Innovation and Reform of Graduate Teaching Mode Supported by Computer IT

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Abstract: The purpose of this study is to explore the innovative reform of postgraduate instructional mode supported by computer information technology (IT). Through the analysis of the current postgraduate instructional mode in the introduction, this paper points out the limitations of the traditional mode and the necessity of reform. The research results show that the application of IT in teaching has significantly improved the learning interest and practical ability of graduate students, especially the introduction of new instructional modes such as mixed teaching and flip classroom, which has effectively promoted students' active learning and innovative thinking. At the same time, the application of IT in the teaching of liberal arts graduate students has also achieved remarkable results, which has enhanced students' understanding and mastery of abstract knowledge. This study not only discusses the positive role of IT in teaching, but also provides a useful reference for the innovation and reform of postgraduate instructional mode.

1. Introduction

With the rapid development of science and technology, computer IT has penetrated into all aspects of our lives, including the field of education [1]. The traditional postgraduate instructional mode is mostly based on lectures, and students' participation and practicality are relatively low [2]. In the era of information explosion, this instructional mode has been difficult to meet the needs of students for knowledge acquisition, skills upgrading and innovative thinking training [3]. Therefore, it has become an urgent problem in the field of education to innovate and reform postgraduate instructional mode with the help of computer IT [4].

Postgraduate education is an important part of high-level personnel training, and the advanced and effective instructional mode is directly related to the quality of personnel training [5]. Through the introduction of IT, we can enrich teaching methods, improve teaching efficiency, enhance students' autonomous learning ability and innovative thinking, and thus better cultivate high-quality talents to meet the needs of social development [6].

At present, many colleges and universities have begun the deep integration of IT and postgraduate teaching, providing students with more diversified and personalized learning experiences through online courses, virtual laboratories and interactive learning platforms [7]. These innovative practices not only improve students' learning interest and effect, but also cultivate their autonomous learning and cooperative learning ability. The purpose of this study is to explore a way of innovation and reform of postgraduate instructional mode suitable for China's national conditions by analyzing the application status of IT in teaching and combining the actual situation of postgraduate education.

2. Integration of IT and teaching

2.1. The development course of IT and its teaching application

The development of IT is changing with each passing day. From the initial computer-aided teaching to online education and virtual reality teaching, the application of IT in teaching is more and more extensive and in-depth [8]. The development of these technologies provides more possibilities and convenience for teaching.

In teaching application, IT can be used to make multimedia courseware, create online learning

platform, realize distance teaching and so on. For example, teachers can show abstract and complex knowledge points in various forms such as graphics, text, audio and video through multimedia courseware to improve students' learning interest and understanding ability; Students can learn and test independently anytime and anywhere through the online learning platform, breaking the time and space constraints.

2.2. The advantages and challenges of IT in teaching

The application of IT in teaching has brought many advantages [9]. First of all, it enriches teaching methods and forms, making teaching more vivid and interesting; Secondly, IT improves the efficiency and quality of teaching, so that teachers can impart knowledge more efficiently and students can acquire knowledge more conveniently. Finally, IT helps to cultivate students' autonomous learning and cooperative learning ability, and lays a solid foundation for their future development.

However, IT also faces some challenges in teaching, such as Table 1:

Table 1 Challenges IT faces in teaching

Serial number	Challenge content	Detailed description
1	Teacher's skill demand	Teachers need to constantly learn and master new IT knowledge and skills to meet the ever-changing teaching needs.
2	Students' information literacy requirements	Students need to have high information literacy and discrimination ability when facing the massive network information and resources.
3	Economic and resource input	The application of IT in teaching needs to invest a lot of money and equipment support, which poses a certain burden to areas and schools with poor economic conditions.

Therefore, in the process of promoting the integration of IT and teaching, it is necessary to fully consider various factors and challenges and formulate scientific and reasonable implementation plans and strategies.

3. Innovation of postgraduate instructional mode

3.1. Limitation of traditional mode and exploration of new mode

The traditional postgraduate instructional model is often teacher-centered, focusing on the one-way transmission of knowledge. In this mode, students are mostly in a state of passive acceptance, lacking practical opportunities and space for active thinking. In addition, the traditional instructional mode has great limitations in time and space, and it is difficult to meet the needs of students' personalized learning.

