

The Influence of Interactive Technology of Contemporary Classroom Software on University Teaching Practice

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Abstract: Contemporary classroom interactive software technology greatly impacts university practical education. This study adopts the research method of literature review and case analysis. Through extensive collection and analysis of domestic and foreign literature on classroom interactive software technology in higher education, it deeply understands its development history, functional characteristics, and current situation. Secondly, combined with specific teaching cases, this paper analyzes the use effect of these software technologies in the actual teaching process, the feedback of students, and the challenges faced and the basis. This article also explores how these interactive technologies will impact practical university education and how they have changed the learning environment. Through research, we also find that classroom interactive software technology is indeed helpful to improve teaching effect. Still, software technology needs to be used rationally, pay attention to balance, and ensure effective combination. Meanwhile, teachers also need to receive more professional training to ensure that they master relevant operational skills and teaching design principles.

Keywords: Interactive Technology, Artificial Intelligence, Teaching Innovation, Teaching Practice

1. Introduction

With the advent of the information age and the progress of IT, deep learning, huge computing power and the breakthrough of chip technology have promoted the rapid development of AI technology, and also promoted the innovation of classroom software interactive technology [1]. We are not concerned about the controversy of "whether classroom software interaction will replace the role of teachers", but how these emerging technologies are applied in teaching, so how do we better integrate the relationship between teachers and technology? Which provides a solid material foundation and technical support for the reform of teaching methods and teaching models. But has the actual application of emerging technologies in teaching improved the quality of teaching and learning efficiency as expected? The introduction of interactive technology in classroom software has undoubtedly brought a profound influence on teaching practice. These technologies not only enrich the teaching means but also provide students with a more intuitive learning experience and some cross-regional and cross-cultural communication, thus improving learning efficiency and interest. But are students' experiences and feedback authentic and improved? All these problems still deserve our attention and exploration.

In terms of the combination of artificial intelligence and teaching, Barnes T [2] showed that artificial intelligence can significantly promote the teaching of computer science, and teaching robots can also promote students' foreign language learning, that is, the use of artificial intelligence technology can optimize the teaching process, improve the teaching quality, and provide students with more diversified learning resources and paths. With the continuous emergence of emerging technologies, Wang Jia [3] pointed out that these technologies can be helpful in teaching, empowering the three dimensions of teaching subject, teaching process and teaching space, and promoting the all-round development of students. Wan Shan [4] further emphasized the importance of repetition and environment in language learning, believing that the application of teaching technology can create a stronger learning atmosphere for students, that is, the use of classroom software interactive technology to provide students with a richer and more authentic learning experience.

Through the collection and analysis of domestic and foreign literature on the application of classroom interactive software technology in teaching and its effects, this paper intends to study the following two themes: 1. Application and effect evaluation of emerging technology in teaching. 2. Integration strategy of teacher role and emerging technology. It is also hoped that research, can provide effective guidance and suggestions for schools and educational institutions, as well as provide new teaching methods and means for teachers to promote their professional growth and development. We will also further promote the modernization and informatization of education and teaching, and improve the educational level and quality of the whole people.

2. The role of interactive technology in classroom software

2.1. Efficient online interactive discussion and collaboration

With the advent and development of presentation software such as PowerPoint and Whiteboard (IWB), the way and content are taught at universities has shown significant differences compared to other grade levels. The content of university courses is more specialized and in-depth, involving in-depth research and discussion in a specific field [5]. To this end, teachers make full use of these software to produce a variety of courseware, and expand and deeply analyze knowledge points by embedding teaching resources such as video, audio, and graphics. At the same time, students are also asked to produce relevant presentations to demonstrate their learning outcomes at the midterm or end.

As a large-scale interactive screen, IWB can intuitively present a large amount of information such as graphics, equations, letters, text, pictures, and videos to students through touch screens or devices connected to laptops and projectors, as well as touch panels. This method not only improves the student's attention but also increases the amount of information output. In particular, its ability to visually demonstrate the dynamic processes of learning, such as the dynamic process of rays starting from a point and extending continuously, helps students understand abstract mathematical concepts more intuitively. In addition, IWB provides students with the opportunity to ask questions in class and discuss or answer them with teachers and classmates, making teaching more interesting and participatory [6].

