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Exploration on the Path of Deep Integration of Intelligent Technology and Campus Culture

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Abstract: This paper conducts an in-depth discussion on smart campuses, systematically expounds their definitions and characteristics, analyzes the paths and impacts of integrating technology with campus culture, explores the transformative role of smart campuses in campus life, and examines the challenges they face. It aims to reveal the development laws and value of smart campuses in the field of education, providing theoretical references and practical insights for promoting the healthy and sustainable development of smart campuses.

Keywords: Intelligent technology; Campus culture; Deep integration; Path exploration

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1. Introduction

The new technological revolution and the Internet revolution are exerting extensive and far-reaching impacts on global education. With the growing popularity of artificial intelligence (AI), an information-driven lifestyle has gradually permeated every aspect of our lives. As hubs for knowledge exchange in education and teaching, as well as centers for talent cultivation, university campuses are inevitably stepping into the AI era alongside the tide of the times [1]. The construction of AI-powered campuses is not a simple process of technological superimposition, nor a mere confrontation or conflict between technology and culture. Instead, it is a process where technology serves and drives education, and scientifically reshapes campus culture. From the perspective of how smart campuses transform campus life and further influence the evolution of campus culture, conducting in-depth observation, analysis, and reflection on the changes in university campus life and the impacts on campus culture will provide certain guiding significance for the transformation and innovation of future education [2].

2. Innovations brought by intelligent technology to campus culture

2.1. Reshaping the dissemination channels of campus culture

Traditional ways of disseminating campus culture mainly rely on campus radio, notice boards, school newspapers, and publicity columns, which have limited reach, slow information updates, and a lack of interactive

functions. The emergence of intelligent technology has completely changed this situation. Social media and smart terminals have become carriers for spreading campus culture. Schools can instantly publish content such as campus cultural activities, academic salons, and the achievements of teachers and students on WeChat Official Accounts, Weibo, and short-video platforms. Additionally, the application of intelligent voice assistants and intelligent recommendation algorithms enables targeted delivery of cultural information, making the dissemination more precise [3].

2.2. Enriching the presentation of campus cultural content

Artificial intelligence has opened up new possibilities for presenting campus cultural content [4]. Virtual school history museums built with VR technology allow visitors to immerse themselves in the school's history. Through 3D models, panoramic displays, and the restoration of historical scenes, major events and stories of important figures in the school's history are presented more intuitively, deepening students' understanding of the school's historical culture. AR technology, which adds virtualized information to real-world scenarios, can make campus cultural content more engaging. For example, during campus cultural activities held on traditional festivals, AR-based activities can be organized to enhance fun; or AR can be used in historical sites to display background information related to those sites, helping students gain a deeper understanding of historical contexts and real-life situations. In short, AI applications in creating poetry, paintings, and music provide new directions for presenting campus cultural content and inspire new ideas for teachers and students in cultural creation.

2.3. Promoting innovation in campus cultural activities

The innovation of campus cultural activity forms is inseparable from intelligent technology. A single mode of participation has long been a problem for students in traditional campus cultural activities, but the application of intelligent technology can expand the participation forms of traditional activities [5]. Firstly, AI technology analyzes students' information and behavioral data to form data portraits based on their interests and hobbies, enabling precise activity recommendations to boost students' enthusiasm for participation. Secondly, intelligent technology can facilitate innovation in activity formats, such as combining online and offline cultural events, or experiential activities based on virtual reality technology. For instance, in online poetry contests held by universities, students participate in quizzes via mobile phones or computers. The system counts students' participation in activities in real time and ranks those who have answered more questions correctly. This not only enhances the fun of the activities but also encourages more students to participate [6].

3. Challenges in the in-depth integration of intelligent technology and campus culture

3.1. Difficulties in matching technology with educational goals

With the development of intelligent technology, its application scenarios have been continuously expanding. However, in the process of campus culture construction using intelligent technology, there is a phenomenon where technology does not align with the educational goals of teaching and learning. Some schools pursue advanced technology and blindly introduce intelligent devices and systems without matching them with relevant activity contents based on the purpose of technology, leading to a separation of technology from educational and teaching practices [7].

