

# *Research on Strategies for School-based Training of Digital Literacy for University Teachers*

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**Abstract:** Accompanied by the leapfrog development of digital technology, intelligent recording and broadcasting, electronic whiteboard applications, and virtual simulation teaching one after another, digital technology is changing the way of operation of education and teaching, the era of digitization of teaching has come in full swing, and the level of digital literacy of college and university teachers has become the focus of attention in the field of education at home and abroad. Enhancing the level of digital literacy of college teachers will effectively improve the transformation of knowledge results. At present, the level of digital literacy of college teachers is not optimistic, and there are problems such as the lack of teachers' ability to use digital technology, the lack of digital learning and innovation, and the low level of media literacy. College teachers, as disseminators of cultural knowledge, developers of intellectual resources, and pioneers of educational innovation, shouldering the important mission of establishing morality and educating people, should actively face the challenges of teaching digitization. This paper argues that school-based training, as a convenient training mode carried out by the school as a carrier, led by school leaders and school administrators, and carried out by the school as the main body, is the best way to improve the level of teachers' digital literacy regularly. By establishing the core status of school-based training, this paper effectively designs a school-based training framework for digital literacy in colleges and universities, which provides reference and lessons for college and university teachers to improve the level of digital literacy and the corresponding level of education and teaching.

## 1. Introduction

At present, domestic and foreign scholars have researched and defined digital literacy. The first to propose a digital literacy framework was Israeli scholar Yoram Eshet Alkalay, who proposed a digital literacy framework, which was categorized into image literacy, re-creation literacy, branching literacy, information literacy and socio-emotional literacy [1]. UNESCO, the European Commission, and others define digital literacy from a technical perspective, and consider digital literacy as the skill of finding and retrieving digital information, and organizing, managing, and understanding digital information.

A group of scholars in China have been discussing digital literacy, with Wang Youmei et al.

arguing that it is a broad, evolving, and inclusive concept. They suggest that digital literacy is formed through the amalgamation of media literacy, computer literacy, information literacy, and network literacy [2].

According to Yuan Weiwei, teacher education should include digital literacy as an essential component, consisting of four elements: digital awareness, digital knowledge, digital competence, and digital ethics. This model should be developed by considering the characteristics of teacher education and teaching in vocational colleges and universities, along with the development of information technology [3]. Zhang Jing thinks that teacher education in the age of digital intelligence has brought about changes in technology-empowered personalized training for teachers, digital literacy of teacher educators, and diversification of educational media. However, the status of teacher education as a subject, the leading role of teacher educators, and the fundamental task of teacher education institutions remains unchanged [4]. Teachers' digital literacy encompasses both deep and explicit digital knowledge, skills, and abilities for teaching and learning purposes [5].

This paper tries to define the connotation of digital literacy and considers that digital literacy contains three layers of connotations: first, mastery of digital technology; second, innovation through the use of intelligent digital technology, digital learning, and innovation ability; third, the ability to maintain the discursive response to digital information in the era of digital information, i.e. media literacy.

From the viewpoint of college teachers' group portrait, college teachers' digital literacy should include college teachers' skilled use of new digital equipment and instruments; college teachers' effective development of innovative teaching strategies with the help of digital intelligent equipment and technology to activate students' innovative and creative thinking; and college teachers' ability to have a discursive response to obtaining, analyzing, evaluating, and disseminating information in the era of information explosion.

## 2. Problems of Digital Literacy among College Teachers

### 2.1 Lack of ability to use digital technology

Since 2020, the global outbreak of the new coronavirus pneumonia has caused an unprecedented impact on the politics, economy, and culture of all countries. Due to the high transmissibility and serious pathogenicity of the new coronavirus pneumonia, our country has called for the reduction of contact with each other through home quarantine to reduce the risk of being infected. For the education sector, a complete "school closure" will have a serious impact on the growth and development of students. In this situation, how to ensure the normal operation of teaching and learning? The application of digital technology can solve this problem. Under the call of the Ministry of Education and a series of notices, colleges, and universities actively guarantee teaching and learning through online teaching platforms or online teaching tools, and the online teaching situation of "stopping classes and not teaching, stopping classes and not learning" has been formed.

It is important to consider the effectiveness of online teaching in achieving its objectives and ensuring that students are listening attentively. Digital teaching competence directly affects the quality of higher education and student learning outcomes [6]. From the frequent online classroom problems, the lack of teachers' competence in the use of digital technology is the primary problem. Most college teachers lack the necessary ability to use digital technology, and are rusty in the use of new teaching software and information technology, such as Tencent Conference, Nail, Learning Pass, and other teaching software, after teachers enter the software, they are unfamiliar with the functions of muting, casting, recording, and assigning homework online, which leads to problems in the 45-minute classroom one after another, and fails to ensure that the online classroom is carried out smoothly. In addition, the issue of digital technology illiteracy is more prominent among older

college teachers such as senior teachers.

