

Reflections on the Reform and Innovation of University Teaching in the Context of “Internet Plus”



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Abstract: University Teaching shoulders the mission of cultivating high-quality talents, with the growth of social demand for innovative and practical talents, the teaching mode of colleges and universities urgently needs to be transformed to adapt to the ever-changing educational environment. Through the introduction of “Internet +” teaching mode, colleges and universities can not only improve the quality and efficiency of teaching, but also improve the distribution of teaching resources, and realize the universalization of quality education. This paper discusses the reform path of teaching in colleges and universities under the background of “Internet+”, explores the innovative application of information technology in teaching from the aspects of learning mode, teaching resources sharing, personalized teaching and interactive platform, analyzes its potential value for enhancing teaching effect, and looks forward to the further development direction of teaching mode in the future.

Keywords: internet; colleges and universities; teaching; reform and innovation

Introduction

The innovation of information technology has led to a major shift in teaching resources, teaching methods and learning evaluation system, and traditional classroom teaching is being replaced by a diverse and flexible online-offline hybrid mode, and the interaction between teachers and students has gradually transcended the limitations of physical space. Internet technology not only provides richer teaching resources and real-time interactive tools, but also helps teachers to accurately grasp the learning dynamics of students through big data analysis, which provides the possibility of personalized teaching, and the reform of college teaching is particularly important in this context.

1. The Impact of “Internet +” on Teaching in Colleges and Universities

1.1 Diversification of learning modes

“Internet +” college teaching mode brings diversified learning mode options and experience,

traditional classroom teaching is teacher-centered, emphasizing the transmission of knowledge, but in the context of “Internet +”, the learning mode is more flexible and student-centered, through a variety of In the context of “Internet+”, the learning mode is more flexible and student-centered, and the limitations of time and space are broken through various technical means (Sun, 2022). Online learning platforms, Massive Open Online Courses (MOOCs), Small-scale Restricted Online Courses (SPOCs), etc. provide students with rich resources, enabling them to learn independently anytime and anywhere. The integration of social media, virtual learning communities and learning management systems also provides students with interactive learning opportunities, making the learning process no longer isolated but relying on multi-party exchanges and collaborative development, enhancing students' participation and learning experience, and this model encourages students to choose learning content according to their personal interests and progress,

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forming a personalized learning path tailored to their needs. Meanwhile, the blended learning model has gradually become popular in practice, and through the combination of online and offline, it realizes the design of diversified teaching activities, so that students can obtain face-to-face guidance, but also through online resources for in-depth learning, which promotes the internalization of knowledge and the enhancement of application ability (Hong, 2021).

1.2 Sharing of teaching resources

The rapid popularization of “Internet +” has promoted the sharing process of teaching resources in colleges and universities, making the access to teaching resources more convenient and richer in content. In the past, teaching resources in colleges and universities were mostly confined to the campus, and they were obtained through classroom lectures and library access, etc., while the “Internet +” background has centralized the presentation of quality teaching resources worldwide on the digital platform, breaking the inter-campus and geographical limitations (Zhang, 2021). “background of the global scope of high-quality teaching resources in the digital platform to focus on the presentation, breaking the inter-campus and geographical restrictions (Zhang, 2021). The establishment of online resource libraries, open educational resources (OER) and academic databases enables students and teachers to easily access world-class courses, research materials and multimedia learning materials, thus significantly expanding the breadth and depth of teaching resources. Meanwhile, the sharing of multi-form resources such as video courses, live classes, electronic teaching materials and teaching case banks not only provides diversified learning materials, but also provides rich references for teachers' teaching design, thus promoting the optimization and innovation of course content. The sharing of teaching resources has also led to closer cooperation among colleges and universities, and new forms of teaching, such as cross-campus course selection and course alliances, have emerged, further enhancing the efficiency of resource utilization and the breadth of teaching (Fu, 2021). This open and shared resource environment empowers students to learn more independently, enabling them to explore knowledge according to their own needs and learning rhythms, greatly enhancing the autonomy and flexibility of learning, and providing strong support for the overall

improvement of the quality of teaching in colleges and universities.