3.2. Dilemma of uneven distribution of educational resources

The popularization and application of artificial intelligence require certain support in terms of hardware, networks, and talent, which has widened the gap in educational resources between regions and schools. Economically developed regions and first-class universities have relatively superior educational resources, enabling them to invest heavily in developing intelligent campuses, providing various advanced intelligent hardware devices, and organizing rich intelligent campus cultural activities. In contrast, economically underdeveloped areas and ordinary schools, due to insufficient economic conditions, lack intelligent hardware equipment and have poor network conditions, making it difficult to carry out the practice of intelligent campus culture. This results in an imbalance in the distribution of educational resources, which is not conducive to the in-depth integration of artificial intelligence and campus culture, nor to the shared access of intelligent campus culture by all, further exacerbating educational inequity.

3.3. Difficulties in teachers' adaptation to role transformation

In the in-depth integration of intelligent technology and campus culture construction, teachers are transforming their roles from traditional knowledge transmitters to learning assistants, which places higher demands on them. On one hand, at present, some teachers have a low level of mastery of intelligent technology, lack relevant training and practical experience, and thus cannot organically integrate intelligent technology into teaching for campus culture construction. On the other hand, teachers need to change their educational concepts and adapt to teaching models in an intelligent teaching environment. With the support of intelligent technology, students have diversified channels to acquire knowledge, so teachers must pay more attention to cultivating students' abilities such as independent learning and innovation, which puts forward higher requirements for their teaching methods and instructional design [8].

4. Specific paths for the in-depth integration of intelligent technology and campus culture

4.1. Building an intelligent campus culture platform

The construction of an intelligent campus culture platform requires a multi-dimensional approach, creating a comprehensive digital carrier that integrates resource integration, intelligent services, and interactive communication.

In terms of resource integration, the platform should not only include all cultural resources, such as school history materials, publications, and artistic works by teachers and students, but also utilize cloud computing for large-scale data storage and management. Additionally, it should apply natural language processing technology to tag resources by category, making it easier for teachers and students to search. For example, students can quickly access videos of the school's cultural activities in recent years or the academic research achievements of distinguished alumni by entering keywords [9].

Intelligent services on the platform are driven by big data analysis technology and artificial intelligence algorithms. The platform collects data on teachers' and students' academic and daily lives, analyzes their interests and behavioral habits, and pushes personalized campus cultural services. For instance, it can send information about on-campus reading clubs or author lectures to students interested in literature, and notify teachers and students with a passion for technology about lab openings or technology competitions. Furthermore, the platform can feature an AI customer service that uses semantic recognition technology to instantly respond to queries

related to cultural activities and resources.

The interactive communication section aims to break the bottleneck of one-way campus culture dissemination, fostering a cultural ecosystem where teachers and students co-construct, share, and evaluate content. Teachers and students can post cultural and creative works, establish online cultural discussion clubs, and like, comment on, or forward such works. Meanwhile, the platform integrates VR and AR technologies to build a virtual cultural community, allowing teachers and students to participate in cultural exhibitions, salons, and other events online through avatars. This enhances the sense of presence and interactivity in cultural experiences, further boosting the vitality and cohesion of campus culture [10].

4.2. Launching intelligent campus cultural activities

To develop intelligent campus cultural activities, it is necessary to make good use of technologies such as VR (Virtual Reality), AR (Augmented Reality), and AI (Artificial Intelligence) to enrich students' immersive and diversified forms of campus cultural activities. With VR technology, major events in the campus history or representative scenes of various historical periods can be made into an immersive "cloud campus history tour" cultural activity for students. With the help of 3D modeling and scene restoration technologies, students can watch the changes of school history as if they were there and feel the pulse of history. In addition, world-famous painting exhibitions can be introduced into the campus. Through VR high-definition three-dimensional display technology, world-famous art and cultural resources can be opened for free, breaking the limitations of time and space, allowing students to improve their appreciation level through the most realistic observation [11].

AR technology can also be applied to campus cultural festivals. According to different forms of campus cultural festivals, AR task points can be set in different locations, such as teaching buildings and playgrounds. During the activities, students can click on the AR icon on their mobile phones to watch AR videos related to the theme of the campus cultural festival, such as animations, poems, and historical cultures. Or they can click and scan the corresponding cultural AR landmarks to watch cultural videos. After completing the tasks, certain points will be given, which can be used to exchange for cultural souvenirs, thus stimulating students' enthusiasm for participation.

Based on students' interests and activity time, the school uses AI algorithms to compare and screen, and actively pushes personalized campus activity plans to students. For example, students who like music are recommended to participate in campus singer competitions and music appreciation activities. Relying on AI image recognition and speech recognition, online creative design activities such as "I Love My Home" and poetry recitation competitions can be carried out, and automatic evaluation and intelligent comment work of entries can be completed, making the activities more efficient and professional, and endowing campus cultural activities with the characteristics of the times and charm.