Presentation software, such as PowerPoint and whiteboard, further facilitates discussion and collaboration among student groups through features such as screen sharing, real-time editing, and more. Multiple people can view and edit presentations at the same time, improving discussion efficiency and collaboration. At the same time, classroom software such as XueXiTong, Tencent Classroom, and DingDing also provide rich functional support for online learning. Teachers can check the attendance rate of students in time through the sign-in code automatically generated by the software, and use the random selection or rush answer function to mobilize students' enthusiasm and increase classroom interaction[5]. In addition, teachers and students can also post questions, discuss topics, upload class materials, etc., through this software, making learning more convenient and

efficient. The emergence and development of such classroom software have greatly enriched the teaching form and content of university classrooms, improved students' interest and participation in learning, further strengthened visual and auditory learning and promoted collaboration and communication among students.

2.2. Personalized development and learning path customization

Learning is a highly personalized process, the core of which lies in the learner's intrinsic motivation, cognitive ability and learning strategy. Similarly, teaching is no longer just a one-way transfer of knowledge but is transformed into an activity that supports learners to explore and develop according to their unique learning paths and processes [7]. In the era of rapid development of artificial intelligence, the interactive technology of classroom software is increasingly showing its characteristics of humanity, specialization and intelligence. These classroom software interactive technologies can not only effectively improve students' independent learning ability, critical thinking and teamwork ability, but also intelligently push customized learning resources and strategies according to learners' individual needs such as learning situations and interest preferences, to fully meet students' diversified learning needs.

The introduction of this technology has a profound impact on students' learning planning and progress. Through the real-time collection and analysis of learning data, the system can accurately grasp the learning status of students, provide accurate learning suggestions for learners, and help them achieve more efficient learning [8]. At the same time, these technologies also provide valuable teaching references for teachers, helping teachers to have a deeper understanding of students' learning needs and problems, to formulate more personalized teaching strategies and programs. Classroom software interactive technology can help teachers find students' learning difficulties in real-time and provide targeted help through intelligent analysis.

Through intelligent push learning resources and personalized learning paths, teachers can adjust the teaching content and methods according to the actual situation of students, achieve more accurate and effective teaching, and support teachers to efficiently manage and organize teaching activities to improve teaching efficiency and quality [5]. The interactive technology of classroom software, driven by artificial intelligence, is becoming an important force to promote educational change. It can not only meet the needs of students' personalized learning but also provide teachers with strong teaching support to jointly promote students' personalized learning outcomes and development.

2.3. Innovation of teaching evaluation and immediate feedback system

The teaching evaluation and feedback mechanism is also innovating and improving and realizing the transformation from the traditional single evaluation method to multi-dimensional and multi-angle evaluation [5]. In addition to traditional tests and questionnaires, interactive classroom software technology has introduced a variety of advanced assessment methods, including online real-time assessment, real-time Q&A, interactive voting, learning data analysis, and student self-assessment. Real-time online assessment provides teachers with the opportunity to quickly understand student learning and mastery through automated grading and instant feedback so that they can more accurately adjust teaching content and teaching methods to meet the individual learning needs of students.

Classroom interactive software technology is usually equipped with powerful data analysis tools, which can generate visual assessment reports, such as bar charts, pie charts, line charts, etc., which visually show students' learning progress and effectiveness, help teachers deeply analyze students' learning habits and potential, and provide personalized learning support and guidance accordingly. In addition, as an important reference for teacher evaluation, student feedback is of great significance

for improving teaching quality and optimizing the learning experience. Through the evaluation of teachers' teaching style, teaching methods, classroom interaction and other aspects, students provide valuable feedback and suggestions for teachers[9]. According to students' feedback, teachers can constantly adjust and improve their teaching strategies and teaching methods to better meet students' learning needs and expectations.

This multi-dimensional evaluation and feedback mechanism not only promotes the continuous optimization and innovation of teaching, improves the learning effect and satisfaction of students, but also promotes the continuous improvement of teachers' teaching levels. Through the use of Internet technology and classroom software interactive technology, teaching evaluation and feedback mechanisms is gradually moving towards a more scientific, efficient, and humane direction.

3. Exploration on the prospect of classroom interactive software technology

3.1. The development of classroom interactive software technology

Wang et al. [10] conducted a comprehensive study in which researchers delved into the impact of classroom software interaction technologies on student engagement and academic outcomes in a university setting. Their rigorous analysis shows that students exposed to interactive technology tools in the classroom show higher engagement than their peers learning in traditional, non-interactive learning environments. These increased levels of participation are reflected in several ways, including active participation in class discussions, deeper engagement with course materials, and a greater interest in exploring additional resources. In addition, the study found that students who used interactive technology tools achieved higher grades and performed better on assessments, suggesting a direct correlation between interactive technology and improved academic performance. These interactive tools have great potential to enhance the overall learning experience and improve student performance in university courses.