1.3 Changes in the role of teachers

In the context of “Internet +”, the role of college teachers is changing from traditional knowledge transmitters to learning facilitators, guides and supporters, and this change stems from the deep integration of information technology in teaching and learning, where the teacher is no longer the only source of classroom knowledge, but is more likely to use technology to support students' independent exploration and knowledge construction (Han & Liu, 2020). Teachers need to be more diversified in this new teaching mode, not only designing flexible teaching programs, but also using online platforms, data analytics, and interactive tools to understand students' learning progress and needs in real time, so as to provide personalized guidance and feedback. Teachers also take on the responsibility of helping students develop digital literacy, guiding them to filter and apply knowledge in an information-based environment, and enhancing their critical thinking and independent learning abilities. Teachers' role change is also reflected in the integration and sharing of teaching resources, they not only need to act as knowledge integrators to effectively integrate all kinds of online resources into teaching, but also need to guide students to realize in-depth learning in the open resource environment.

1.4 Changes in learning evaluation methods

Learning evaluation of university teaching is undergoing profound changes, gradually shifting from the traditional single result-oriented evaluation to process, comprehensive and personalized evaluation, the traditional test results and final scores are no longer sufficient to fully reflect the student's learning situation, while the development of information technology has made the means of evaluation more diversified, the teaching platform is able to record and analyze the student's behavioral data during the learning process, such as learning progress, completion of assignments, frequency of classroom interactions, and so on. The teaching platform can record and analyze students' behavioral data in the learning process, such as learning progress, completion of homework, frequency of classroom interactions, etc. This data-driven evaluation allows teachers to more accurately grasp the learning status of the students, establish a

dynamic learning profile for each student, and comprehensively record their growth trajectory (Yan et al., 2019). At the same time, the real-time feedback function based on big data analysis provides students with timely suggestions for improvement, helping them to identify shortcomings in their learning and enhance their self-adjustment ability. Diversified evaluation forms such as online quizzes, project-based learning, discussion performance and teamwork are also included in the comprehensive evaluation system, so that students' performance in different learning dimensions is fully demonstrated. This diversified evaluation model not only emphasizes learning outcomes, but also focuses on the learning process and the development of abilities, which provides room for students' personalized growth and encourages them to actively participate in every aspect of learning and form self-driven learning habits.

2. Main Paths of University Teaching Reform

2.1 Digitalization and modularization of course content

The digitization and modularization of course content is mainly realized through the establishment of a digital teaching resource library, the design of modular knowledge units and the flexible assembly of teaching content to adapt to the personalized learning needs of students and promote the structured understanding of knowledge. Taking the “Fundamentals of Computer Science” course as an example, the path of digitalization and modularization is reflected in the hierarchical design of the course content, content management and flexible adjustment of personalized learning process. First of all, the course is divided into three levels: basic module, advanced module and extension module to meet the needs of students at different learning stages. The basic module includes core concepts such as computer principles and programming fundamentals, which are presented in the form of short videos, animations, and interactive exercises, so that students can complete the section in order to ensure a solid foundation. The Advanced Module, on the other hand, covers algorithms and data structures, operating system principles, etc. It is dominated by a problem-oriented learning unit that encourages students to apply what they have learned in real-world cases, for example, by writing simple

algorithms or simulating operating system processes to deepen their understanding. Second, the extension module provides an overview of cutting-edge technologies and self-selected hands-on projects, such as artificial intelligence fundamentals and blockchain technology applications, etc. These content modules allow students to freely choose and advance their learning independently according to their interests, thus forming a personalized learning path. To support efficient learning, the entire course is implemented through an intelligent learning platform, which not only digitizes the course content so that students can access learning resources anytime, anywhere, but also allows teachers and students to adjust the learning process on-demand through modular content design. For example, students can choose to unlock modules according to their learning progress and go deeper step by step, or complete cross-module knowledge reviews and comprehensive tests based on system recommendations. At the same time, the platform generates learning reports based on students' learning data in each module, providing teachers with data support for timely teaching adjustments and targeted feedback and counseling.

