The Use of Educational Technology Platforms in the Management of Chinese Colleges and Universities: A Post-Epidemic Example

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ABSTRACT

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COVID-19 Deployment of technology-based learning systems has grown exponentially in this setting, and Chinese universities and colleges' management practices have changed significantly because of the historic impact on the world educational system brought about by the pandemic. The current status of teaching education platforms in post-pandemic Chinese college and university governance is the main focus of this research, which also deeply investigates their particular applications in teaching management, student management, administrative management, and other fields.

KEYWORDS:

Post-pandemic era; Educational technology platforms; Colleges' management; Student management; Administrative management; Teaching management; Chinese Colleges

1. INTRODUCTION

Tertiary education institutions around the world, especially in China, have been significantly impacted by the COVID-19 pandemic. Universities quickly transitioned to remote management and online learning during the epidemic, mainly depending on education technology (EdTech) platforms. (Xiao, 2024) These platforms remain central to university management after the epidemic, providing new avenues for gains in efficiency and digitalization.

2. APPLICATION OF EDUCATIONAL TECHNOLOGY PLATFORMS IN UNIVERSITY MANAGEMENT

2.1 Teaching Management

Online teaching platforms such as Zoom and Tencent

Conferencing, which are holistic in their features and encompass a range of teaching functionalities, including live lectures, homework and submission of assignments, and online tests, were utilized on a large scale by Chinese universities as a countermeasure to the forced halt of offline learning during the special period of the pandemic.

The blended learning model, which combines the strengths of online and offline teaching, is the mainstream teaching approach in Chinese colleges and universities since the normalization of epidemic prevention and control. (Xiao, 2024) Offline teaching under this mode emphasizes direct contact and communication between teachers and students, and uses activities like group discussion and practical operations to develop the communication and practical skills of students. Online instruction relies partly on education technology platforms, which allow students to schedule their study time in a flexible manner, constantly view instructional videos, and make their knowledge simpler.

2.2 Student Management

Educational technology platforms are required and essential in the field of student management for colleges and universities

in the current digital era. With its strong capabilities, the Student Information Management System (SIMS), one of their fundamental elements, offers students' academic performance and personal information in real time. (Wu et al., 2022) The system significantly benefits the teachers and the school administration to learn about students' study status easily by helping them find out the students' study dynamics at any time. This includes understanding the students' learning progress in a particular course, the achievement of assignments, and the pattern of grades by stage.

Furthermore, data analytics techniques have proven to be very useful in student administration. These tools thoroughly mine and analyze the vast amounts of data that have gathered in the student information management system with the use of sophisticated algorithms and big data processing technology. It is possible to precisely identify students who are struggling academically by using multi-dimensional profiling of student learning data, such as study time distribution, question-answer accuracy, course attendance, etc.

Institutions and instructors can offer direct, intense support once identified. Teachers can give individualized learning assistance to kids who use unsuitable learning styles, and schools can create life guidance or psychological guidance for students whose learning is influenced by family issues or other issues. Such data-driven, customized support can better address the specific needs of every student, alleviate learning challenges, and enhance learning results—all highlighting the significance of education technology platforms in maximizing the management of students and fostering the overall development of students.

2.3 Campus Governance

Campus resources can now be used more effectively and logically thanks to the intervention of educational technology platforms. Using the digital campus system as an example, it functions similarly to an intelligent center that accurately monitors and combines all campus resources. School administrators can use the system to see how campus resources, such as teaching and experimental equipment, library books, site facilities, and more, are distributed and used in real time. For instance, the system can accurately document the purchase date, frequency of use, maintenance history, and present condition of any piece of instructional equipment. (Qin, 2024) By using this data, administrators may logically plan the deployment and replacement of equipment based on the

demands of instruction and the equipment's current state, preventing waste of unused resources and increasing equipment utilization.

The education technology platform exhibits identically significant benefits in terms of people management. The school is able to centralize and digitally manage staff and student information with the aid of a sophisticated personnel management system. The system handles all aspects of information management for teaching personnel, including hiring, onboarding, training, performance reviews, and termination. The school can evaluate staff performance more objectively, provide an empirical foundation for salary adjustments, title promotions, etc., and encourage staff to work harder and more efficiently by analyzing data on teaching accomplishments, research performance, work attendance, etc. (Qin, 2024) In order to provide students with more individualized educational services and development guidance, we are able to evaluate behavioral data in addition to academic performance and attendance data. This allows us to better understand students' interests, social activities, and other characteristics.

