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Research and Practice of Six-Step Teaching Mode Based on Online-Offline Mixing—Taking the Modern Communication Technology Specialty as an Example

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Abstracts: The six-step teaching mode has successfully improved students' independent learning ability, practical operation ability, teamwork spirit, and innovative thinking. The application of this mode in modern communication technology majors has a remarkable effect. This paper discusses the applicability of the six-step teaching mode in the contemporary communication technology specialty. It also discusses the implementation strategies of the six-step approach based on the online-offline hybrid mode, including creating an interactive problem situation to stimulate learning interest, utilizing multiple resources to support independent inquiry, building an online-offline collaboration platform to promote cooperation and communication, and designing innovative project tasks to guide innovative thinking. These strategies aim to effectively enhance the comprehensive ability of modern communication technology students and promote their overall development, which is of great significance for educational reform and practice.

Keywords: six-step teaching; modern communication technology; online-offline blended teaching; independent learning; practical operation

Introduction

With the in-depth promotion of educational reform, teaching modes are constantly being introduced, including the six-step teaching mode centered on cultivating students' self-learning ability. This model breaks the traditional teacher-oriented, duck-filling, classroom-full teaching method and emphasizes cultivating students' independent learning, cooperative inquiry, and innovative thinking. Take the modern communication technology specialty as an example, which focuses on the combination of theory and practice. Through the implementation of the six-step approach, students can not only effectively master the course content, but also improve their independent learning and problem-solving skills. The application of online and offline hybrid teaching modes provides richer resources and flexible learning methods for the six-step process. The rich flexibility of online resources, combined with the rich practice offline, not only improves students' learning interest and participation but also further enhances their practical ability and teamwork spirit. Through this comprehensive teaching mode, students' self-learning ability and practical operation level have been significantly improved.

1. Connotation of six-step teaching mode

The six-step teaching mode is a teaching method centered on cultivating students' independent learning ability, and its connotation is reflected in the six steps of questioning, independent inquiry, cooperation and communication, guiding innovation,

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multiple evaluation, and extracurricular extension. Setting the standard by creating a problematic situation to stimulate students' curiosity and interest in exploration, so that students enter the learning process with a clear learning goal. Teachers guide students to discuss and sift through the questions in this section to determine the learning objectives and lay the foundation for independent inquiry. Independent inquiry is a process in which students solve problems independently under the guidance of the teacher through reading, thinking experimenting, etc., to cultivate their independent thinking and problem-solving ability (Li & Weng, 2023). Then, the cooperation and communication session encourages students to form learning groups, realize resource sharing and collective wisdom through discussion and sharing, and cultivate teamwork spirit and language expression ability. The guided innovation session guides students to innovate in thinking methods and learning contents, prompts them to carry out the training of citing and divergent thinking, taps students' potential, and cultivates the quality of innovation. Multivariate evaluation through self-assessment, mutual assessment teacher-student assessment, and other forms of timely feedback on the learning effect of students to help them clarify the advantages and shortcomings, and enhance self-confidence. Finally, extracurricular extension through the design of extracurricular activities and extended learning tasks to further expand classroom learning content, consolidate knowledge, and improve students' comprehensive quality. Through the organic combination of these six links, the six-step teaching model maximizes the teaching effect and promotes the overall development of students.

2. The Applicability of the Six-step Teaching Mode in Modern Communication Technology Teaching

The application of the six-step teaching mode in modern communication technology teaching can effectively promote students' independent learning ability, practical ability, teamwork spirit, and in-depth understanding and application of theoretical knowledge.

The six-step method of setting up doubts and setting the standard link stimulates students' interest in learning and desire for investigation by creating a problematic situation and guiding them to learn with problems and goals. This step enables students to clarify the key points and difficulties of learning and lays the foundation for subsequent independent inquiry (Song et al., 2023). In the course of modern communication technology, teachers can guide students to think and discuss by setting up situations related to actual communication problems to cultivate their problem awareness and problem-solving ability.

In the independent inquiry session, students solve the problems they encounter independently by reading the textbook, consulting the materials, and watching the teaching video. This process not only exercises students' self-learning ability but also prompts them to develop the habit of independent thinking and problem-solving. In the teaching of modern communication technology, students can gradually master the basic principles and application methods of communication technology by consulting relevant technical literature and using simulation software for independent exploration.

The cooperative communication session further enhances students' teamwork spirit and language expression ability. At this stage, students form study groups to solve difficult problems encountered in self-study through discussion and mutual help, realizing the sharing of resources and the enhancement of collective wisdom. Teamwork is especially important in the teaching of modern communication technology majors. Through group cooperation, students can obtain different ideas for solving problems and enhance their understanding and application of knowledge through mutual inspiration.

The guided innovation link encourages students to engage in innovative thinking and divergent thinking in the learning process. Teachers guide students in this stage to generalize and integrate methods and thinking, question and dig deeper into the learning objectives, and prompt students to make associations by example and by extension. In the teaching of modern communication

technology, students can fully explore their potential and cultivate innovative qualities by designing innovative communication programs or solving practical communication problems.