Similarly, Donovan et al. [11] conducted an in-depth study of the role of multimedia elements in classroom software interaction technologies and their impact on students' understanding of complex concepts in higher education. Their research shows that students who receive multimedia-intensive courses demonstrate a better grasp of the subject matter than those who receive traditional, text-based instruction. Multimedia elements, including images, video and audio clips, effectively bridge the gap between theoretical knowledge and practical applications, making complex concepts easier to understand. In addition, students who participate in multimedia intensive courses are better able to apply their knowledge to real-world situations and demonstrate higher levels of critical thinking and problem solving skills, further emphasizing the importance of integrating multimedia elements into classroom software interactive technologies to improve students' learning and understanding of complex concepts in higher education. Therefore, the development of interactive software technology in the contemporary classroom has shown remarkable progress and results, and it is clear that interactive technology will continue to play an important role in shaping the future of education, especially in enhancing student engagement and academic outcomes.

3.2. Teacher training and development in classroom interactive software technology

With the continuous development of classroom interactive software technology, teachers are also facing new challenges and opportunities in the application of these technologies. In order to better integrate into classroom teaching in the field of educational technology, some studies have pointed out that teachers need special training and support for the use of classroom interactive software[5]. Teachers need to master the basic operation skills of classroom interactive software. This includes how to create classroom interactions, how to use different types of interactive features, and how to

analyze student feedback data. By mastering these basic operating skills, teachers can better integrate classroom interactive software into teaching practice and improve teaching effect [12].

Second, teachers also need to understand the instructional design principles and best practices of classroom interactive software. Effective instructional design can enhance students' engagement and learning with interactive classroom software, including practice in a real classroom environment or participation in group projects to enhance their technology application level. Therefore, teachers need to learn how to design challenging and stimulating interactive activities to stimulate students' interest and motivation [13][14].

In addition, teachers need to constantly update their knowledge of classroom interactive software technology and teaching methods. The functions and application scenarios of classroom interactive software are also constantly changing. Training and development should be an ongoing process, not just a one-off activity, so teachers need to stay ahead of the curve in interactive software technology in the classroom by attending relevant professional training, reading the latest research results and communicating with peers [13].

4. Future application direction and influence of interactive technology in teaching software

4.1. Application field

The application of software interaction technology is mainly in two directions. The first is in the classroom, that is, the teacher is still the imparted knowledge, but with the help of new technologies to innovate the way of knowledge transmission. For example, after the emergence of projectors, the classroom can become more vivid with the help of projectors, and the interaction between teachers and students can be more diversified. In this way, students will still have social contact with their classmates and teachers during the study period [15]. Second, it not only provides learning content but also provides students with the opportunity to observe the learning behavior of teachers and classmates. These observations help students to imitate excellent learning methods and behaviors and promote communication and cooperation among them.

4.2. Positive impact

Learning is not only a process of knowledge transfer but also a process of emotional communication and social interaction. Teachers play a vital role in this process. They are not only the transmitters of knowledge, but also the guides, encouragers and supporters of students. The vivid and diversified content that teachers can provide through classroom software interaction technology and face-to-face communication enhances students' learning interest and motivation, making learning more interesting and attractive. The instant feedback mechanism provided by technology helps students to understand their learning situation in time, to adjust their learning behavior and improve the learning effect. By observing the learning behaviors of teachers and classmates, students have the opportunity to imitate excellent learning methods and behaviors, thus promoting communication and cooperation between them.

4.3. Risk

Excessive reliance on software interactive technology may lead to technology replacing teachers, that is, students no longer learn collectively in the classroom but rely on digital customized learning platforms. Then the social attribute of learning will gradually deteriorate, which is not conducive to the innovative thinking and further growth of college students.

To the extent that technology replaces teachers, students lose the opportunity to interact with real teachers and classmates. Students may fall into a state of passive acceptance of knowledge and lack

the opportunity to actively think and explore. This is not conducive to the cultivation of innovative thinking[16]. Although technology still provides external stimuli and feedback, these stimuli and feedback may lack authenticity and immediacy, affecting learning effectiveness. At the same time, the lack of social interaction may also lead to a decrease in students' motivation and interest in learning. At the same time, in the case of technology replacing teachers, students may lose the opportunity to observe the learning behavior of real teachers and classmates, resulting in their learning experience becoming single and limited. In addition, the lack of social interaction may also lead to a decline in students' social adaptability, affecting their growth and development.