3. ADVANTAGES OF EDUCATIONAL TECHNOLOGY PLATFORMS

3.1 Enhanced Management Efficiency

Traditional university administration procedures are frequently laborious, intricate, and heavily manual. In addition to being ineffective, manual work is also prone to mistakes. For instance, carelessness in the manual computation and entry of grades throughout the grade statistics process may result in data inaccuracies that impact significant issues like the academic and scholarly rating of students.

An efficient remedy for these issues is offered by the rise of educational technology platforms. College and university administrative processes have been thoroughly streamlined with the aid of cutting-edge technology. The digital system can achieve the centralized storage and effective management of student data, using the student data management process as an example. (Ren et al., 2023) Teachers can use the system to immediately record students' attendance in daily management, and the system will automatically generate statistics and analysis. After finishing the exam grading, teachers only need to enter the results into the system to control the performance of their students. The system will then swiftly finish the results synthesis, ranking, and other data analysis.

More significantly, the education technology platform reduces manual work and minimizes the error rate. Human energy and attention are restricted in traditional manual processes, therefore error prevention is challenging. (Ren et al., 2023) In contrast, the digital system relies on pre-programmed algorithms and data processing programs, which ensure that the processing results are accurate as long as the input data is valid.

3.2 Promotion of Educational Equity

Online learning platforms have emerged as a means of bridging economic and geographic divides, removing barriers to high-quality educational resources and giving students from diverse backgrounds access to cutting-edge teaching and learning tools. Numerous instructional resources spanning all topic areas and educational levels are gathered on these portals. (Zhu & Pongtornkulpanich, 2024) The vast and varied curriculum satisfies the learning demands of many pupils, ranging from professional training materials of renowned educational institutions to top-notch courses from top universities, from engaging and dynamic animated courseware to in-depth academic lectures.

For example, in previous decades, pupils' ability to master specific courses was severely limited in some isolated mountain schools because of a lack of qualified teachers. Students can now acquire cutting-edge teaching strategies and knowledge systems by watching videos of lectures given by renowned educators from throughout the nation thanks to the online learning platform. In order to resolve issues that arise throughout the learning process, students may communicate with lecturers via the online interactive feature. In addition to increasing pupils' knowledge, this method piques their curiosity and inspires them to learn.

In addition to offering substantial support for closing the educational gap between urban and rural areas, regions, and different classes, online learning platforms democratize access to high-quality educational resources and play a significant role in China's efforts to promote educational fairness. (Zhu & Pongtornkulpanich, 2024) It is anticipated that e-learning platforms will contribute more to the promotion of educational fairness in China as long as technology continues to advance and platform optimization continues.

3.3 Facilitation of Educational Innovation

Virtual reality (VR) technology has grown increasingly prevalent in college courses to offer an immersive learning environment for students, and online and hybrid learning have become the standard in the post-epidemic period. Students in language learning courses appear to be in the actual environment of the target language nation thanks to virtual reality technology. By eliminating time and location constraints, this immersive learning environment significantly increases students' motivation to learn and expands the scope of language acquisition beyond books and classrooms.

With its strong data processing and analysis capabilities, artificial intelligence (AI) technology offers data-driven teaching insights for higher education instruction. Teachers can precisely grasp each student's learning habits, knowledge mastery, and learning progress by extensively analyzing the many types of data that the AI learning analytics system gathers from students during the learning process. Because AI can thoroughly analyze all types of data in the teaching process and give teachers detailed instructional feedback, it also plays a significant role in evaluating the effectiveness of instruction.

The teaching report produced by AI gives teachers a clear understanding of which aspects of the curriculum are challenging for students to understand and which teaching techniques are more successful. This allows them to promptly optimize their teaching strategies and content.

These cutting-edge VR and AI apps have significantly increased student engagement and the educational impact. Students' interest in learning is fully stimulated and their active engagement in learning is greatly increased in the immersive learning environment that virtual reality creates. Students believe that learning is more focused and can better match their own learning needs thanks to AI's accurate teaching feedback and personalized learning support, which boosts their self-esteem and sense of learning accomplishment.

