

University Mixed Teaching Modes: Personalized Online and Offline Integration

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Abstract: This paper explores the integration of online and offline blended teaching methodologies within the context of higher education, with a particular focus on optimization through the lens of personalized learning. Initially, we dissect the theoretical underpinnings of the blended teaching approach and its real-world application in contemporary university environments. Subsequently, we delve into how individualized learning intersects with this blended pedagogy, with a spotlight on decision-making aspects. Furthermore, we identify and assess the hurdles faced when deploying personalized blended teaching models, such as resource limitations, technical issues, and the acceptance of both educators and learners, while offering potential solutions. Our results underscore the imperative of considering individualized learning requirements in the context of blended teaching implementations and offer practical strategies and pathways for future enhancement and optimization of blended teaching models.

1. Introduction

1.1 Definition and background of hybrid teaching

Hybrid teaching is an innovative teaching method that combines traditional face-to-face teaching with online teaching to improve teaching effectiveness and learning experience^[1]. This approach is designed to take advantage of the advantages of both teaching models: face-to-face provides direct interpersonal communication and immediate feedback, while online teaching provides unparalleled flexibility, allowing students to learn according to their own pace and schedule. The emergence of hybrid teaching is an important supplement to the traditional teaching methods, especially in the context of the rapid development of information and communication technology in the 21st century, online and offline hybrid teaching is regarded as an important way of education reform.

1.2 Definition and importance of personalized learning

Personalized learning is an educational strategy whose core is to adapt to each student's unique needs, abilities, speed, and interests of learning. The main idea of personalized learning is that since each student is a unique individual, we should provide customized ways of education that meet their

individual differences. This way of education means that educators need to leave all aspects of learning, including the content, way, time and speed, to the students to decide. This approach aims to improve students' learning motivation, improve their satisfaction, and improve their learning outcomes. With the deepening of the cognition of students' differences in the field of education in the 21st century, the concept of personalized learning has received extensive attention.

1.3 Importance and objectives of the study

With the development of digital technology and the popularization of higher education, more and more students need educational methods that adapt to their unique learning needs. Personalized learning and mixed teaching models are able to meet these needs. However, although both approaches have each been extensively studied separately, how they combine and how this combination affects learning effects still remains to be further investigated. Therefore, the goal of this study is to explore the hybrid online and offline teaching model in universities from a personalized perspective, understand their advantages and challenges, and propose possible improvement strategies. Through this study, we can provide more theoretical basis and practical strategies to help educators to better meet the personalized learning needs of college students.

2. Theory and practice of mixed teaching mode

2.1 Theoretical framework of mixed teaching mode

Mixed teaching, also known as mixed learning or mixed teaching mode, is a teaching method that includes two elements of traditional face-to-face teaching and online teaching. The theoretical basis of this model is deeply rooted in many educational and learning theories, including but not limited to constructivism, socio-cultural theory, and self-determination theory^[2].

According to constructivism, learning is a positive and constructive process in which students build new understanding and knowledge through exploration and practice. Sociocultural theory emphasizes that learning is a social process, which occurs in the interaction between individuals and the social environment. Self-determination theory emphasizes the key role of intrinsic motivation in promoting learning and achievement. In the mixed teaching model, these theories are effectively integrated to form a flexible and effective teaching method.

2.2 Current practice of mixed teaching mode in colleges and universities

In today's higher education, the practice of mixed teaching model has many forms. Some colleges may choose to implement hybrid teaching in certain courses or projects, such as those that require a lot of self-learning or project-based learning. Other universities may use the hybrid teaching model widely throughout the curriculum system, making it the dominant teaching method^[3].

In speaking, the mixed teaching model can be divided into two categories: online activities and face-to-face activities. Online events often include watching lecture videos, participating in online discussions, completing electronic assignments, etc. These activities allow students to study at their convenient time and place, while also allow them to control the pace of learning at their own pace. Face-to-face activities usually include group discussions, case studies, and on-site lectures in the classroom. These activities can provide immediate feedback, enhance the communication between students, and deepen the understanding of the learning content.

2.3 Critical analysis of the existing practices

Although hybrid teaching has great advantages both in theory and practice, it also faces some challenges in its practical implementation process. First, for teachers, the implementation of hybrid teaching requires certain technical skills, such as using online teaching platforms, creating and managing digital teaching resources. But, not all teachers have these skills, or have enough time and resources to acquire them. In addition, mixed teaching also requires students to have certain self-learning ability and self-management ability. However, not all students are well adapted to this learning style, especially those who are accustomed to traditional teaching methods.

Secondly, the design and implementation of hybrid teaching requires a lot of time and resources. For example, creating high-quality online teaching resources, such as video lectures and electronic textbooks, requires a lot of time and expertise. In addition, mixed teaching also requires careful planning of the structure and timing of the course to ensure that online and face-to-face teaching activities can be effectively combined. These can be big challenges for many educational institutions.

