International Journal of Social Science, Education and Humanities
ISSN Print: 3104-4239
ISSN Online: 3104-4247
CD ISSN: 3104-4255
https://doi.org/10.63313/IJSSEH.2005

Digital Literacy of College Counselors from a Digital Divide Perspective: Challenges and Improvement Paths

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How to cite this paper: Hu, J., & Hu, M. (2026). Digital Literacy of College Counselors from a Digital Divide Perspective: Challenges and Improvement Paths. International Journal of Social Science, Education and Humanities, 2(3), 1–11. ISSN Print: 3104-4239; ISSN Online: 3104-4247.
https://doi.org/10.63313/IJSSEH.2005
Published: 2026-06-10

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Abstract

Educational digitalization has created new competency requirements for college counselors in ideological and political education, student affairs management, and online student development. Drawing on digital divide theory, this paper examines college counselors' digital literacy from four dimensions: the access gap, usage gap, knowledge gap, and transformation gap. The study finds that current difficulties include unequal allocation of digital resources, differentiated application capacities, insufficient circulation of professional knowledge, and inadequate transformation of digital technologies into educational practice. These problems are rooted in insufficient institutional support, fragmented training pathways, organizational barriers to knowledge sharing, and lagging educational concepts. Accordingly, this paper proposes an access-guarantee mechanism, a competency-oriented tiered training mechanism, a co-constructed knowledge circulation mechanism, an application-driven practice transformation mechanism, and an ethics-embedded risk governance mechanism. These measures are intended to promote the transformation of college counselors from tool users into digital student-development practitioners.

Keywords

College Counselors; Digital Literacy; Digital Divide; Educational Digitalization; Online Ideological and Political Education

1. Introduction

Educational digitalization is an important support for educational modernization and a key variable in improving the quality and efficiency of ideological and political work in higher education. The Education Informatization 2.0 Action Plan issued by the Ministry of Education calls for the transition from application-oriented integration to innovation-oriented integration and promotes the deep integration of information technology with education, teaching, and educational governance

(Ministry of Education of the People's Republic of China, 2018). The Teacher Digital Literacy standard further defines teachers' digital competencies in terms of digital awareness, digital technology knowledge and skills, digital application, digital social responsibility, and professional development (Ministry of Education of the People's Republic of China, 2022). For college counselors, improving digital literacy is not an additional technical skill but an important foundation for fulfilling job responsibilities, responding to student development needs, and advancing online ideological and political education.

The Regulations on the Construction of College Counselor Teams state that counselors are organizers, implementers, and guides of daily ideological and political education and management for college students, and that they should become mentors for students' growth and trusted companions for their healthy lives (Ministry of Education of the People's Republic of China, 2017). As students' learning, living, communication, and value expression become increasingly networked and platformized (Peng, 2020), the work of counselors is extending from offline classrooms, dormitories, and offices to online platforms, data systems, and algorithmic environments. Tasks such as identifying students' ideological dynamics, warning of psychological crises, recognizing financial-aid needs, pushing employment information, and responding to online public opinion all depend to varying degrees on digital technologies and data resources. Thus, whether counselors possess adequate digital literacy directly affects the timeliness, precision, and warmth of their educational work.

In practice, however, the cultivation of digital literacy among college counselors still faces obvious shortcomings. Some counselors can use office platforms proficiently but find it difficult to translate digital technologies into methods of precise student development. Some universities have built multiple student-management systems but have not formed effective data sharing or educational coordination. Some counselors experience competence anxiety and ethical uncertainty when facing artificial intelligence, big-data profiling, algorithmic recommendation, and other emerging technologies. Existing studies often discuss counselors' digital capacity from the perspectives of technical training or work efficiency, but pay less attention to the structural differences behind digital inequality and capability differentiation.

