

Construction and Practice of the General Education System in Universities Empowered by Digital Intelligence

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ABSTRACT

Driven the dual forces of educational digital transformation and technological and industrial revolutions, digital intelligence technology is reshaping the ecosystem of higher education with a breakthrough development trend. Guided by the policies of "The 2024-2035 Master Plan on Building China into a Leading Country in Education" and "Opinions on Accelerating the Digitalization of Education", this article discusses the construction logic and practical paths of digital intelligence empowering the general education system in universities, in order to provide theoretical reference for universities to cultivate interdisciplinary talents with both humanistic literacy and digital capabilities.

KEYWORDS

Digital intelligence; Universities; General knowledge; Education system

1 Introduction

As a core component for cultivating well-rounded talents, general education surmounts the limitations of professional education and emphasizes the comprehensive integration of students' theoretical knowledge, practical abilities, and overall qualities. Conducting in-depth research on the construction and practice of the general education system in universities empowered by digital intelligence is not only an inevitable choice to break through traditional education models, but also an important measure that conforms to the development trend of the times and responds to social demands for interdisciplinary talents.

2 The Construction Logic of the General Education System in Universities Empowered by Digital Intelligence

In the construction of a university general education system empowered by digital intelligence, the logical starting point lies in profoundly understanding the inherent laws of the integration of digital intelligence technology with general education.

Firstly, digital intelligence technology provides core support for the construction of a general education system in universities. Specifically, with its powerful data processing, intelligent analysis, and resource integration advantages, digital intelligence technology effectively addresses the pain points of traditional general education in universities, such as scattered teaching resources and solidified disciplinary barriers. The application of artificial intelligence technology can help teachers achieve intelligent empowerment in the general education process, such as implementation of intelligent Q&A and targeted planning of learning paths, which greatly enhances the efficiency and quality of general education. Meanwhile, the application of big data technology provides a strong basis for the personalized recommendation and customized teaching of general education courses through precise analysis of students' learning behaviors and ability levels^[1]. The application of these technologies provides a solid technical foundation and innovative impetus for the construction of a general education system in universities, and can boost the overall reshaping of the higher education ecosystem.

Secondly, the construction of a university general education system provides a direction for the application of digital intelligence technology in education. Currently, the university general education system focuses on fostering virtue and cultivating talents, strengthens the education of the core values of Chinese socialism, and emphasizes the cultivation of students' comprehensive literacy and interdisciplinary competence, which points out a direction for the in-depth application of digital intelligence technology in the field of education^[2]. On this basis, digital intelligence technology needs to be developed and continuously optimized focusing on core elements such as enhancing students' ideological and moral qualities, and promoting knowledge integration and innovation, so as to ensure that the technological development always serves the essence of education rather than becoming a "substitute subject" for educational research. In this way, it can avoid falling into the trap of "technology supremacy" and achieve the organic integration and coordinated development of technology and education^[3].

3 Practical Paths of the General Education System in Universities Empowered by Digital Intelligence

3.1 Promote the Construction of Digital-Intelligent Teaching Resources and Focus on the Main Engine of General Education

Promoting the construction of digital-intelligent teaching resources is a key link in empowering the general education system in universities with digital intelligence.

Firstly, efforts should be made to advance the development of primary resources. The construction of primary resources refers to the foundational teaching resources for general education in universities. Universities need to align with the current characteristics of general education to fully leverage digital intelligence technology such as big data and artificial intelligence to deeply explore and sort out classic cases and theoretical knowledge in general education, so as to develop a highly adaptable digital teaching resource repository. These resources should cover multiple fields including humanities and natural sciences, while emphasizing their cutting-edge nature and timeliness. In doing so, a primary teaching resource repository with university characteristics and in line with the goals of general education can be built, thereby ensuring that students have access to the latest and most comprehensive knowledge and information.

Secondly, the construction of dynamic resources should be promoted. On the one hand, universities should actively build a dynamic update platform for general education resources with the support of digital intelligence technology. Based on the comprehensive integration of various educational resources such as electronic textbooks, high-quality micro-lectures, and practical cases, they can rely on big data to analyze students' knowledge gaps and changes in social demands for talents, and precisely push adaptive learning resources of general education courses for students, thus maintaining the feeling of freshness and effectiveness of students' learning in general education courses. On the other hand, with the establishment of an update mechanism for general education resources as the driving force, universities can guide teachers to keep pace with the iteration of digital intelligence technology and the frontiers of disciplines, and promptly supplement emerging educational content. Ultimately, a closed-loop update model from demand perception and resource generation to effect feedback will be formed, so as to provide students with support from cutting-edge learning resources.