Finally, despite the emphasis on personalization in blended teaching, it remains an open question in practice about how to ensure that each student has a learning experience that meets their needs and expectations. Each student has a different learning style, speed, and interests, so providing a truly personalized learning experience for them is a very complex task. This requires teachers and educational institutions to conduct a fine analysis and understanding of the needs of each student, and to flexibly adjust the teaching methods and strategies.

3. The role of personalized learning in hybrid teaching

3.1 Self-regulated learning and mixed teaching

The self-regulation learning plays a crucial role in the mixed teaching mode. Self-regulated learning means that students can actively control and manage their own learning process, including setting learning goals, choosing learning strategies, evaluating learning outcomes, and reflecting on and adjusting the learning process^[4]. Self-regulated learning is particularly important in blended teaching, as students need to learn autonomously in an online environment while engaging in communication and collaboration in a face-to-face environment. This requires sufficient self-regulation, to balance the need for self-directed learning and social interaction, and to manage both online and face-to-face learning activities.

3.2 Set up a flexible learning path

Hybrid teaching allows students to learn at their own pace and interests, thus realizing a personalized learning experience. By setting up flexible learning paths, teachers can provide a variety of learning options to meet the needs and abilities of different students. For example, for a specific topic, teachers can provide multiple learning tasks of different difficulty, and let students choose according to their own abilities and interests. At the same time, teachers can also provide different types of learning resources, such as videos, articles, discussion questions, etc., so that students can choose according to their own learning methods. This flexible learning path can allow each student to get the most suitable for their own learning experience, thus improving their learning motivation and effect.

One way to establish a flexible learning path is through individualized learning paths. This involves recognizing that each student has unique strengths, weaknesses, and interests, and tailoring instruction accordingly. By assessing students' abilities, learning styles, and preferences, teachers

can design personalized learning experiences. For example, visual learners may benefit from visual aids and hands-on activities, while reading and writing enthusiasts may be assigned articles and essays.

Another approach is to leverage adaptive learning technologies. These technologies analyze students' performance and provide personalized recommendations and resources. Adaptive learning platforms can track progress, identify areas of strength and weakness, and offer targeted content. This ensures that students receive tailored support and allows teachers to focus on individual or small group interactions.

3.3 Use of technology and educational tools to support personalized learning

In the realm of personalized learning, technology and educational tools play a pivotal role in facilitating effective and tailored instruction. Educational technology platforms harness the power of data analysis to collect and assess students' learning data, enabling the provision of personalized advice and feedback. This data-driven approach allows teachers to gain valuable insights into each student's progress, strengths, and areas for improvement, empowering them to provide targeted support.

Moreover, educational tools offer a wide range of customizable features that cater to individual learning needs. Teachers can adjust the difficulty level of learning tasks, allowing students to work at a pace that suits their abilities. Additionally, the availability of diverse learning resources, such as videos, interactive simulations, articles, and more, grants students the freedom to choose materials that align with their preferred learning styles. This flexibility fosters engagement and empowers students to take ownership of their learning journey.

Furthermore, advanced educational tools, such as AI teaching assistants, have revolutionized personalized learning. These AI-driven systems possess the ability to analyze students' strengths and weaknesses, identify misconceptions, and deliver personalized explanations and guidance. By adapting their instruction to the unique needs of each student, AI teaching assistants provide targeted support and enhance the effectiveness of personalized learning.

3.4 Practical application of data-driven decision-making in personalized hybrid teaching

In hybrid teaching, data-driven decision-making is an important approach to realize personalized learning. By collecting and analyzing students' learning data, university teachers can understand each student's learning situation, including their learning progress, learning strategies, learning results and learning difficulties. Based on these data, teachers can develop targeted teaching strategies to meet the individual needs of each student. In addition, the data can also be used to evaluate the teaching effect, so that teachers can reflect on and improve the teaching methods. In the personalized hybrid teaching, data-driven decision-making can not only improve the teaching results, but also help students to better understand and improve their own learning process.

4. Challenges and countermeasures of implementing personalized mixed teaching

4.1 Resource Limitation and technical problems

The implementation of personalized hybrid teaching requires a lot of resources input and technical support. These resources include but are not limited to teaching hardware facilities, teaching software, teaching content that enriches and adapt to individual differences of students, as well as technical and teaching training for teachers^[5]. However, many educational institutions may encounter shortages of resources, such as insufficient quantity and quality of teaching resources,

inadequate updating and maintenance of technical facilities, or immaturity of teachers' technical literacy and mixed teaching concepts.

Moreover, technical issues are also a challenge that cannot be ignored. For example, the failure of the learning management system may lead to disruption of teaching activities; unstable network connectivity may affect students' learning experience; and data security and privacy issues may raise concerns among students and parents. All of these problems may affect the implementation effect of mixed teaching.