Digital divide theory initially focused on differences in internet access among groups and later expanded to multi-dimensional inequalities in usage capacity, information acquisition, knowledge transformation, and digital outcomes. Norris analyzed digital inequality at the levels of the global divide, social divide, and democratic divide (Norris, 2001). Van Dijk further argued that the digital divide involves not only physical access but also motivation, skills, and patterns of use (van Dijk, 2005, 2006). Hargittai's work on the second-level digital divide emphasized that differences in online skills deeply affect individuals' ability to benefit from internet resources (Hargittai, 2002). Introducing digital divide theory into the study of college

counselors' digital literacy helps move beyond the surface question of whether counselors can use tools and reveals structural differences in resources, skills, knowledge, and practice transformation. Based on this framework, this paper examines the practical difficulties, generative mechanisms, and improvement paths of college counselors' digital literacy from the four dimensions of access, usage, knowledge, and transformation.

2. Core Connotations of Digital Divide Theory and Its Analytical Relevance

2.1. Access Gap: Differences in Digital Infrastructure and Resource Availability

The access gap is the foundational level of the digital divide. It refers mainly to differences in access to digital devices, network environments, platform permissions, and technical support. Early studies of the digital divide focused on whether access existed at all. As digital construction in universities continues, the absence of devices is no longer the only issue. Platform stability, openness of data interfaces, system usability, and responsiveness of technical services have become new sources of access inequality.

In counselors' work, the access gap is reflected in unequal allocation of digital resources across universities, colleges, and positions. Some universities have built relatively integrated student-work data platforms through which counselors can understand students' academic, financial-aid, psychological, and career-related information. Other universities still rely on fragmented spreadsheets, manual statistics, and multiple reporting channels, making it difficult for counselors to obtain continuous, accurate, and integrated data support. Such differences in access are not merely technical; they further affect counselors' ability to conduct precise and individualized student development work.

2.2. Usage Gap: Differences in the Depth and Structure of Digital Technology Use

The usage gap refers to differences in the frequency, depth, and quality of digital technology use after basic access has been secured. Van Dijk observes that digital divide research has shifted its focus from physical access to skills and forms of use (van Dijk, 2006). This means that even when counselors have the same platforms and devices, differences in technical understanding, operational experience, and application awareness may produce substantial differences in work outcomes.

The usage gap among college counselors cannot be reduced to age differences or simple operational proficiency. It is more accurately reflected in the capacity to match digital technology with specific tasks of student work. Basic use involves issuing notices, collecting information, and reporting data. More advanced use includes using data to identify student-development risks, conducting value

guidance through online communities, optimizing work processes through digital platforms, and using artificial intelligence tools to assist in content production and case analysis. The gap between these two levels is precisely the capability gap that digital literacy cultivation must address.

2.3. Knowledge Gap: Differences in Accessing, Understanding, and Updating Digital Knowledge

The knowledge gap concerns differences in the capacity to obtain, understand, filter, and transform information resources. In the digital age, information does not automatically become knowledge, and abundant resources do not necessarily enhance professional capacity. For counselors, whether they can keep up with policies on educational digitalization, cases of online ideological and political education, methods of student data analysis, and norms of digital ethics determines whether their digital literacy can be continuously renewed.

At present, some counselors' digital learning remains temporary and fragmented. They mainly rely on personal exploration, colleagues' informal explanations, or platform operation manuals, while lacking a systematic knowledge framework. Digital technologies iterate quickly, platform rules change rapidly, and students' online expressions evolve continuously. Without stable learning channels and professional communities, counselors may fall into a state in which they can use certain tools at a basic level but do not deeply understand their principles or transfer them effectively to practice. The knowledge gap is therefore a relatively hidden but far-reaching dimension in digital literacy cultivation.

2.4. Transformation Gap: Differences in Converting Digital Technologies into Educational Effectiveness

The transformation gap refers to differences in the ability to convert digital resources, digital skills, and digital knowledge into actual work performance or developmental benefits. The introduction of digital technology into university student work does not necessarily lead to improved educational quality. If digital platforms merely replace paper forms, artificial intelligence merely replaces document drafting, and data analysis merely increases reporting burdens, digitalization may create new transactional pressure rather than educational improvement.