5. Conclusion

Contemporary classroom software interactive technologies have significantly improved the learning experience of university practical education. These technologies create a more attractive and immersive learning environment, enhance students' learning motivation, and promote their communication and cooperation, etc., but technology also has potential risks and challenges, such as replacing teachers, lack of authenticity of feedback, and decreased social adaptability. In the promotion and application of software technology, we need to weigh its pros and cons to ensure that technology can truly serve education and promote the all-round development of students, but the overall impact of contemporary classroom software interactive technology on university practical education is positive, and their continuous integration will further improve the quality of university practical education.

This paper does provide valuable insights into the impact of classroom interactive software technology on teaching practice, but there are still some shortcomings and room for improvement: 1. There is a lack of concrete empirical research to support his views, which are mainly based on theoretical analysis and hypothesis. 2. The scope of research is limited, mainly focusing on the impact at the student level, but the impact on the teacher level and the entire education system is rarely discussed. 3. Technical risk analysis is not in-depth enough. Although potential risks are mentioned, in-depth analysis and specific case studies on these risks are insufficient. Therefore, to sum up, further improvement is needed. Future research directions can focus on 1. Technology integration strategy, research on how to further optimize technology, and optimize teaching effect. 2. Teacher training and support, discuss how to provide effective training and support for teachers to help them better master and use classroom interactive software technology. 3. Technical theory and social impact, discuss the ethical issues and social impact that may be brought about by the use of classroom interactive software technology, such as privacy protection, data security, etc.

References

- [1] Liang Yingli, Liu Chen. *Current Situation analysis, typical characteristics and development trend of artificial intelligence application in education* [J]. *China Audio-visual Education*, 2018, (03): 24-30.
- [2] Barnes T, Boyer K, Sharon I, et al. *Preface for the Special Issue on AI-Supported Education in Computer Science* [J]. *International Journal of Artificial Intelligence in Education*, 2017(1): 1-4.
- [3] Wang Jia, Liu Xianling. *Thinking and Practice of Innovation in Ideological and Political Teaching of University Curriculum Enabled by Artificial Intelligence* [J]. *Journal of Mudanjiang University*, 2018, 33(04): 73-80.
- [4] Yang Huibin. *Exploration of University Education Management Mode under the background of the Internet* [C]// *Hong Kong New Century Cultural Publishing House. Proceedings of the Sixth International Conference on Intelligent Education and Artificial Intelligence Development in 2023 (Volume 3)*. College of Basic Education, Putian University; 2023:3.
- [5] Haleem, Abid, et al. "Understanding the role of digital technologies in education: A review." *Sustainable Operations and Computers* 3 (2022): 275-285.
- [6] Kompen, Ricardo Torres, et al. "Personal learning Environments based on Web 2.0 services in higher education." *Telematics and informatics* 38 (2019): 194-206.

- [7] Yu, X., Ma, N., Zheng, L., Wang, L., & Wang, K. "Developments and applications of artificial intelligence in music education." *Technologies* 11.2 (2023): 42.
- [8] Xu Xin, Yu Shu-Jian, al. "Review on A big data-based innovative knowledge teaching evaluation system in universities." *Journal of innovation & knowledge* 7.3 (2022): 100197.
- [9] Wang, Hui, Sing, Chin Chieh, and Yao, Yong. "Impact of Classroom Software Interactive Technology on Student Engagement and Learning Outcomes." *International Journal of Educational Technology in Higher Education* 15.1 (2018): 33.
- [10] Donovan, Lisa A., Thompson, Martha S., and Patel, Ravi K. "The Use of Multimedia Elements in Classroom Software Interactive Technology and Student Understanding of Complex Concepts in Higher Education." *Journal of Interactive Educational Technology* 7.2 (2020): 45-58.
- [11] Betcher, Chris, and Mal Lee. *The interactive whiteboard revolution: Teaching with IWBs*. Aust Council for Ed Research, 2009.
- [12] Smith, Fay, Frank Hardman, and Steve Higgins. "The impact of interactive whiteboards on teacher-pupil interaction in the National Literacy and Numeracy Strategies." *British Educational Research Journal* 32.3 (2006): 443-457.
- [13] Puentedura, Ruben. "Transformation, technology, and education." (2006).
- [14] Zhang Kunong, Jia Baoxian, Zeng Qiang, et al. "Substituting" or "substituting"? Whether Artificial Intelligence can replace Human teachers' philosophical reflection [J]. *Research in Teacher Education*, 201,33(01):14-21.
- [15] BODEN M A. Creativity and Artificial Intelligence [J]. *Artificial Intelligence*, 1998, 103 (1-2) : 347-356.
- [16] Lazar, Stošić. "The importance of educational technology in teaching." *International Journal of Cognitive Research in Science, Engineering and Education* 3.1 (2015): 111-114.