Thirdly, it is necessary to promote the construction of renewable resources. The construction of renewable resources focuses on the in-depth development, processing, and reuse of existing general education resources^[4]. Based on this, teacher teams should be encouraged to systematically sort out resources generated during the knowledge delivery process, and conduct digital transformation and upgrading using digital intelligence technology. For example, they can convert traditional paper-based teaching plans and other resources into interactive and immersive experience resources to make students experience the charm of knowledge in a virtual environment and enhance the interest and interactivity of general education resources. At the same time, universities can establish a co-construction and sharing mechanism of renewable resources. By building a unified resource management platforms, they can encourage teachers, students, and industry experts to jointly participate in the creation and sharing of renewable resources for general education courses, thereby achieving the mutual exchange and efficient utilization of resources and jointly promoting the innovation and development of general education resources.

3.2 Reconstruct the Digital-Intelligent General Education Curriculum System and Consolidate the Main Position of General Education

Reconstructing the digital-intelligent general education curriculum system is the core of the practical implementation of digital intelligence empowerment in a university general education system.

The first is to restructure the objectives of digital-intelligent general education courses. According to the talent demands of the digital intelligence era, taking fostering virtue and cultivating talents as the fundamental goal, teachers should construct a three-dimensional objective integrating "knowledge foundation, ability empowerment and literacy cultivation". Knowledge foundation takes the master of basic digital-intelligent knowledge such as artificial intelligence by students as the course goal, and lay a solid theoretical foundation of digital intelligence for them. Ability empowerment takes the improvement of students' abilities in applying digital intelligence technology, solving problems and conducting innovative practices as the course goal, so as to ensure that students can flexibly apply the learned theoretical knowledge in the digital intelligence era. Literacy cultivation takes the cultivation of students' digital intelligence ethical awareness and interdisciplinary integration thinking as the course goal, in order to enhance their comprehensive literacy.

The second is to design the content of digital-intelligent general education courses at different levels. University teachers should divide general education courses into basic, core, and extended application levels according to students' cognitive laws and the talent demands of the digital intelligence era, thus ensuring the progressive nature of the content of general education courses in universities. The basic level mainly takes general knowledge of digital intelligence technology and data security as the core content for students to learn, aiming to help students consolidate the dual foundation of knowledge and values. The core level focuses on integrating with humanities, social sciences, art, sports

and other disciplines, and takes the integration content of general education and these disciplines as the curriculum core, in order to broaden students' interdisciplinary vision and cultivate their interdisciplinary thinking. The extended application level focuses on taking the application of generative AI as its main curriculum content, aiming to guide students to follow the development trends of the digital intelligence era and further strengthen their innovative and practical abilities.

The third is to restructure the teaching methods of digital-intelligent general education courses. On the one hand, university teachers can actively adopt emerging teaching methods such as project-based teaching and case-based teaching to guide students to take initiative in the learning and practice of general education courses, thus cultivating students' autonomous learning ability and innovative thinking. On the other hand, universities should also make full use of digital intelligence technology such as online teaching platforms, and introduce an online-offline blended teaching mode. By combining the richness of online resources with the interactivity of offline teaching, they make efforts to break the time and space constraints of traditional general education course teaching, provide students with a more abundant learning experience, and help students enhance the effectiveness of their general education course learning, thereby effectively empowering the construction and practice of a university general education education system enabled by digital intelligence.

3.3 Strengthen the Construction of General Education Faculty and Uphold the Backbone of General Education

Strengthening the construction of general education faculty is the main guarantee for the practice of digital intelligence empowerment in a general education system in universities.

First, in view of the shortcomings of general education teachers in applying digital intelligence technology, a differentiated training and education for teachers should be intensified. For teachers with weak digital intelligence technology foundations, basic training courses should be offered, focusing on basic concepts of digital intelligence technology, operation of common digital intelligence teaching tools, and data analysis, in order to help teachers master basic skills of digital intelligence teaching and enhance their digital intelligence literacy. In contrast, for teachers with certain digital intelligence technology foundations, advanced specialized training should be provided, especially focusing on the integration methods of digital intelligence technology and general education courses, the curriculum design and innovation based on digital intelligence technology, and the teaching evaluation using digital intelligence technology, so as to comprehensively enhance teachers' ability to optimize teaching with digital intelligence technology. This approach can provide solid talent support for the construction and practice of a general education education system empowered by digital intelligence.