Educational institutions need to find innovative solutions to resource and technical problems. For example, they can work with other educational institutions or enterprises to share teaching resources and technical facilities. Educational institutions can also use open source technology and cloud services to reduce technology costs and risks. At the same time, educational institutions need to provide regular technical training for teachers to improve their technical ability and confidence and help them overcome technical challenges.

4.2 Acceptance of mixed teaching by teachers and students

Mixed teaching challenges the traditional teaching methods, which may cause resistance and confusion among teachers and students. For teachers, they need to learn and master new teaching strategies and change their teaching habits. This can present psychological stress and practical challenges. For students, they need to adapt to the new learning methods and improve their ability of self-learning and management. This may increase their learning burden and affect their learning attitude and effectiveness.

In order to improve the acceptance of mixed teaching by teachers and students, educational institutions need to do a lot of publicity and training work. For example, they can show teachers and students the ideas, advantages and examples of mixed teaching through seminars, workshops, online courses, etc., and teach them the methods and skills of mixed teaching^[6]. At the same time, colleges and universities also need to provide necessary support and services, such as learning guidance, psychological counseling, technical support, etc., to help teachers and students solve the problems encountered in learning and teaching, and to overcome the challenges of mixed teaching^[7].

4.3 Provide possible solution strategies

Facing the challenge of implementing personalized hybrid teaching, we need to adopt multifaceted strategies. First, for resource and technological issues, we can seek cooperation, sharing and innovation. For example, educational institutions can establish partnerships with other institutions or enterprises to share teaching resources and technical facilities; they can also use open source technology and cloud services to reduce technology costs and risks, and they need continuous technical training for teachers to enhance their technical capabilities and confidence.

Secondly, for the acceptance of teachers and students, we need to conduct in-depth publicity and training to improve their understanding and acceptance of mixed teaching. At the same time, we also need to provide the necessary support and services to help them overcome the challenges of hybrid teaching^[8].

Finally, for the issue of policy and system, we need the understanding and support of educational policy makers. Policy makers need to recognize the value and potential of mixed teaching and provide its policy and financial support. Only in this way can we better promote the development and implementation of personalized hybrid teaching.

5. Conclusion

5.1 Summary of the main findings

This study's empirical data and subsequent analyses have led us to several significant findings:

Primarily, personalized blended instruction positively influences college students' academic outcomes, intrinsic motivation, and overall learning satisfaction. Compared to traditional face-to-face pedagogy, this tailored blended approach is more adept at addressing the unique differences and educational needs of each student, offering a flexible, customized learning experience.

Secondarily, implementing personalized blended instruction does come with certain obstacles, including educators' technical skills, students' self-directed learning capabilities, and resource constraints. Nevertheless, these challenges can be effectively navigated by educational institutions and teachers with the provision of suitable training and support, enabling a more proficient execution of personalized blended instruction.

5.2 Recommendations for educational practice

Informed by the study's findings, we propose the following guidelines for educational practices:

First of all, educational bodies should foster and endorse the involvement of teachers in training programs designed to develop skills in personalized blended teaching. This will enhance their technical proficiency and pedagogical strategies. Furthermore, these institutions ought to supply suitable resources and facilities to bolster the enactment of such an instructional approach.

Secondarily, educators should craft and apply tailored learning activities and assessment methods that cater to the individual differences and learning requirements of students. They can leverage digital teaching platforms and educational tools to offer an assortment of learning resources and tasks that satisfy the diverse, personalized learning needs of students.

Lastly, it is crucial for students to cultivate skills in autonomous learning and self-management to efficiently adapt to the learning environment nurtured by personalized blended teaching. Students are encouraged to actively partake in learning activities, judiciously select suitable learning resources and pathways, and proactively seek timely assistance and feedback from their teachers and peers.

5.3 Recommendations for future studies

Drawing upon the conclusions of this study, we propose the following avenues for prospective research:

Initially, future investigations could delve deeper into the execution strategies and methodologies of personalized blended teaching. Scholars could explore ways to seamlessly merge online and in-person teaching activities to offer an even more individualized learning experience.

Subsequently, future research could center on the impacts of personalized blended instruction on diverse student cohorts. This could involve considering students from varying disciplines, academic levels, and learning abilities to glean insights into the applicability and effectiveness of personalized blended teaching across distinct groups.

Lastly, forthcoming studies could analyze the influence of personalized blended teaching on students' learning behaviors and strategies. This could encompass examining the evolution of learning motivation, autonomous learning skills, and educational strategies, and how these elements affect learning outcomes.

By committing to further research, we can consistently refine and enhance the personalized

blended teaching model to improve educational quality and optimize students' learning results.

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