## **2.2 Inadequate digital learning and innovation**

Digital literacy involves developing information awareness and critical thinking skills, as well as cultivating digital learning and innovation capabilities among both teachers and students. Digital learning and innovation ability refers to the habit's individuals form in their daily lives and learning processes to adapt to new digital technologies and teaching models. This includes maintaining sensitivity to new technologies, appropriately selecting digital devices and platforms, effectively managing digital learning resources, and sharing them with others. On the other hand, we should consider digital learning as a precursor to launching an inquiry into digital teaching and learning, and creatively solving teaching problems and issues. Guide students to develop digital thinking.

In higher education, instructors should prioritize guiding students towards comprehensive and profound learning experiences. Currently, teachers in colleges and universities face a shortage of digital learning skills and struggle with implementing innovative teaching methods. This is evident in the lack of digitalized teaching approaches and modes of evaluation, low participation in digital teaching competitions, traditional teaching habits and thinking, and a general lack of teaching innovation ability. At present, colleges and universities mainly rely on teachers' lectures and unidirectional PowerPoint presentations as their primary teaching methods. However, there is still a long way to go in terms of developing teachers' and students' digital learning and innovation abilities.

## **2.3 Low level of media literacy**

The dissemination of media information can have an impact on people's ideologies, and it is crucial to pay more attention to media literacy education for college teachers, especially for the counselor teaching team. The interpretation and diffusion of media information are closely linked to the cultivation of students' ideological and moral quality. It even affects whether students can form correct values, outlook on life, and worldview. Therefore, teachers at colleges and universities must have a high level of media literacy in the era of digital information, and they must teach by words and example on this fundamental issue. They must play their proper role in teaching and educating people on this fundamental issue.

According to a survey on media literacy of university teachers conducted by Ms. Zhang Xiaoyu of China University of Political Science and Law, teachers of China University of Political Science and Law use the Internet (computers, cell phones, etc.) for a relatively long period, with 43.75% of them using the Internet for more than 5 hours per day, and 18.75% of them using the Internet for more than 8 hours per day. Teachers' participation in media activities is rich, including forwarding information, compiling and sending microblogs or circles of friends; making videos and uploading them; publishing opinion articles on the Internet; and operating media accounts (WeChat, Zhihu, and Website B) [7]. It appears that university professors are leading the way in utilizing media technology. However, there is an urgent need to enhance the media literacy level of the university teaching community. The negative impact of their use of media to make inappropriate and false statements is not only significant but also dangerous.

## **3. School-based training strategies for digital literacy for college teachers**

Given the problems of digital literacy of college teachers, school-based training, as a convenient training mode carried out by schools, led by school leaders and school administrators, and carried out by schools as the main body, is the best path to improve the level of teachers' digital literacy

regularly.

### 3.1 Establishing the centrality of school-based training

As higher education continues to grow, the college teaching staff has also expanded both in terms of quantity and diversity. Whether it's public or private institutions, the teaching force has undergone significant changes in its structure and quality. The implementation of a school-based training model can save the time and cost of college teachers going out for training, thereby reducing their expenses. Schools can play a crucial role in the development of their teachers. They have the advantage of using their own facilities and resources to provide professional training to a small group of school leaders, cadres, and skilled teachers. Once trained, they can return to their schools and train other teachers on a regular basis. Therefore, it is essential to establish school-based training as a central element in promoting the development of college teachers.

### 3.2 Effectively designing a school-based training framework for digital literacy

As a school-supported teacher professional development model, school-based training has a unique value in promoting the professional development of college teachers [8]. A rigorous and appropriate school-based training framework tailored to local conditions and materials will be conducive to stimulating the enthusiasm of college teachers to learn; helping college teachers to internally optimize their knowledge structure; and improving the training effect of school-based training [9]. In order to avoid the problems of insufficient attention to the training of the teaching force, single form of training, obsolete training content, and poor training effect in colleges and universities in the past [10], and to further promote college and university teachers to enhance their digital literacy and improve the usability digital divide; colleges and universities should effectively design a digital literacy school-based training framework before carrying out digital literacy school-based training.

#### **(1) Distinguish between training objects and refine the content of training**

Colleges and universities have three categories of personnel in their teaching force: full-time teachers, counselors, and administrative and teaching aids. Each of these categories has a different work focus, so digital literacy training content should be designed according to their corresponding work attributes. One of the essential skills that college teachers need to possess is the ability to use digital technology. Improving their digital literacy is integral to the entire teaching force, and it should be included in the preliminary design. The design should address the three categories of personnel and provide training for common digital technology such as platforms, software, and other daily teaching requirements. The use of digital systems in universities, such as administrative offices, financial reimbursement, scientific research platforms, teaching and research, and others, requires clear training goals for college teachers. They should be able to regularly use and understand the digital systems and equipment in colleges and universities, and be familiar with them.