4. CHALLENGES FACING EDUCATIONAL TECHNOLOGY PLATFORMS

4.1 Insufficient Technical Infrastructure

The inadequacies of network infrastructure have thwarted this lovely vision, despite the fact that numerous schools and universities have aggressively implemented a variety of educational technology platforms in the hopes of increasing the effectiveness and caliber of education through online teaching and administration. (Xu & Margeviča-Grinberga, 2022) Due to the constraints of geographic location and economic development, certain schools and universities in remote places are comparatively lagging behind in the establishment of their networks. (Chen & Zhang, 2022) It is challenging to

accommodate the demands of several professors and students who want to learn and run their businesses simultaneously due to the constrained network bandwidth. Dropping and lagging are common during online instruction. Students' learning experience is significantly diminished by teachers' frequently interrupted and delayed live lectures, as well as by interactive interfaces and teaching films that load slowly.

4.2 Data Security and Privacy Concerns

The educational technology platform gathers and keeps a lot of private data about teachers and pupils during regular operations. Teachers and children may suffer grave consequences if these private details are disclosed. The personal life and studies of students can be negatively impacted by the rise in harassing phone calls and misinformation due to the revelation of personal information. (Chen, 2022) Academic information leaks, such as intentional tampering or early test score leaks, can compromise the fairness of education by destroying students' level playing fields. Research findings and performance leakage in teaching can present intellectual property challenges for teachers that will ruin their reputation and advancement. Further, unwarranted disagreements and inconvenience may result from exposure of facts related to payment and compensation. (Liu et al., 2021)

5. FUTURE DIRECTIONS FOR EDUCATIONAL TECHNOLOGY PLATFORMS

5.1 Strengthening Technical Infrastructure

A key to maintaining the uninterrupted operation of the education technology platform is the optimization of server service utilization. As the server constitutes the main piece of hardware being used to keep and process information, its capacity affects the reaction time of the platform and security of data directly. (Chen, 2022)Their long lifespan and comparatively old architecture tend to create problems like slow response and data loss while processing large amounts of data requests on their servers, which are prevalent in certain schools and universities.

The company concentrates on enhancing equipment and administration maintenance as well as network infrastructure and server operations. A skilled technical group has been hired to handle the everyday check, maintenance, and troubleshooting of servers and network devices. For such issues to be identified and resolved instantly, an overall equipment maintenance plan has been designed to regularly check, maintain, and update servers and network devices.

5.3 Enhancing Data Security Measures

One of the most essential lines of defense in data security is access control systems. It strictly regulates which staff members have operational rights to the data and who can read what data. Staff members taking on alternate identities within the educational technology platform have varying data needs within a university setting. Administrators may need to view full student data to manage enrollment and allocate school resources. While administrative staff can only see specific student management information in their domain, instructors can only look at and process student information for the courses they are teaching. (Liu et al., 2021) This significantly diminishes the risk of loss of data and successfully prevents unauthorized access to information.

To completely ensure data security, schools and universities must have a clear-cut policy on data use and storage management besides relying on technical measures only. To prevent over-collection and abuse, a university has devised a comprehensive data use policy that mandates data use in line with the "minimization principle," i.e., data will be used only in the required business extent. There are also specific data storage policy guidelines that mandate information to be classified and stored according to its security level.

6. CONCLUSION

In China, educational technology platforms have now become a necessary tool in the post-epidemic era and have been deeply embedded in university administrative systems. They have deepened the benefits of management and teaching by enhancing administrative efficiency and broadening online teaching. However, they have faced other obstacles, including data security and technical constraints, that have hampered them. The platform's user experience is impacted by network bandwidth and server performance limitations in certain colleges and universities; data security concerns have also created a great deal of anxiety.

Universities must adopt a holistic strategy to leverage the benefits of the platform. Invest more in infrastructure, improve servers and networks, increase the rate at which teachers and students adopt technology and data security consciousness, and enhance data security protocols. Colleges and universities can leverage education technology platforms in this way to efficiently enable digital transformation, automate instruction

and management, and thereby improve student learning outcomes while reviving the high-quality development of higher education.

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