digital literacy on individuals and society. In the era of globalization, everyone is in the wave of digitalization, and digital literacy has become an indispensable part of global citizenship.

3.2 Bridging the Digital Divide and Promoting Educational Equity

UNESCO is a strong advocate for the use of digital technologies to achieve equity in education, and the 2030 Agenda for Sustainable Development: Transforming Our World highlights the power of digital technologies to drive social progress and bridge the digital divide. Despite the continuous evolution of cutting-edge technologies such as artificial intelligence, less developed countries and regions are still constrained by the inadequacy of information technology infrastructure, and as a result, they face new risks of technological, economic and social differentiation. The existence of the digital gap exacerbates existing inequalities and creates new ones. This digital disparity manifests itself at several levels: first, differences in access to information technology infrastructure, secondly, differences in the ability to apply information technology, and finally, differences in the returns that information technology brings. Countries and regions are still trying to bridge the digital divide at the first two levels, while at the same time starting to pay more attention to the third. UNESCO has made it a priority to address the digital divide at the first and second levels, both in terms of teachers' access to the necessary IT tools and their ability to use them effectively. By improving the digital literacy of teachers, we will further promote the improvement of students' digital literacy, and ultimately narrow the digital divide and promote the realization of educational equity.

3.3 Enhance the Competency of Higher Vocational Teachers

The digital era is both an opportunity and a challenge for the development of teachers. But in any case, it is a "compulsory course" that all educational participants must participate in completing together. In order to enable teachers to better grasp the opportunities brought by digital technology, understand the demand for talents in the digital era, and cope with the challenges brought by the continuous development of digital technology, it is necessary to improve the digital literacy of higher vocational teachers as soon as possible, so as to comprehensively improve the competency of higher vocational teachers. With the implementation of the newly revised Vocational Education Law in April 2022, China's vocational education will usher in a new era of development.

4 Survey Results on the Current Situation of Digital Literacy of Higher Vocational Teachers

In order to understand the current situation of teachers' digital literacy in higher vocational colleges, a detailed questionnaire was designed for the subdivision indicators of

the "Industry Standards for Teachers' Digital Literacy" issued by the Ministry of Education, The survey was conducted from six dimensions: digital awareness, digital technology knowledge and skills, digital application, digital social responsibility, professional development, familiarity and application of information technology software and hardware, and the relevant questionnaire survey was conducted on the teachers of higher vocational colleges by using the Internet platform, and finally 279 valid questionnaires were collected, SPSS26.0 was used to analyze the data, and the overall reliability coefficient of the questionnaire was 0.976, indicating that the reliability of the questionnaire was very high, which was suitable for investigation and research. The results of the questionnaire show that the overall awareness and subjective willingness of teachers in higher vocational colleges are strong, but the actual knowledge and application ability of digital technology need to be improved. This is shown in Figure 1.

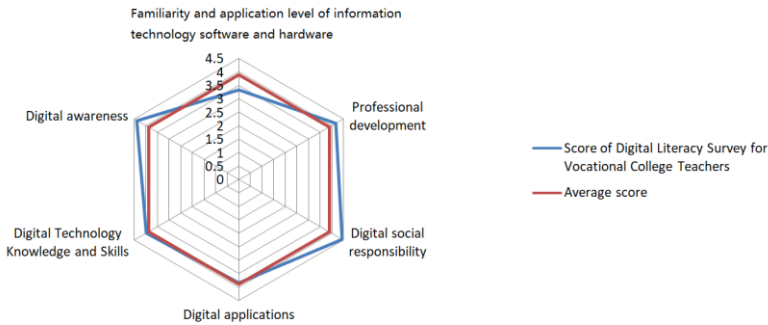


Fig. 1. Statistical Chart of Digital Literacy Survey Results for Vocational College Teachers

5 Research on Countermeasures for Improving the Digital Literacy of Teachers in Higher Vocational Colleges

5.1 Build a Social Community with a Digital Destiny and Create an Orderly Macro Digital Environment

With the rapid development of digital technology, a digital community with a shared future has emerged, aiming to establish a digital development community of peaceful development, with the core goal of seeking a fair and reasonable digital governance community to deal with global digital problems, such as the threat of digital hegemony and the growing digital divide. These problems reveal the injustice and inadequacy of the current global digital governance order. A community with a shared future for digital will meet the common expectations of all countries for digital technology to promote social development, and promote the establishment of a new global digital governance order that is more just, equal and orderly. Relying on advanced digital technology, this community has built a global digital communication network, closely connecting all countries, ethnic groups and peoples in the world, forming a communi-

ty with a shared future system in which all mankind participates and interacts with each other, and has also become an important carrier for the improvement of citizens' digital literacy and teachers' literacy.