Multi-evaluation links through the flexible use of self-assessment, mutual assessment teacher-student assessment, and other forms of timely feedback on the learning effect of students. Students in this process can make clear their own strengths and weaknesses, enhance self-confidence, and quickly improve their learning methods and results. In modern communication technology courses, teachers can comprehensively evaluate students' learning through online quizzes, lab reports, and project presentations to help them make continuous progress (Liu, 2021).

Extracurricular extension sessions further extend classroom learning and consolidate students' knowledge and skills by designing extracurricular activities and extended learning tasks. Students can carry out more practical operations and project research outside the classroom to deepen their understanding and application of communication technology.

The introduction of the six-step teaching mode into the teaching of modern communication technology majors not only enhances students' independent learning and practical ability but also promotes their teamwork spirit and innovative thinking, providing strong support for the cultivation of high-quality modern communication technology talents.

3. The Promotion Effect of Online-offline Hybrid on the Six-step Teaching Mode

The online-offline hybrid teaching mode has a significant role in promoting the six-step teaching mode, which enhances the overall teaching effect by fully combining the richness of online resources and the real experience of offline practice.

The online teaching platform provides a large number of learning resources, such as video tutorials, e-books, and interactive courseware, which enable students to conduct independent learning and preview anytime and anywhere, breaking the traditional classroom time and space constraints. In the section on setting questions and setting standards, teachers can use the online platform to create problematic situations and stimulate students' interest in learning and desire for investigation through multimedia means. Students can complete independent inquiry online, find information, watch teaching videos, and participate in online quizzes to flexibly master theoretical knowledge (Zeng et al., 2024). In the cooperation and communication section, online discussion forums and study groups enable students to conveniently interact and communicate remotely, share their insights and resources, and realize resource sharing and collective wisdom enhancement.

Offline teaching complements the shortcomings of online teaching, and through face-to-face practical operations and experiments, students can experience and apply what they have learned firsthand to enhance their practical abilities. In the guided innovation session, teachers can combine the cases provided online and the experiments offline to encourage students to engage in innovative thinking and practical exploration, further tapping students' potential and creativity. In the diversified evaluation session, the self-assessment and mutual assessment functions of the online platform enable students to get timely feedback on their learning progress and deficiencies, while the face-to-face guidance and Q&A of the offline teachers provide more specific and targeted advice. Through the continuity of online resources, students can continue to study and explore after class, consolidate what they have learned in class, and expand their knowledge.

In general, the online-offline hybrid teaching mode provides a more comprehensive and diverse teaching means for the six-step teaching mode, which not only gives full play to the advantages of rich and flexible online resources, but also combines the in-depth experience of offline practice and operation, and effectively promotes the comprehensive enhancement of students' independent learning ability, practical ability and innovative thinking.

4. How to Carry Out the Six-step Teaching Mode Based on Online and Offline Mixing

4.1 Create interactive problem situations to stimulate learning interest

Using the online teaching platform, rich multimedia resources can be provided, such as videos, animations, and simulation experiments, through which students can intuitively understand the problem situation and enhance the sense of commitment to learning through these vivid and imaginative materials. Combined with well-designed problem situations, teachers can effectively stimulate students' interest in learning and desire to explore. In this process, teachers need to choose real problems or cases related to modern communication technology specialties, which should have certain challenging and practical application value, so that students can feel the significance of learning and a sense of achievement in the process of solving problems (Li, 2024). For example, when learning wireless communication technology, teachers can design a problem situation about urban wireless network coverage, so that students can think about how to optimize the network coverage effect and solve the signal interference problem. Students initially understand the background and challenges of the problem by watching relevant videos and using simulation software to analyze the scenarios. In the offline classroom, teachers can organize group discussions for students to share their insights and solutions. Through interactive exchanges, students can not only deepen their understanding of the problem but also stimulate innovative thinking in teamwork. By creating an interactive problem situation, teachers can not only mobilize students' learning enthusiasm, but also help them apply what they have learned in practice, and cultivate the ability of independent inquiry and practical problem-solving. This step lays a solid foundation for subsequent independent inquiry, cooperative exchange, and guided innovation, making the whole teaching process more vivid and productive.

4.2 Utilizing multiple resources to support independent inquiry

In modern communication technology teaching, rich multiple resources can greatly enhance students' independent learning effect and inquiry ability. First of all, teachers should make full use of online resources, such as e-textbooks, teaching videos, online courses, and virtual experimental platforms, which can provide students with anytime, anywhere learning opportunities and help them acquire the necessary knowledge and skills in the process of independent inquiry. For example, they can understand the basic principles of wireless communication by watching video tutorials; and conducting simulation experiments to verify and deepen what they have learned through the virtual experiment platform. Secondly, teachers can encourage students to utilize the Internet for broader data search and information acquisition to cultivate their independent learning and information processing skills (Wang & Lei, 2024). Online forums and learning communities are also important resource platforms where students can ask questions, share experiences, and exchange ideas to obtain more learning support and feedback. To enhance the learning effect, teachers should guide students to choose and utilize these resources reasonably and provide necessary technical support and guidance on learning methods. Again, offline resources should not be neglected. Laboratory equipment, internship opportunities, and professional lectures are important ways for students to conduct independent inquiry. In the process of independent investigation, teachers can arrange for students to participate in actual communication projects to enhance their hands-on ability and application of theoretical knowledge through hands-on practice. Through the organic combination of online and offline resources, students can carry out an independent investigation in a richer and more diverse learning environment, which not only enhances their initiative and enthusiasm for learning but also strengthens their ability to solve practical problems, laying a solid foundation for subsequent cooperation, communication, and innovative practice.