In cultivating counselors' digital literacy, the transformation gap is the most crucial and often overlooked dimension. The ultimate goal of counselors' digital literacy is not technological display but student development. Whether digital technology can help counselors identify students in need earlier, allocate educational resources more precisely, conduct online value guidance more effectively, and handle data security and privacy protection more prudently is the key criterion for judging the effectiveness of digital literacy cultivation.

3. Practical Challenges in Cultivating Digital Literacy among College Counselors

3.1. Unequal Digital Resources and Insufficient Basic Access Support

Differences in the level of university informatization place counselors at different starting points in terms of digital access. Some universities have formed unified student data platforms that provide counselors with relatively complete student profiles and work support. Others still operate fragmented systems for student affairs, teaching administration, psychological services, financial aid, and employment. Counselors in these institutions must switch among multiple systems and repeatedly report similar data, which increases workload and reduces data-use efficiency.

Digital access also involves permission allocation and technical support. Some platforms contain useful data but provide counselors with only limited access. Some systems have many functions but are complex, slow, and insufficiently supported by training. Some universities emphasize digital assessment but do not provide counselors with adequate equipment, software, or data-governance support. The mismatch between resource allocation and work requirements is a concrete manifestation of the access gap in the counselor group.

3.2. Differentiated Application Capacity and Superficial Use of Digital Tools

There are clear differences in digital capacity among counselors. Some actively explore new platforms, tools, and methods and integrate digital technology into individual counseling, thematic education, career guidance, and online public-opinion response. Others use digital platforms mainly for issuing notices, collecting materials, and entering data, and have not yet formed a student-centered digital work mindset.

This capability differentiation can lead to two problems. First, digital technology is narrowed into a transactional tool: counselors simply complete existing administrative tasks more quickly without optimizing the educational process. Second, digital requirements become a new source of psychological pressure. Some counselors feel unable to adapt to platform upgrades, data analysis, AI tools, and changes in students' online communication styles, which may generate resistance and anxiety. The usage gap therefore affects not only work efficiency but also counselors' professional confidence and motivation for innovation.

3.3. Poor Circulation of Professional Knowledge and Weak Accumulation of Digital Student-Development Experience

The improvement of counselors' digital literacy requires continuous knowledge supply. In reality, however, knowledge circulation mechanisms remain underdeveloped. Many digital student-development experiences remain at the level

of individual exploration and lack case refinement, methodological summarization, and cross-institutional sharing. When counselors deal with online public opinion, student data warnings, online thematic education, and digital psychological support, they often rely on personal experience rather than replicable professional solutions.

Poor knowledge circulation is also reflected in the mismatch between training content and job needs. Some training programs focus on platform operation but rarely respond to complex problems in real work, such as how to interpret abnormal student data, how to balance precise management with privacy protection, how to conduct non-indoctrinating value guidance in online communities, and how to judge the reliability of AI-generated content. If digital literacy training fails to address these real problems, it will be difficult to transform it into stable professional capacity.

3.4. Insufficient Application Transformation and Disconnection between Digital Technology and Educational Practice

Whether digital technology truly serves education depends on whether it is effectively connected with the goals of student development. At present, some universities tend to emphasize platform construction while neglecting scenario design. The number of platforms increases, but work processes remain unchanged; data collection increases, but analysis and use are insufficient; online activities increase, but value guidance lacks depth and interaction.

More importantly, digitalization may weaken educational relationships. If counselors rely excessively on data labels and system reminders, they may ignore the complexity of students' individual experiences. If online communication completely replaces face-to-face interaction, the emotional warmth required by ideological and political education may be weakened. If algorithmic recommendation and automation tools lack ethical boundaries, risks such as privacy leakage, label solidification, and technological dependence may arise. Therefore, digital literacy cultivation must integrate technical capacity, educational capacity, and ethical capacity.

