线上-线下混合式教学质量保障研究

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**摘要：** 线上-线下混合式教学模式在教育领域得到了广泛应用，它融合了传统面对面教学的优势和在线教学的便利性，为学生提供了更加灵活、多样化的学习方式。然而，如何保障这种教学模式下的教学质量仍然是一项重要的研究课题。本研究旨在探讨线上-线下混合式教学模式的质量保障策略，并以实际案例进行分析和讨论。研究结果表明，通过合理的教学设计、有效的教学资源整合、互动性强的学习环境构建以及及时的评估和反馈，可以有效提高线上-线下混合式教学的质量和学习效果。

**关键词**：线上-线下混合式教学；教学质量保障；学习效果

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引言

随着互联网、云计算、大数据和人工智能的迅猛发展，基于大规模开放在线课程MOOC（Massive Open Online Course）、小型私有在线课程SPOC（Small Private Online Courses）和其他在线课程等网络教学资源和在线教学方式开始在高校普及。再加上2020年以来全球新冠疫情肆虐的影响，很多高校老师都在经历着由传统的线下教学转为线上教学或线上-线下混合式教学的改革[1-2]。线上教学具有课程资源丰富、师生交流渠道多样和便于过程性考核等优点，线下教学具有师生互动及时方便、学生参与度高以及教学内容和方式灵活等优点[3-4]。线上-线下混合式教学可以充分发挥线上教学和线下教学的优势，是转变传统教学观念、改革传统教学方式、强化学生学习效果和提升教育教学质量的有效途径。线上-线下混合式教学模式，作为互联网时代的创新型教育方式，对于推动教学改革工作的发展有着深远意义。然而，由于教学环境和学习模式的转变，线上-线下混合式教学模式的教学质量保障成为一个亟待解决的问题[5-7]。本研究通过对线上-线下混合式教学模式的研究和实践，以提供有效的质量保障策略，从而提升学生在这种教学模式下的学习成果。

1. 进行合理的教学设计，确保线上和线下教学环节相互补充、有机结合。

合理的教学设计是教师为了提高教学效果而进行的有计划、有组织的教学活动安排。通过合理的教学设计，教师可以更好地组织和安排教学活动，使学生在线上和线下环节中能够得到全面的学习支持和指导[8]。首先，教学设计需要综合考虑教学目标。教学目标是教师在教学过程中希望学生达到的具体学习成果。教学设计应围绕教学目标展开，确定学习活动和教学资源，以帮助学生实现目标。其次，教学设计需要考虑教学内容的特点。不同学科和课程的内容特点各不相同，教师需要根据教学内容的特点，选择适合的教学方法和教学资源。例如，对于理论性较强的课程，可以采用讲解、讨论、案例分析等方式进行教学；对于实践性较强的课程，可以组织实验、实地考察等活动。此外，教学设计还需要考虑线上线下教学模式的特性。线上教学具有灵活性和互动性，可以利用多媒体、网络资源等进行教学；线下教学可以进行实地实践、小组合作等活动。教师可以根据线上线下教学模式的特性，合理组织教学活动，使学生在不同环节都能够得到支持和指导。本人在《离散数学》课程的教学实践中，通过拟定详细的开课计划表，明确学生线上学习和教师线下面授的时间、内容和目标，让师生都提前了解教学进度和学习目标，更好地掌握了教学节奏。由于离散数学具有一定的理论性和抽象性，基础概念和原理的讲解主要设计成线上视频学习和测试等方式，而重难点和学生难以理解的问题主要设计在线下教学环节，通过课堂讲授、讨论提问、小测验和学生汇报展示等方式来进行。通过以上优化措施，本人在《离散数学》课程的教学实践中取得了一定的效果，学生的学习积极性和理解能力得到了提高。

