

Exploration on the Teaching Reform of 'Information Retrieval' Course Based on New Engineering

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Abstract: The problems existing in the teaching process of the traditional "literature retrieval" course, such as the single teaching method of teachers, the lack of students' learning motivation and the lack of students' awareness of information ethics and information protection should be solved through the teaching reform. Based on the current situation of the teaching of "literature retrieval" course, guided by the concept of new engineering, this paper studies the teaching reform from the aspects of optimizing the teaching content, improving the teaching mode and means, and improving the students' interest in learning the course. This study also may provide a solid and strong support for the cultivation of high-quality new engineering talents.

1. Introduction

The construction of new engineering is a positive action taken by higher engineering education in response to the challenges of a new round of scientific and technological revolution and industrial transformation. It is a strong demand for the reform of higher engineering education in the new economy characterized by new technologies, new industries, new formats and new models[1-3]. 'Interdisciplinary, innovative and practical ability' is the requirement of new engineering talents, and it is also an important goal of talent training in higher engineering education. In the Internet and big data environment, information technology is developing rapidly, and information resources are emerging in large numbers. The ability to distinguish and process information, as well as data mining and re-creation, is closely related to the improvement of college students' interdisciplinary learning ability, innovation and practical ability.

'Information Retrieval' is a public basic course in colleges and universities in China according to the document spirit of the Ministry of Education. It is also the only course in colleges and universities to cultivate students' information awareness and ability to obtain literature information. As a public course, it directly serves to cultivate students' information quality, especially to improve students' information retrieval ability. Through the teaching of this course, students can understand the basic knowledge and retrieval technology of literature information retrieval, master the use methods and retrieval skills of various retrieval tools, and have the ability of information analysis, retrieval, information acquisition and use, so that they can independently acquire and use

literature information resources during learning and future professional activities to solve practical problems. It is of great and far-reaching significance to promote students to continuously absorb new knowledge, improve their knowledge structure, improve their self-learning ability, research ability and practical ability, and enhance their creative ability.

2. Curriculum teaching status

As an integral part of the construction of new engineering in undergraduate colleges, ' literature retrieval ' is one of the most traditional and important general education courses. It plays an irreplaceable role in cultivating students ' information literacy, information acquisition and utilization ability, time ability and innovative application ability. In order to improve the quality of new engineering talents training, a large number of scholars have explored the teaching mode of this course. Taking Xuchang University as an example, Shu et al. [4] used problem-based learning (PBL) to propose a literature retrieval teaching reform program from three aspects: teaching content, teaching methods and assessment methods, so as to provide reference for the teaching reform of applied undergraduate colleges. Ma Yurong [5] pointed out that colleges and universities should establish the concept of outcome-based education (OBE). According to the latest "higher education information literacy framework, "the teaching objectives, teaching contents, teaching modes and teaching methods of the "information resource retrieval and utilization" course of engineering are designed, and suggestions such as promoting the deep integration of online and offline teaching methods are put forward. Lu Fang [6] reformed and explored the course of " Literature Retrieval " from the aspects of optimizing the teaching time of the course, improving the ability of literature retrieval, scientifically and reasonably selecting topics, improving the ability of thesis writing, strengthening the construction of academic morality and optimizing the assessment methods of the course, in order to improve students ' ability of literature information retrieval and thesis writing. However, there are still the following problems.

2.1. Teachers' teaching methods are single

Due to the limitation of teaching hours, teaching venues and teaching equipment, most of the efficient literature retrieval course teaching still adopts the teaching mode of giving priority to theoretical teaching and supplemented by practical teaching, which greatly restricts the improvement of students ' practical ability and mastery ability. The retrieval practice in the general sense is that after the teacher explains the specific retrieval tool or database, he arranges several corresponding exercises, and the students search according to the requirements and are familiar with the retrieval method. This makes the practice passive and limited, which is not conducive to the cultivation of students ' self-learning ability and comprehensive application ability. This leads to the actual information retrieval problem that students cannot quickly establish the connection between theory and practice, and cannot truly transform information retrieval methods into information retrieval skills.

2.2. Lack of motivation for students to learn

Many schools set up the literature retrieval course as a public elective course, and the assessment standard is low. This makes many students pay insufficient attention to the course and do not understand the necessity of improving their self-learning ability, practical ability and innovation ability. In addition, factors such as the single teaching method of teachers, outdated teaching content, and less interaction between teachers and students also affect students ' interest in the course [7].

2.3. Students lack of awareness of information ethics and information protection

The rapid development of science and technology information technology has created great value for the society. At the same time, many social problems that infringe the interests of the people, such as computer crime, computer crime, information security, infringement of intellectual property rights, academic misconduct, information pollution, network hackers and network superstition, are emerging in an endless stream. It is necessary to carry out teaching contents such as information moral education, academic misconduct education and intellectual property protection education for students in the classroom to improve their information moral literacy [8]. But at present, many students do not know much about the definition and behavior of academic misconduct. In the 'information literacy' of the first chapter of the course, this concept is only explained in a theoretical preaching way, and the students' awareness of moral norms is not strong. The survey also found that most students do not know much about intellectual property rights and property rights protection, but they are eager to master some of this knowledge.