4. Generative Mechanisms of the Challenges

4.1. Insufficient Institutional Support Produces Differentiated Access Conditions

Digital literacy cultivation cannot be achieved solely through individual self-learning. It requires institutional design and resource investment at the university level. Some universities still treat counselors' digital adaptation as a personal matter and lack overall planning for digital resource allocation, data-permission opening, platform interoperability, and technical-service support. This insufficient institutional support amplifies differences in the starting points of counselors' digital work.

From the perspective of governance, counselors are among the actors closest to student data and student needs. If institutions only require counselors to submit data without granting them reasonable authority to analyze, use, and feed back data, digitalization easily becomes a one-way management tool rather than a professional resource that supports education.

4.2. Fragmented Training Pathways Lead to Discontinuous Capacity Development

Digital technologies change rapidly, so the cultivation of counselors' digital literacy must be continuous and progressive. In reality, training is often temporary, task-driven, and fragmented. When a new platform is launched, an operation session is organized; when an inspection is required, a special study session is arranged; after an online incident occurs, an emergency reminder is issued. Such training can solve short-term operational problems but cannot form a complete competency system.

Digital literacy training should distinguish among basic operation, scenario application, data analysis, online communication, ethical governance, and innovative development. If all counselors receive homogeneous training, the basic learning needs of novice counselors and the advanced development needs of experienced counselors will both be inadequately addressed. The lack of tiered training pathways is an important reason why the usage gap persists.

4.3. Organizational Knowledge Barriers Make Experience Difficult to Share

University student work is highly practical and contextual, and many effective methods come from counselors' long-term frontline experience. Without organizational accumulation, however, these experiences are difficult to transform into communicable, replicable, and evaluable knowledge resources. Differences in data standards, work processes, and evaluation methods across colleges, departments, and universities also limit the circulation of digital student-development experiences.

Some universities also exhibit departmental segmentation in digital construction. Teaching administration, student affairs, psychological services, financial aid, and employment departments build their own systems and hold their own data without effective collaborative governance mechanisms. Organizational barriers not only create data silos but also prevent counselors from understanding student development from an integrated perspective. The knowledge gap is therefore not simply a lack of information, but the result of organizational structure and knowledge-circulation mechanisms.

4.4. Lagging Educational Concepts Distort the Direction of Technological Transformation

The core of digital literacy is not merely the ability to use technology, but the ability to use technology for student development. If digitalization is understood only as a means of improving efficiency, strengthening control, or completing assessment, the application of technology may deviate from the fundamental task of fostering virtue through education. One important reason for the transformation gap is that some practices focus excessively on tool efficiency while neglecting student subjectivity, educational relationships, and value guidance.

Ideological and political education emphasizes value guidance, emotional communication, and subject development (Zheng, 2010). Digital technologies can improve accessibility and precision, but they cannot replace educators' understanding, judgment, and companionship. Only by placing digital technology under educational goals, combining data analysis with individual care, and integrating platform governance with value communication can digital literacy be transformed into genuine educational capacity.

5. Improvement Paths for Digital Literacy among College Counselors

5.1. Strengthen Access Guarantees and Improve the Basic Conditions for Digital Student Work

To improve counselors' digital literacy, universities should first address basic resources and institutional support. Digital literacy construction for counselors should be incorporated into the overall planning of teacher development and the digital transformation of student work. Basic requirements should be clarified in terms of equipment configuration, platform permissions, data standards, technical support, and funding. Frontline counselors responsible for student work should be provided with stable equipment, data platforms, and technical services, rather than having digital tasks simply transferred to individuals.

At the same time, systems related to student work should be integrated and connected. Around the whole process of student development, reasonable sharing mechanisms should be established for academic, financial-aid, psychological, employment, and extracurricular data, so as to reduce repeated reporting and multiple statistics. System construction should be oriented toward educational service and should emphasize usability, interpretability, and feedback, enabling counselors to see, understand, and support students through data.

5.2. Implement Tiered Training and Build a Competency-Oriented Digital Literacy System

Digital literacy training for counselors should shift from one-time operation training to systematic capacity development. According to counselors' development stages and job needs, a tiered training system can be built around basic application, scenario integration, data analysis, and innovation leadership. New counselors should focus on platform operation, information security, and online

communication norms. Experienced counselors should strengthen data analysis, online-offline integrated education, and digital case development. Backbone counselors should undertake research, project design, and team leadership in digital student work.