2.2 Diversification of teaching methods

The diversification of teaching methods in colleges and universities is mainly realized through the combination of online and offline, the introduction of interactive and contextualized teaching tools, and the use of data analysis and feedback to meet the diversified learning needs of students. Taking the reform of “Modern Chinese” course in a university as an example, the teaching team combined the “Internet+” means, combined the traditional classroom with digital resources and interactive learning platforms, and designed flexible and diversified teaching means. The course adopts the “flipped classroom” mode, in which students watch micro-videos and animated courseware made by the teacher through the online learning platform before class, so as to understand the theories and basic knowledge of linguistics in advance. In the classroom, the teacher is no longer a one-way transmitter, but organizes interactive discussions, case studies and group debates, guiding students to understand and apply course knowledge through concrete language examples. This mode changes the traditional teaching rhythm and makes the classroom

a place for knowledge application and deepened understanding. In order to increase learning engagement, the course also introduces diverse tools such as online quizzes and interactive question and answer sessions, such as real-time access to students' answers and feedback on their understanding through apps such as Nail, enabling teachers to better grasp the learning progress of each student. After each lesson, teachers will generate personalized feedback based on the platform's learning data analysis, providing customized guidance and resource recommendations for different students' learning weaknesses. The course also designs contextualized learning tasks, such as asking students to collect common examples of language misuse in life under the environment of "Modern Chinese", and to explore and reflect on them through group cooperation. This kind of practical task not only strengthens the students' ability to apply their knowledge, but also stimulates their interest in independent learning and research.

2.3 Data-driven personalized teaching

Data-driven personalized teaching in the teaching reform of colleges and universities mainly relies on big data analysis, intelligent learning platforms and real-time feedback mechanisms to achieve, through which path teaching can more accurately adapt to the learning needs of different students. Intelligent learning platform uses big data technology to collect and analyze students' learning behavior, knowledge mastery and learning preferences, generating a personalized learning portrait, providing teachers with a comprehensive and intuitive reference basis, and teachers can design differentiated teaching programs based on these data, tailor the content difficulty and teaching rhythm for students with different learning levels and interests, and realize truly personalized teaching (Sun, 2019). Secondly, with the help of artificial intelligence recommendation algorithms, the learning platform can automatically push learning resources matching students' needs, including videos, exercises, cases and extended reading, etc., to help students gain a deeper understanding and consolidate their knowledge. The real-time feedback system instantly monitors and evaluates students' performance in the learning process, transforming learning results into personalized feedback information, pointing out learning weaknesses in a timely manner, and guiding

students to make targeted adjustments. Teachers can also make timely adjustments to the content and progress of teaching based on the data feedback to provide more targeted tutoring for students. This data-driven personalized teaching path not only improves students' learning efficiency, but also greatly enhances the autonomy and enthusiasm of learning, making the education process more in line with the individual development needs of students, and promoting the development of university teaching in the direction of precision and intelligence.

2.4 Interdisciplinary teaching

Interdisciplinary teaching in the teaching reform of colleges and universities is mainly realized through the integration of resources, the construction of a multidisciplinary synergistic platform and innovative teaching methods. First of all, Internet technology provides a convenient resource sharing platform for the integration of knowledge from different disciplines, which enables the knowledge systems of various disciplines to be effectively integrated in teaching, forming a more comprehensive and holistic course content. Teachers are able to cross disciplinary boundaries and integrate teaching content related to different specialized fields through channels such as online resource libraries and open course platforms, so that students are exposed to diversified knowledge systems in the learning process (Ye, 2019). Second, colleges and universities have established interdisciplinary collaborative curriculum platforms and project-based learning mechanisms, so that students can experience the cross-fertilization of multiple disciplines in practical applications through teamwork and project-driven teaching methods. For example, students majoring in science and engineering may be involved in interdisciplinary projects involving business, management or design, etc., so that they can master cross-disciplinary thinking methods and technical tools in the process of solving practical problems. Meanwhile, the blended teaching model combining online and offline also promotes the implementation of interdisciplinary teaching. Students can learn the basic knowledge of other disciplines on their own through online learning platforms, while in class they engage in problem discussion and project exploration to deepen their understanding and application of knowledge.