二、整合线上和线下教学资源，为学生提供多样化的学习材料和工具。

整合线上和线下教学资源，为学生提供多样化的学习材料和工具，是现代教育发展的趋势之一。传统的教学方式主要依靠纸质教材和教师的讲授，而现在，随着科技的进步和互联网的普及，教育界开始充分利用线上资源和技术，将其与传统的教学方式相结合，为学生提供更全面、多样化的学习体验。然而，线下教学由于受时空物限制在过程性考核和研讨式教学等方面存在不足; 线上教学中存在教学资源质量参差不齐以及在线视频内容固化等问题[9]。针对线上教学视频内容固化以及网上资源质量参差不齐的问题，采取导学结合的模式优化视频资源。一方面任课教师作为资深专家遴选课程内容相关的优质在线视频资源、最新技术进展资料等作为线上课程资源的补充；另一方面培养学生利用现有在线平台获取知识和整合资源的能力，使学生掌握在线课程的学习方法，学会使用在线平台的资源，给他们提供一种自我学习和终身学习的途径。针对线下教学存在的过程性考核困难和研讨式教学不足的问题，可以通过在线下课堂中引入在线工具进行随堂签到和测验，提高线下学生的参与度，培养学生主动学习的意识，养成良好的学习习惯。本人在《离散数学》课程的教学实践中，利用学堂在线视频资源加上课程QQ群补充最新技术资料，为学生提供了更全面的学习资源。同时，利用雨课堂和课程中心等在线工具对学生进行随堂签到和知识测试，提高了学生的参与度和学习效果。

三、构建互动性强的学习环境，促进师生、生生之间的交流和合作。

构建互动性强的学习环境，促进师生、生生之间的交流和合作是提升教育质量的重要保障措施。线上-线下混合式教学给教育教学带来了新的机遇和挑战，给教育教学形式带来工具性、技术性的变革，信息技术的交互性使师生交互式教学成为可能。师生交互式教学模式建立在师生平等的合作交流上，超越传统单方向的灌输式教学模式，有利于构建师生交互、生生交互甚至多边交互的双向或多向交互教学模式。通过线上平台，教师能够设置各种学习任务和互动活动，如讨论论坛和在线问答等，激发学生的学习兴趣和积极性。学生可以在线上和同学进行交流和合作，分享学习心得、解答问题、共同探讨。这种多样化的交流和合作机会不仅能够拓宽学生的知识视野，还能够培养他们的合作能力和团队精神。线下课堂上，教师也可以利用信息技术集成多媒体、互动教具等工具，通过图像、声音、动画等多媒体元素展示课堂内容，使学生更加生动地理解和积极参与教学活动[10]。本人在《离散数学》课程的教学实践中，线上通过雨课堂导入学堂在线上的离散数学课程视频内容，设置了在线问答、开放讨论和点赞留言等功能，实现师生和生生的实时互动与交流；线下则借助雨课堂和课程中心等在线工具对学生进行随堂提问和互动答疑等，提高学生参与课堂的积极性和主动性。

四、建立及时的评估和反馈机制，帮助学生了解自己的学习进度和问题并及时调整学习策略。

在线上-线下混合式教学中，建立及时的评估和反馈机制对于学生的学习至关重要。通过定期的评估和反馈，学生能够了解自己的学习进度和问题，并及时调整学习策略，提高学习效果。评估可以包括课堂小测、作业任务、课后测试等形式。通过这些评估方式，教师可以对学生的学习情况进行全面了解，了解他们对知识的掌握程度、理解深度和应用能力。同时，教师还可以通过评估了解学生的学习态度、学习习惯和学习困难，为教学提供参考依据。除了评估，及时的反馈也是关键。教师可以通过线上平台或者面对面的方式，向学生提供个性化的反馈。通过指导和建议，教师可以帮助学生发现自己的学习问题，并提供相应的解决方案。这种个性化的反馈能够激发学生的学习动力，帮助他们克服困难，取得更好的学习成果。在建立评估和反馈机制的过程中，教师可以利用在线平台和工具来提高效率和准确性。在线平台可以帮助教师更快速地收集和分析学生的学习数据，使评估和反馈更加及时和精准。利用在线工具教师可以与学生进行互动和交流，进一步促进学生学习和反馈的有效性[11]。本人在《离散数学》课程的教学实践中，经常使用在线测验和课堂小测来评估学生对于概念和理论的掌握情况，以帮助了解哪些内容需要重点强调或复习以及哪些学生需要重点关注。此外，本人还会布置作业任务，评估学生解决问题的能力和应用能力。

结论

线上-线下混合式教学模式的质量保障需要综合考虑教学设计、教学资源整合、学习环境构建和评估与反馈等因素。通过合理的教学计划、有效的教学资源整合、互动性强的学习环境以及及时的评估和反馈，可以提高线上-线下混合式教学的质量和学习效果。这对于教育机构和教师在实践中提供更具吸引力和有效性的教学方式具有重要意义。

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**Research on Quality Assurance of Hybrid Online-offline Teaching**

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**Abstract：**The hybrid online-offline teaching has been widely applied in the field of education, which combines the advantages of traditional face-to-face teaching and the convenience of online teaching, providing students with more flexible and diverse learning methods. However, how to ensure the quality of this teaching mode remains an important research topic. This study aims to explore the quality assurance strategies of the hybrid online-offline teaching, and analyze and discuss it with practical cases. The research results show that through reasonable teaching design, effective integration of teaching resources, construction of interactive learning environment, and timely evaluation and feedback, the quality and learning effect of hybrid online-offline teaching can be effectively improved.