4.3. Strengthen the integration of intelligent technology and humanistic education

From the perspective of curriculum development, schools can incorporate interdisciplinary knowledge such as artificial intelligence ethics, digital culture, and art into their curriculum design. This will guide students to consciously reflect on and address ethical issues arising from intelligent technology, as well as the lack of a humanistic spirit. For example, when students encounter traffic accidents involving autonomous driving, they can rethink the problems in artificial intelligence: What choices did AI make? What path did it take? A notable example is understanding and grasping the art and technology of AI. Through digital art courses, for instance, students can use artificial intelligence to create paintings, music, and other works, while pondering

the connotations and emotional experiences carried by these technology-created artworks. In daily teaching of humanistic education, intelligent technology can enrich the forms of humanistic education. For example, virtual reality technology can be used to recreate historical scenes, allowing students to "immerse" themselves in ancient historical and cultural contexts, deepening their perception and understanding of ancient history and culture. Intelligent learning analysis technology can be used to mine students' learning trajectories, providing data references for teachers' personalized humanistic education. For instance, different students have different reading interests, and teachers can recommend ancient classic literature that interests them, supplemented by AI intelligent guidance to help students better understand the text content.

In campus cultural activities, events themed "AI + Traditional Culture" can be organized. For example, AI ancient poetry creation competitions based on natural language processing technology can be held. Students use artificial intelligence to generate ancient poems, and teachers then interpret the humanistic value and cultural connotations, which not only stimulates students' enthusiasm for learning traditional culture but also allows them to experience the value creation brought by the application of artificial intelligence. Additionally, activities such as moral councils and digital civilization exhibitions featuring new artificial intelligence technologies can be carried out to help students establish correct values and views on nature [12].

4.4. Enhance teachers' ability to apply intelligent technology

The development of teachers' ability to apply intelligent technology is a comprehensive, hierarchical, and gradient training process. Firstly, design training strategies at the top level and create a classified training model. Different training contents should be designed according to disciplinary characteristics and teachers' teaching age stages, and new teachers can be stratified and classified by experienced backbone teachers [13]. For new teachers, training can focus on the preliminary use and basic application of intelligent teaching-related hardware and software. For experienced backbone teachers, in-depth studies can be organized, including artificial intelligence-assisted teaching, enabling them to design artificial intelligence-assisted teaching based on specific problems and help them develop suitable teaching models using these intelligent technical means. In terms of training methods, a combination of "online + offline" approaches can be adopted. Online MOOC courses can be the mainstay, fully considering their autonomy and flexibility, and providing teachers with opportunities and time for self-study. Offline methods such as centralized training and workshops can be used, with "famous teachers" and "experts" invited to guide offline training and workshops, helping teachers share excellent experiences and exchange ideas to improve their ability to apply intelligent technology [14].

Secondly, design incentive systems to form an effective learning incentive mechanism, stimulating teachers' motivation to improve their ability to apply intelligent technology through application mechanisms. For example, "incorporating teachers' intelligent technology application level into the teacher title evaluation system" and "school annual performance evaluation system" can be set up, and preferential treatment can be given in title evaluation and performance assessment to teachers who perform well in intelligent technology teaching and intelligent construction of campus culture [15]. In addition, combined with teachers' teaching age, schools can establish special funds for teachers' intelligent technology teaching innovation, encouraging teachers to actively engage in teaching reform practice and exploration. Schools can learn from teachers' cases of in-depth integration of intelligent technology and teaching, such as how to deeply integrate intelligent technology with campus culture and how to create intelligent scenarios to improve teaching innovation. Teachers with outstanding innovative practices should be promoted, and a good atmosphere should be formed for building new education models and sharing teacher resources.

5. Conclusion

The in-depth integration of intelligent technologies and campus culture is not only a requirement of the times but also an inevitable need to deepen the construction of campus culture and promote the all-round development of students' qualities. At the same time, it inevitably faces problems in aspects such as technical matching, resource allocation, and the transformation of teachers' roles during the in-depth integration process. Based on this, under the guidance of the overall thinking, approaches such as building an intelligent campus culture platform, implementing intelligent campus cultural activities, strengthening the integration of intelligent technologies and humanistic education, enhancing teachers' training in the application of intelligent technologies, and improving the guarantee of educational policies and regulations have laid down specific and referential paths for advancing the in-depth integration of intelligent technologies and campus culture.

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