This interdisciplinary learning path not only expands students' knowledge boundaries, but also cultivates their systematic thinking, innovative consciousness and cross-disciplinary collaboration ability, adapts to the future social demand for comprehensive talents, and opens up a new direction for the modernization of the teaching mode in colleges and universities.

3. Exploration and Practice of Teaching Innovation in Colleges and Universities

3.1 Online-offline hybrid teaching mode

By combining the digital platform and traditional classroom teaching, the online-offline hybrid teaching mode enhances the flexibility of teaching and students' participation in learning, in which students can make use of the online platform to do pre-study and post-study before class, while the classroom time is used for knowledge application, problem exploration and interactive communication, thus realizing in-depth learning. Taking the "Fundamentals of Management" course of a university as an example, the course adopts the hybrid teaching mode of "online self-study + offline seminar". Before the start of the course, students watch the micro-lesson videos elaborated by the teacher through the online learning platform to learn the basic concepts and theories of management, and assess the learning effect through online self-tests. The video content is broken down into a number of small modules, and each module is followed by test questions to help students self-test to ensure that they have mastered the necessary knowledge before class. In the formal classroom, the instructor organizes case studies and simulation activities based on the content of the pre-course videos. For example, the course is designed with a "Company Operation Simulation" session, in which students work in groups to simulate company management situations and deal with various operational challenges. Each group of students proposes a solution in class and compares and discusses it with other groups. This process not only consolidates students' theoretical knowledge, but also hones their analytical and communication skills. At the end of the class, students can view the teacher's comments and feedback through the platform, and can also have in-depth discussions with their classmates in the post-class discussion area, while the course data analysis function helps teachers to grasp the students' learning status in real time, and

to adjust the subsequent teaching content and methodology according to the learning situation.

3.2 Use of interactive teaching platform

The interactive teaching platform provides convenient technical support for the interaction between teachers and students through real-time interaction, Q&A, assessment, data analysis and other functions. Take the reform of "College English" course in a university as an example, the course introduced the Nail platform in teaching, which makes the classroom interaction more in-depth and flexible. Before the class, teachers upload the course focuses, pre-study materials, audio and video resources, etc., to the Nail platform, and the students study in advance through cell phones or computers to learn about the course content and lay a foundation for in-depth learning in the classroom. Lay the foundation for in-depth learning in the classroom. In the classroom, teachers use the real-time interactive function of Nail, combined with accompanying questions, polls and questionnaires, to grasp the students' understanding of the knowledge points, and in the process of explaining, teachers can launch interactive tests at any time, allowing students to instantly answer, so as to understand the mastery of the students in real time, and adjust the content of the explanations in a targeted manner. At the same time, students can also anonymously submit questions and feedback on the platform, and teachers can focus on answering questions in class or after class, creating a more open learning atmosphere. After the course, teachers gain insight into students' learning trajectories, quiz scores and engagement through the learning data analysis function provided by Nail, and provide students with personalized learning advice. This teaching mode combines interactivity, real-time and data analysis, enabling students to actively participate in the learning process and improving the quality of classroom interaction and learning effects.

Conclusion

In summary, the in-depth application of "Internet Plus" has provided a brand new path and possibilities for teaching reform in colleges and universities, from diversified learning modes to personalized teaching support, to the application of resource sharing and interactive platforms, these innovative means have laid a solid foundation for the improvement of the quality of teaching and promoted

educational fairness and the quality education of the Popularization. With the help of information technology, the teaching mode of colleges and universities is gradually moving towards a more intelligent and flexible future, which not only meets the personalized needs of students, but also stimulates the teaching innovation motivation of teachers. With the further development of technology, college education will continue to innovate with the support of the Internet, and cultivate more talents with comprehensive literacy and innovative thinking for the society.

Conflict of Interest

The authors declare that they have no conflicts of interest to this work.

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