With the renewal of educational concept and the progress of technology, the exploration of new instructional mode has gradually become the focus of educational reform. These new models pay more attention to students' dominant position, emphasize teacher-student interaction and student-student interaction, and devote themselves to cultivating students' innovative thinking and practical ability. For example, blended teaching, flip classroom, project-based learning, etc. are all new instructional models that have attracted much attention at present.

3.2. IT helps the innovation of instructional mode

IT plays a vital role in the innovation of instructional mode, as shown in Figure 1.

First of all, IT provides a variety of teaching resources for teaching, such as online courses, online lectures, virtual laboratories, etc. These resources can be accessed by students anytime and anywhere, greatly expanding the time and space for learning. Secondly, IT provides a convenient platform for teacher-student interaction. Through online discussion, real-time question-and-answer and other functions, teachers can keep abreast of students' learning situation and problems and provide personalized guidance. At the same time, students can participate in learning more actively

and have in-depth exchanges and discussions with teachers and classmates. In addition, IT can support the implementation of many new teaching methods. For example, in the flip classroom, teachers can use IT to make micro-lesson videos for students to teach themselves before class; In class, students can be organized to have group discussions and show their achievements through interactive software. The application of these IT not only improves the teaching efficiency, but also stimulates students' interest in learning and creativity.
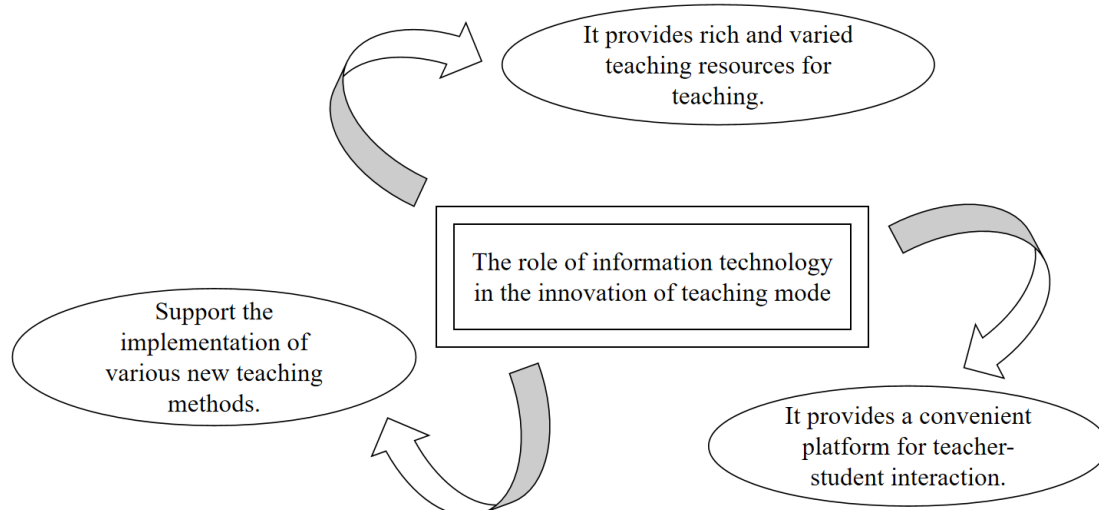
Figure 1 The role of IT in the innovation of instructional mode

4. Teaching practice of liberal arts graduate students

4.1. Teaching characteristics of liberal arts graduate students

The teaching of liberal arts graduate students is significantly different from that of science and engineering. It pays more attention to cultivating students' critical thinking, analytical ability and humanistic quality. This teaching direction aims at shaping high-level professionals with profound humanistic quality and independent thinking ability. Table 2 specifically shows the teaching characteristics of liberal arts graduate students.

Table 2 Teaching characteristics of liberal arts graduate students

Serial number	Teaching characteristics	Detailed description
1	Cultivation of critical thinking	Emphasis should be placed on cultivating students' critical thinking abilities, enabling them to independently think, analyze, and evaluate different perspectives.
2	Improvement of humanistic quality	Emphasizing the cultivation of humanistic literacy, by reading classic literature, understanding different cultural backgrounds, and improving students' understanding of human civilization.
3	In-depth analytical ability	Train students to conduct in-depth analysis of literature, historical events, and social phenomena, and explore their underlying meanings and influences.
4	Classical literature reading	Guide students to read classic literature in depth, understand and absorb the knowledge, ideas, and viewpoints contained therein.
5	Interdisciplinary research vision	Encourage students to break down disciplinary barriers, integrate knowledge from different fields, and understand social and cultural phenomena from a more comprehensive and in-depth perspective.
6	Cultivation of expression ability	Emphasize the oral and writing abilities of students, so that they can clearly and accurately convey ideas and viewpoints.