For the group of full-time teachers, emphasis should be placed on the development of their digital learning and innovation capabilities. Full-time teachers in colleges and universities can no longer be limited to purely lecture teaching, in the stage of designing and refining the training content, teachers should be given the opportunity to contact, learn and familiarize themselves with more digital teaching means, for example, teachers learn online homework assignment, online quiz scoring software, which will greatly save the time and energy of teachers to review the homework; mastering the small and handy game design program, the class through the form of the game question and answer, in-depth activation of Students' interest in learning; training teachers to learn micro course production software, which helps teachers to participate in teaching competence

competitions, empower classroom teaching, innovative classroom teaching mode, and promote the development of professional competence; training full-time teachers to learn and explore the application of digital technology and equipment, full-time teachers will increasingly form the habit of digital learning, laying the groundwork for the cultivation of innovative thinking. Similarly, along with the deepening of digital learning and innovation ability training for full-time teachers in colleges and universities, it will effectively promote students' digital learning, thinking, and innovative thinking, and promote the in-depth development of digital transformation of education.

The counselor-teacher team should focus on media literacy level improvement. Counselor teachers are an important bridge between schools and students, playing an important role as a bridge between the top and the bottom, tightly linked to the stable development of colleges and universities and the healthy growth of students. How to enhance the sensitivity of counselors to news information, how counselors can correctly understand new media, how to disseminate and comment on new media information, how to pay attention to and tap into students' thoughts and psychological changes through media use, etc., the framework and content should be solidly designed to lay the foundation for achieving the goal of media literacy improvement.

### **(2) Increase training efforts and enrich training methods.**

Training in colleges and universities usually consists of ideological education, scientific research, and innovation. However, digital literacy training is still not given enough attention. In this digital age, it's important for colleges and universities to utilize school-based training to increase the frequency and intensity of training to promote the digital growth of the college teaching force. The training form should be specifically deployed and arranged in the training cycle, and the content should be integrated into different forms, such as pre-service training and special training, that are easy for teachers to accept. Classroom hour incentives can be used to motivate teachers to participate in training with enthusiasm. Online and offline methods should be used flexibly to reduce the pressure of teacher training. At the same time, colleges and universities should avoid past problems with training processes, such as theoretical lectures that neglect technical teaching, and focusing on collective learning while neglecting individual guidance.

### **(3) Dedicated training departments to evaluate the effectiveness of school-based training.**

Not all colleges or universities have functional departments that promote the professional development of teachers called teacher development centers. Colleges and universities should set up teacher development centers to take responsibility for the construction and development of school-based training for college and university teachers. Every teacher training session should have a clear "beginning and end". The end of the meeting is not the end. We must adhere to the sustainability of training and the long-term mechanism of effectiveness evaluation. A "skimming water" style of training will make it meaningless.

During the digital literacy training provided to college teachers, their use of digital equipment and software can be evaluated through quizzes and sampling techniques. Their digital proficiency and improvement in teaching can be assessed through long-term tracking and inspections. This can be done by measuring the level of their digital teaching capabilities and works on a semester-based basis and other similar methods. The effectiveness of training can be evaluated by the feedback and comments of the teachers who participate, as well as their perception of the value of the training content. By conducting a comprehensive evaluation of the training program, universities can identify problem areas, make necessary revisions, and improve their overall training efforts.

## **4. Conclusions**

As time goes on, more and more aspects of university life, such as management, administrative offices, teaching and research, and student development, will become intertwined with digital

literacy. University teachers play a crucial role in higher education, and improving their level of digital literacy will become a necessary part of their ongoing training. School-based training is an important form of higher education training, and it provides a convenient and effective way to enhance teachers' digital literacy. To avoid issues such as incomplete training forms, vague and unrealistic content, and unsatisfactory outcomes, universities should prioritize constructing school-based training models and establish it as a normal mechanism. To provide college teachers with effective training on digital literacy, it is recommended to focus on three key areas: the use of digital technology, digital learning, and innovation ability cultivation, as well as media literacy training. The training can be subdivided into basic and specialized content, with specific directions tailored to the development needs of different college staff. For full-time teachers, the training should focus on teaching and research, for counselors, it should target student development, and for administrative and teaching staff, it should be geared towards management. We value the digital literacy of college teachers and are committed to improving it through increased training efforts, diverse training methods, and the establishment of a dedicated school-based training department. We will also monitor and assess the impact of digital literacy training on college teachers to ensure its effectiveness. By doing so, we can rapidly enhance the digital literacy of college teachers and ensure that both teachers and students keep up with the pace of digital advancements.

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