**Key words:** hybrid online-offline teaching; teaching quality assurance; learning effect

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Introduction

With the rapid development of the Internet, cloud computing, big data, and artificial intelligence, online teaching resources and methods such as Massive Open Online Courses (MOOC), Small Private Online Courses (SPOC), and other online courses have become increasingly popular in universities. Additionally, the global impact of the COVID-19 pandemic since 2020 has led to many teachers transitioning from traditional offline teaching to online teaching or a hybrid online-offline teaching approach[1-2]. Online teaching offers advantages such as abundant course resources, diverse ways for teacher-student communication, and convenient process-based assessments, while offline teaching provides benefits such as real-time teacher-student interaction, high student engagement, and flexibility in teaching content and methods[3-4]. The hybrid online-offline teaching approach fully leverages the advantages of both online and offline teaching, providing an effective way to transform traditional teaching concepts, reform teaching methods, enhance student learning outcomes, and improve the quality of education and teaching. As an innovative educational approach in the Internet era, the hybrid online-offline teaching mode has profound implications for promoting the development of educational reform. However, due to the transition in the teaching environment and learning mode, ensuring the quality of hybrid online-offline teaching has become an urgent issue to address [5-7]. This study aims to improve students' learning outcomes in this teaching mode by conducting research and practical experiments on the hybrid online-offline teaching mode and providing effective quality assurance strategies.

1. Carry out reasonable teaching design to ensure the complementation and organic integration of online and offline teaching.

Reasonable teaching design refers to the planned and organized teaching activity arrangement carried out by teachers in order to improve teaching effectiveness. Through reasonable teaching design, teachers can better organize and arrange teaching activities, enabling students to receive comprehensive learning support and guidance in both online and offline settings[8]. First, teaching design needs to comprehensively consider teaching objectives. Teaching objectives are the specific learning outcomes that teachers hope students will achieve during the teaching process. Teaching design should revolve around teaching objectives, determining learning activities and teaching resources to help students achieve their goals. Second, teaching design needs to consider the characteristics of teaching content. The characteristics of different subjects and courses vary, and teachers need to choose appropriate teaching methods and teaching resources based on the characteristics of the teaching content. For example, for courses with strong theoretical content, teaching methods such as lectures, discussions, and case studies can be used; for courses with strong practical content, activities such as experiments and field visits can be organized. In addition, teaching design also needs to consider the characteristics of online and offline teaching modes. Online teaching is flexible and interactive, allowing the use of multimedia and online resources for teaching; offline teaching can involve field practices, group collaborations, etc. Teachers can organize teaching activities effectively based on the characteristics of online and offline teaching modes, ensuring that students receive support and guidance in different settings. In my teaching practice for the course "Discrete Mathematics," I formulated a detailed course plan, clearly defining the time, content, and objectives of students' online learning and teachers' offline face-to-face teaching. This allowed both teachers and students to understand the teaching progress and learning objectives in advance, mastering the teaching rhythm more effectively. Since discrete mathematics has certain theoretical and abstract features, the explanation of basic concepts and principles was mainly designed as online video learning and testing. On the other hand, the design of offline teaching elements focused on addressing challenging topics and issues that students had difficulty understanding, using methods such as classroom teaching, questions and discussions, small quizzes, and student presentations. Through these optimization measures, I achieved certain results in the teaching practice of the "Discrete Mathematics" course, with students' learning enthusiasm and comprehension ability improved.

2. Integrating online and offline teaching resources to provide students with diverse learning materials and tools is one of the trends in modern education development.