Training methods should also move from lecture-based formats to task-based and case-based formats. Training tasks should be designed around real work scenarios, such as data warning for psychological crises, response to online public opinion, identification of students with employment difficulties, and design of online thematic education. Through case discussion, scenario simulation, and practical review, counselors' capacity to solve complex problems can be improved. Only when training is embedded in real scenarios can digital literacy be transformed from knowledge into working capacity.

5.3. Promote Knowledge Circulation and Build Co-Constructed Digital Student-Development Communities

Universities should establish case banks and method banks for digital student work. Effective experiences in online ideological and political education, data warning, smart financial aid, career guidance, and psychological support should be organized, reviewed, and promoted. A case bank should not merely display achievements; it should include problem backgrounds, operational processes, data bases, risk boundaries, and reflective improvements, providing counselors with practice templates that can be learned and transferred.

Cross-college, cross-departmental, and cross-institutional communication should also be encouraged to form digital student-development communities. Student affairs departments may work with information technology offices, psychological centers, career departments, and academic faculty teams to organize workshops, salons, and project co-creation activities. By jointly discussing real problems, universities can break departmental barriers and knowledge silos and provide counselors with continuous professional support through peer interaction.

5.4. Strengthen Application Transformation and Embed Digital Technology in Educational Scenarios

The ultimate purpose of digital literacy improvement is to make digital technology serve student development. Universities should design typical digital educational scenarios around counselors' core tasks. In value guidance, online communities and short-video platforms can be used for interactive thematic education. In academic support, process data can be used to identify students with academic difficulties and provide targeted assistance. In mental health education, data warnings can be combined with individual conversations to improve the timeliness of crisis identification. In career guidance, platform resources can match job information with individualized development suggestions.

Application transformation also requires evaluation and feedback mechanisms.

Evaluating counselors' digital literacy should not simply count how many platforms are used, how much information is released, or how much data is collected. Instead, attention should be paid to whether digital technology improves students' sense of gain, enhances the quality of educational interaction, optimizes work processes, and strengthens risk prevention. Only an evaluation orientation centered on educational effectiveness can prevent digital formalism.

5.5. Embed Ethical Governance and Maintain the Value Boundaries of Digital Education

Digital ethics must be included as a core part of counselors' digital literacy cultivation. Student data involve privacy, human dignity, and development opportunities. When using data, counselors should follow the principles of minimum necessity, clear purpose, transparency of process, and controllable security. When student profiling or risk marking is conducted, simple and permanent labeling should be avoided, and technical judgment should not replace educational judgment. Counselors should also improve their ability to evaluate AI-generated content, algorithmic recommendation, and online public-opinion environments. With regard to AI tools, counselors should make good use of them to improve the efficiency of material organization, activity design, and case analysis, while also remaining alert to content distortion, value bias, and ambiguous responsibility. The bottom line of digital education is people-centeredness. Technology should serve students' comprehensive development rather than obscure the complexity of students as living individuals.

6. Conclusion

Digital literacy among college counselors is an important support for the transformation and upgrading of student work in the context of educational digitalization. Examining its cultivation through digital divide theory shows that the problem is not simply a lack of individual technical ability, but the combined result of multiple differences in access resources, usage capacity, knowledge circulation, and practice transformation. The access gap affects whether counselors can obtain basic resources; the usage gap affects whether they can use technology effectively; the knowledge gap affects whether they can continuously update professional understanding; and the transformation gap determines whether digital technologies can truly serve educational goals.

In the future, universities should systematically promote counselors' digital literacy through institutional support, capacity training, knowledge sharing, scenario-based application, and ethical governance. Only by helping counselors shift from tool users to digital student-development practitioners, and from transactional handlers to data interpreters and value guides, can universities continuously enhance the precision, affinity, and effectiveness of ideological and political work in the process of educational digitalization.

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