5.2 Establish and Improve the Governance Structure of Pluralistic Co-Governance

Improving and optimizing the internal management of higher vocational colleges is a key step to promote the high-quality development of modern vocational education. In order to ensure that the goal of establishing morality and cultivating people can be realized, it is necessary to deepen the party's overall leadership into every link of the governance of higher vocational colleges. To this end, it is necessary to use digital technology to reshape business processes around the two core points of diversity of governance subjects and synergy of governance models. Horizontally, it is necessary to build a collaborative mechanism of scientific decision-making, efficient implementation and close supervision. Vertically, it is necessary to build a two-level management linkage mechanism of colleges and departments that runs through the upper and lower levels. Such a mechanism can promote the coordination and cooperation of multiple subjects, achieve efficient governance, and guide teachers to continuously improve their own literacy, so as to realize the positive interaction between the modernization of higher vocational college governance and the personal development of teachers.

5.3 Stimulate Internal Motivation and Guide Teachers to Correctly Understand the Important Role of Improving Digital Literacy

In the process of promoting the digitalization of vocational education, the first task is to guide teachers to correctly understand the importance of digital literacy. Teachers should be made aware that improving digital literacy is not about increasing the burden on teachers, but about more effectively supporting teaching and optimizing teaching effectiveness. The digital teaching mode has gradually replaced the traditional teacher-centered teaching mode, and realized the symmetry and reciprocity of teaching information flow. The use of digital technology has significantly improved the digital competency of teachers, enabling them to better explore the combination of new technologies such as intelligent teaching assistants and AI teachers to improve the quality of teaching. Only when teachers' sense of agency is strengthened, can they better take on the important task of digital transformation.

5.4 Establish a Collaborative Dynamic Evaluation Model to Improve the Evaluation System for the Digital Literacy of Teachers in Higher Vocational Colleges

In order to comprehensively improve the digital literacy of all relevant groups in the field of education, it is necessary to construct a collaborative and dynamic evaluation model. At present, although China has issued education industry standards for teach-

ers' digital literacy, there is still a lack of corresponding evaluation standards for other groups such as learners, parents, and educational technology developers. Therefore, it is imperative to establish a multi-participatory and continuously updated evaluation system. At the same time, it is necessary to fully consider the standards of students' information literacy in the formulation of evaluation models, emphasize the enabling role of teachers, especially in the face of students in vocational colleges, and dynamically consider the extent to which they guide and promote the development of students' information literacy from the specific cognitive ability and cognitive level of students, so as to better coordinate the needs of teachers' teaching ability and the needs of students' knowledge and ability structure improvement, so as to better reflect the role of teachers as guides and facilitators in education and teaching. Through such an evaluation model, the digital literacy of all relevant groups in the field of education can be improved more comprehensively and the in-depth development of education informatization can be promoted.

6 Conclusions

Enhancing the digital literacy of teachers is a systematic project that not only requires building a community with a shared digital future in society, creating an orderly macro digital environment, and leveraging the collaborative role of government, schools, and teachers, but also establishing a sound governance structure with diverse governance. At the same time, it is necessary to effectively stimulate the internal drive of vocational college teachers to improve their digital literacy and promote the improvement of digital literacy of vocational college teachers.

Acknowledgments

The research was supported by 2022 digital education research project "Research on Digital Literacy Standards for Vocational College Teachers" in Beijing (project number: BDEC2022619003) and the 2023 general research project "Investigation and Research on Digital Literacy Status of Vocational College Teachers - Taking Beijing as an Example" (project number: BJCZY2023C16).

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