4.3 Build an online and offline collaboration platform to promote cooperation and exchange

Cooperative communication plays an important role in the six-step method, which can effectively enhance students' teamwork spirit and comprehensive problem-solving ability. By building online and offline collaboration platforms, such as learning management systems, discussion forums, video conferencing tools, etc., students can be

provided with a convenient environment for communication and collaboration. Through these platforms, students can discuss, share resources, and exchange opinions anytime and anywhere, thus breaking the limitations of time and space. When studying wireless communication network design, students can use online forums to post design proposals for real-time discussion and feedback to quickly iterate and optimize their designs (Xu , 2024). Offline collaboration is equally important; through group discussions, lab collaborations, and project practices, students can communicate face-to-face to deepen understanding and enhance cooperation. Teachers can organize group discussions in the classroom where students debate a problem and share their insights and solutions. In laboratory classes, students can work in groups to perform practical operations and experiments and develop practical hands-on abilities and teamwork skills by cooperating to complete complex experimental tasks. In addition, teachers need to play a guiding and coordinating role in the whole process to ensure the effectiveness and relevance of communication. At the same time, teachers can arrange regular offline meetings or seminars to summarize the exchange results and discuss the problems and solutions encountered. Based on the online and offline collaboration platform, a multi-dimensional evaluation system can also be implemented, which can provide comprehensive and timely feedback on students' learning effects through the flexible use of self-assessment, mutual assessment, and teacher-student assessment. In this process, students can not only understand their learning progress and deficiencies through self-assessment but also obtain feedback from multiple perspectives through peer-to-peer assessment. Teachers' assessment provides professional guidance to help students clarify the direction of improvement, making the learning process more complete and efficient. Through the effective combination of online and offline collaboration platforms, students can not only promote each other's knowledge and skills but also improve their comprehensive quality and innovation ability in teamwork, laying the foundation for realizing higher-level learning goals.

4.4 Design innovative project tasks to guide innovative thinking

The field of modern communication technology is changing rapidly, and it is crucial to cultivate students' innovative abilities and thinking. Teachers should design innovative project tasks with challenging and practical significance according to the course content and students' interests. For example, when learning wireless communication technology, a city wireless network optimization project can be designed to allow students to apply what they have learned, analyze the problems of the existing network, and put forward improvement proposals. At the same time, the online platform provides rich support of resources and tools that students can use for data collection, analysis, and simulation. Through online collaboration tools, students can share the progress of the project, conduct real-time discussions and feedback, and inspire and motivate each other. Teachers should play a guiding and supervisory role in this process, providing necessary technical support and methodological guidance to ensure the smooth progress of the project. Offline practice is an important part of the project tasks, and students can carry out practical operations and verification in the laboratory to test the feasibility of the theory through practice (Wang, 2022). Teachers can organize students to conduct site visits and data collection so that they can discover and solve problems in a real environment. Through such practical activities, students can not only apply theoretical knowledge to practice but also cultivate innovative thinking and practical ability in the process of solving practical problems. In addition, the presentation and evaluation of the results of project tasks is also an important part. Through the project presentation or defense, students can show their innovative achievements and accept the evaluation and suggestions from teachers and classmates. This not only improves their expression and communication skills but also further stimulates their enthusiasm and motivation for innovation. Through the design and implementation of innovative project tasks, students' innovative thinking and practical ability have been comprehensively practiced and improved, laying a solid foundation for their development in the field of modern communication technology.

Conclusion

The application of the six-step teaching mode in the modern communication technology specialty has a remarkable effect, which successfully improves students' independent learning ability, practical operation ability, teamwork spirit, and innovative thinking. Through setting doubts and setting standards, independent inquiry, cooperative communication, guiding innovation, multiple evaluations, and extracurricular extension, students get comprehensive exercise in systematic learning and practical operation. The online and offline hybrid teaching mode provides richer and more flexible teaching resources for the six-step approach, which effectively enhances the teaching effect through online resources to support independent inquiry, offline practice to enhance operational ability, collaborative platforms to promote exchanges, and innovative projects to guide thinking. In the future, with the deepening application of the six-step teaching mode in teaching, we can explore its applicability and effect in different fields, continue to explore more online and offline hybrid teaching mode practice and application, make full use of modern technical means, innovate teaching methods, comprehensively improve the quality of teaching and cultivate more high-quality professionals. Through continuous improvement and innovation, the six-step teaching mode and the online-offline hybrid mode will work together to promote the development of education and meet the diversified needs for talent training in the new era.

Conflict of Interest

The authors declare that he has no conflicts of interest to this work.

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