In the instructional process, teachers shoulder the heavy responsibility of guiding students to explore and study deeply. For liberal arts graduate students, in-depth reading of classic literature is an essential part. These documents are not only the carrier of knowledge, but also the witness of

history and the inheritance of culture. Through reading, students can be exposed to ideas and social phenomena in different cultural backgrounds, thus broadening their horizons and enhancing their understanding and respect for multiculturalism. In the process of guiding students to read, teachers also need to pay attention to cultivating students' critical thinking. This requires students not only to understand and accept the viewpoints in the literature, but also to analyze and evaluate them in depth. By comparing different documents and viewpoints, students can exercise their critical thinking ability and form independent opinions and judgments. At the same time, the teaching of liberal arts graduate students also emphasizes the cultivation of students' expressive ability. Both oral expression and written expression are important ways for students to convey ideas and exchange views. Teachers need to provide sufficient opportunities and platforms for students to constantly improve their expressive ability in practice, so that their thoughts can be conveyed to the outside world more clearly and accurately.

In addition, the teaching of liberal arts graduate students also emphasizes interdisciplinary research methods and horizons. In today's society, the knowledge of a single subject has been difficult to meet the needs of solving complex problems. Therefore, teachers need to help students break down academic barriers and integrate knowledge and methods in different fields. This will not only enable students to look at problems from a more comprehensive perspective, but also stimulate their innovative thinking and provide more possibilities and ideas for solving practical problems.

In order to achieve this goal, teachers can design and organize some interdisciplinary teaching activities or projects. For example, teachers and students with different academic backgrounds can be invited to exchange and discuss, or students can participate in comprehensive research projects involving multiple disciplines. Through these practical activities, students can personally experience the charm and value of interdisciplinary research, and thus more actively participate in the study and exploration in this field.

4.2. The practical application of IT in the teaching of humanities graduate students

In the teaching of liberal arts graduate students, the application of IT also has a broad space. The following are some specific applications:

Digital resource library: through the establishment of digital resource library, all kinds of classic literature, historical data and research data are integrated to provide students with convenient retrieval and reading services. This can not only save students the time to find information, but also help them to conduct interdisciplinary comprehensive research.

Online discussion platform: With online discussion platform, teachers can organize students to carry out activities such as topic discussion and case analysis. Students can express their opinions and comment on others' ideas on the platform, and have real-time communication and feedback with teachers and classmates. This interactive learning method is helpful to improve students' participation and critical thinking ability.

Virtual reality technology: VR technology can create realistic historical scenes or cultural environments for students, so that they can feel the cultural atmosphere of different times and regions in an immersive way. This immersive learning method is of great value to liberal arts graduate students, which can help them to understand historical, cultural and social phenomena more deeply.

Online writing and collaboration tools: liberal arts graduate students often need to write a large number of papers and research reports. Online writing and collaboration tools can provide convenient editing, modification and sharing functions to help students complete their writing tasks more efficiently. At the same time, these tools can also support multi-person collaborative editing and promote cooperation and communication between students.

5. Conclusions

Through in-depth analysis of the application of computer IT in postgraduate teaching, this study has drawn a series of important findings. First of all, the effective application of IT in teaching can

significantly enhance the learning interest and efficiency of graduate students, especially the new instructional modes such as mixed teaching and flip classroom, which enhance students' participation and practical ability. Secondly, through research, this paper finds that the integration of IT in the teaching of liberal arts graduate students not only enriches teaching methods, but also improves students' understanding and mastery of abstract theoretical knowledge. Finally, the innovative reform strategy put forward in this study has been verified in practical teaching, which proves its feasibility and effectiveness.

Although some achievements have been made in this study, there are still some limitations. First of all, the research scope is relatively limited, mainly focusing on the teaching of liberal arts graduate students, and the exploration of teaching reform in other disciplines such as science and engineering is insufficient. Secondly, the limited experimental time and sample size may affect the universality and popularization of the research.

Looking forward to the future, we will further expand the research scope and explore the application effect of IT in postgraduate teaching in different disciplines. In-depth study on how IT can better combine with traditional teaching methods to optimize the teaching effect. In addition, we will also pay attention to the application of IT in teaching evaluation in order to establish a more scientific and comprehensive teaching evaluation system.

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