Traditional teaching methods mainly rely on physical textbooks and teacher lectures, but now, with the advancement of technology and the popularity of the internet, the education sector is starting to fully utilize online resources and technology, combining them with traditional teaching methods to provide students with a more comprehensive and diverse learning experience. However, offline teaching has limitations in terms of process-oriented assessment and seminar-style teaching due to temporal and spatial constraints; and online teaching has issues such as inconsistent quality of teaching resources and fixed content in online videos[9]. In response to the issues of fixed online teaching video content and inconsistent quality of online resources, a hybrid learning mode can be adopted to optimize video resources. On one hand, the course teacher, as an experienced expert, selects high-quality online video resources and the latest technological progress materials related to course content as supplements to the online courses; on the other hand, students are trained to utilize existing online platforms to acquire knowledge and integrate resources, so that they can master the learning methods of online courses and learn to use online platform resources, providing them with a way for self-learning and lifelong learning. To address the difficulties in process-oriented assessment and the lack of seminar-style teaching in offline teaching, online tools can be introduced in offline classrooms for in-class attendance and quizzes to improve the participation of offline students, cultivate their awareness of active learning, and develop good studying habits. In my teaching practice of the "Discrete Mathematics" course, I used the video resources from Xue Tang Online Learning along with the course QQ group to supplement the latest technical materials, providing students with more comprehensive learning resources. At the same time, tools such as Rain Classroom and Course Center were used to conduct in-class attendance and knowledge tests, which improved student participation and learning outcomes.

3. Creating an interactive learning environment that promotes communication and collaboration between teachers and students and among students is an important way to improve the quality of education.

Hybrid online-offline teaching, brings new opportunities and challenges to education, and transforms the format of education with the use of tools and technology. The interactive nature of information technology enables interactive teaching between teachers and students, surpassing the traditional one-way transmission mode and facilitating the establishment of a cooperative and communicative learning environment. Through online platforms, teachers can set up various learning tasks and interactive activities such as discussion forums and online Q&A, stimulating students' interest and enthusiasm for learning. Students can communicate and collaborate with their peers online, sharing their learning experience, answering questions, and exploring together. This diversity of communication and collaboration opportunities not only broadens students' knowledge horizons but also cultivates their cooperation and teamwork skills. In offline classrooms, teachers can also use information technology to integrate multimedia and interactive teaching aids, using images, sounds, animations, and other multimedia elements to present classroom content and engage students in a more dynamic way[10]. In my teaching practice of the "Discrete Mathematics" course, I introduced the online course content through the Rain Classroom platform, incorporating features such as online Q&A, open discussions, and liking messages, enabling real-time interaction and communication between teachers and students as well as among students. In offline classes, I also utilized online tools such as Rain Classroom and Course Center for in-class questioning and interactive Q&A, improving students' participation and proactiveness in the classroom.

4. Establishing a timely assessment and feedback mechanism is crucial for students to understand their learning progress and address any issues by adjusting their learning strategies promptly.。

In hybrid online-offline learning, establishing a timely assessment and feedback mechanism is essential for students' learning. Through regular assessments and feedback, students can understand their learning progress and identify any issues, allowing them to adjust their learning strategies promptly and improve their learning outcomes. Assessment can take various forms, such as in-class quizzes, assignments, and post-class tests. Through these assessment methods, teachers can have a comprehensive understanding of students' mastery of knowledge, depth of understanding, and application abilities. Additionally, assessments can provide insights into students' learning attitudes, habits, and difficulties, serving as a reference for teaching. Besides assessment, timely feedback is also crucial. Teachers can provide personalized feedback to students through online platforms or face-to-face interactions. Through guidance and suggestions, teachers can help students identify their learning problems and provide appropriate solutions. This personalized feedback can motivate students' learning, assist them in overcoming challenges, and achieve better learning outcomes. In the process of establishing an assessment and feedback mechanism, teachers can utilize online platforms and tools to enhance efficiency and accuracy. Online platforms can help teachers collect and analyze students' learning data more quickly, enabling more timely and precise assessment and feedback. Utilizing online tools, teachers can interact and communicate with students, further promoting the effectiveness of student learning and feedback[11]. In my teaching practice of the "Discrete Mathematics" course, I frequently used online quizzes and in-class quizzes to assess students' grasp of concepts and theories. This helps me understand which content needs more emphasis or revision and which students need more attention. Additionally, I assigned homework tasks to assess students' problem-solving abilities and application skills.

Conclusion

Ensuring the quality of hybrid online-offline learning, requires considering various factors, including teaching design, integrating teaching resources, creating a conducive learning environment, and assessment and feedback. By having a well-thought-out teaching design, effective integration of teaching resources, interactive learning environments, and timely assessment and feedback, the quality and learning outcomes of hybrid learning can be improved. This is of significant importance for educational institutions and teachers to provide more attractive and effective teaching methods in practice.

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