Second, it is essential to promote the establishment of interdisciplinary teaching teams to form a joint force for collaborative education. On the one hand, universities need to break down disciplinary barriers among departments, and establish interdisciplinary and cross-field general education teams to actively recruit teachers from various fields such as humanities and social sciences, science and engineering, and information technology to conduct collaborative lesson preparation and teaching, thereby achieving complementary advantages between technical strengths and general education. On the other hand, universities should set up seminar groups on digital-intelligent general education, and encourage interdisciplinary teachers to conduct special discussions and exchanges on digital-intelligence empowered general education in universities. In these seminar groups, teachers from different disciplinary backgrounds will be guided to share their experience and insights in the application of digital intelligence technology and general education, and jointly explore new paths and methods for the integration of digital intelligence technology and general education. Through this way, it will further enhance teachers' abilities and levels in using digital intelligence technology to empower general education, and inject vitality into the improvement and development of the university general education system.

Third, teachers should be encouraged to engage in academic research related to general education. Universities should actively create a favorable atmosphere for academic research, and provide teachers with opportunities and platforms to participate in academic research on general education, so as to promote teachers to concern the theoretical achievements and latest development trends of general education at home and abroad, and to actively explore new theories, models and methods of general education empowered by digital intelligence. This will not only continuously broaden the academic vision and teaching ability of teachers, but also help the general education system in universities achieve connotative upgrading^[5].

4 A Practical Case of the General Education System in Universities Empowered by Digital Intelligence

Yanshan College of Shandong University of Finance and Economics closely follows the educational orientation in the digital intelligence era, and has created a distinctive paradigm of digital intelligence-empowered general education with "AI empowerment + general education for soul-shaping" as the core concept.

First of all, in terms of the construction of digital-intelligent teaching resources, the university focuses on leveraging

mature existing teaching platforms such as Chaoxing Fanya and Rain Classroom to comprehensively plan and to establish a general education MOOC resource library covering undergraduate and junior college courses. In practical teaching, teachers release learning materials, organize student interactive discussions, assign tasks and homework, and utilize automatic grading and academic analysis functions on these platforms. As a result, the repetitive workload of teachers is effectively reduced, and teachers focus on the resource construction for the general education system in universities empowered by digital intelligence. Meanwhile, this university actively integrates open resources from the state and mainstream media. For instance, it introduces free, compliant and easily accessible digital intelligence resources like the "Red Classics" on the National Smart Education Platform and the popular science and culture columns on "Xuexi Qiangguo" to empower the construction of its general education system. This helps to enhance the effectiveness of digital intelligence-empowered general education in universities.

Secondly, in the perspective of the reconfiguration of the curriculum system, this university makes bold innovations to build a comprehensive digital-intelligent general education curriculum matrix. It always adheres to the development service philosophy of "starting from the fundamentals" and "student-centeredness", and systematically integrates and develop a diverse range of digital resources covering categories such as finance-specific courses, labor education, ideological and political courses, traditional culture, career planning, aesthetic education courses, and physical health care. On this basis, the university focuses on empowering general education through professional learning, and collaboratively supports interdisciplinary immersive teaching. It effectively solves the pain point of disconnection between traditional general education courses and professional courses, and provides a highly valuable practical example for other universities to empower their general education systems with digital intelligence.

Thirdly, regarding the construction of general education faculty, the university's academic affairs office jointly organizes a special training session themed "AI-empowered Smart Curriculum Development and Innovative Practice of Teaching Modes" with the Chaoxing Fanya Group for in-service teachers. This session focuses on digital application and the enhancement of digital awareness, and guides teachers to deeply understand the urgency of AI technology empowering general education courses and master the practical operation of digital intelligence tools in general education classrooms. It comprehensively strengthens the basic skills of teachers in digital intelligence education, and thus promotes the transformation of in-service teachers' roles from traditional knowledge lecturers to digital intelligence teaching designers. At the same time, based on the multi-dimensional behavioral data (attendance, assignments, interactions, etc.) collected from the university's educational administration system and digital teaching platform, the university fully builds a process evaluation dashboard for general education courses, thereby gradually guiding general education teachers to develop the ability to "drive teaching improvement with data".

5 Conclusion

The construction and practice of the general education system in universities empowered by digital intelligence is an innovative educational reform initiative. In the future, universities should further deepen the integrated practice of digital intelligence technology and general education, gradually improve the general education system in universities, and enhance the quality of education, thereby promoting the high-quality development of university education.

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