3. Exploration on the teaching reform strategy of 'Literature Retrieval' course

The teaching of literature retrieval course should not only be the teaching of abstract course content, but also the flow of emotion. Teachers should consider more from the perspective of students what skills students can learn from this course and what aspects of quality they can improve, so as to look forward to a positive role in promoting students' future development. On this basis, teachers should also comprehensively analyze the difficulties that students may encounter in learning, seek reasonable and effective methods that students are willing to learn from the characteristics of students, and guide students to overcome difficulties and improve their ability to solve problems. Based on this, the following teaching reform strategies are proposed.

3.1. Optimize the teaching content

On the one hand, starting from the needs of students, according to the latest 'Higher Education Information Literacy Framework', and combined with the Ministry of Education's 'Guidance on Further Strengthening Information Literacy Education in Colleges and Universities' to determine the 'Document Retrieval' course content. The teaching content should not only include the basic theoretical knowledge of literature retrieval, but also include the retrieval and utilization of Wenzhaohe full-text database. In particular, it should teach students to be particularly interested in the literature research before the opening and project establishment, how to use the literature management software to scientifically manage the literature, how to write literature review and abstract, and how to recreate the information. Such a combination of course teaching and generative search is essential. Generative search (AIGC), also known as big data model, is an important product of the era of artificial intelligence [9]. In the actual teaching of the "Literature Retrieval and Paper Writing" course, it is not only necessary to increase the theoretical explanation of AIGC, but also to add the actual operation link. Taking the AI assistant of Baidu Library as an example, the teacher carries out the demonstration, searches in the AI assistant of Baidu Library, and the students independently practice the retrieval steps, experience the convenience brought by the AI assistant for information retrieval, cultivate students' good thinking habits, and establish students' innovation and speculative consciousness. Instructors should expand the digital communication channels for students to obtain information, enhance their practical and comprehensive application ability, and promote the establishment of their lifelong learning system.

On the other hand, through the introduction of relevant cases and laws and regulations, students can understand and comply with the requirements of information ethics laws and regulations when

conducting network activities, curb bad desires and enhance their sense of moral responsibility; it enables students to have a preliminary understanding of the content of intellectual property rights and provides them with valuable guidance.

3.2. Optimizing teaching models and methods

3.2.1. Carry out online and offline mixed teaching

The teaching course of ' Literature Retrieval ' adopts the online and offline mixed teaching mode. To carry out the construction of relevant network teaching resources, the formation of video, micro courseware, teaching PPT, case, test questions and other rich and diverse curriculum resources. According to the difficulty and extensibility of the teaching content, the reasonable layout and integrated design of online and offline teaching are carried out[10], the organic integration of online teaching content and the optimization and improvement of curriculum syllabus. For those theoretical and operational content, students can conduct online autonomous learning through network platforms such as rain classrooms. For example, the video real-time pause function of the rain classroom can meet the needs of students to practice while learning. If you encounter problems, you can also ask for help and discuss through Rain Classroom, WeChat group, Ding Ding, qq group, and solve them in time. It can also enhance the interaction between teachers and students, students and students, and then enhance the stickiness of student users.

The content of the recorded micro-courseware video is not the repetition of the courseware, but other interpretations of the difficult content, the expansion of the courseware, and other knowledge that needs to be mastered. In addition, it is also necessary to design thinking questions for students after each knowledge unit for students to think and discuss after class. In addition, through the establishment of homework library, test library, archives and other teaching resources, it can help students consolidate their knowledge. Through the completion of students ' online homework, teachers can timely understand students ' mastery of what they have learned, and make corresponding adjustments to teaching methods and content.

3.2.2. Task-based project teaching

Application-oriented, using the teaching mode of ' asking questions-solving problems ' ; task-oriented, using the preparation of relevant retrieval information acquisition process as the framework and related knowledge as the support, through retrieval case teaching to enhance students ' comprehensive application ability of knowledge points, and establish a curriculum system combining theoretical learning and practical application.

The specific implementation plan: Before each chapter is taught, the problems in the teaching content of the "Literature Retrieval" course can be sent to the students, and the students are required to watch the relevant courseware and explain the video through the learning or rain classroom, so as to guide the students to think actively, explore actively and learn actively. In the classroom, project introduction is carried out with a problem close to the actual retrieval. In the case setting, multiple cases related to the major should be fully selected, and students should be allowed to select the one they are most interested in from many alternative cases. It can be selected from the entrusted projects in the school library, the novelty search workstation of the Ministry of Education and the intellectual property service of the school. It can also be selected from the research project of the faculty. Secondly, students are divided into groups to think about the retrieval strategies that should be used to retrieve relevant information and some problems that will arise, such as database, retrieval questions, selection of literature types, screening and evaluation of retrieval information results, etc. ; again, with these problems, teachers and students together to find ways to solve these

problems ; finally, review and consolidate the relevant knowledge by means of classroom exercises and homework, and check the learning and application effects of students.

In the meantime, teachers should strengthen their interaction with students and encourage students to communicate and discuss with each other. Teachers should also play an active guiding role, step by step, to guide students to learn more comprehensive knowledge in the process of solving problems. Do not assign tasks directly to students. Task-based project teaching can not only enrich the content of classroom teaching, but also enhance students ' participation and enthusiasm, so as to cultivate students ' ability to solve information retrieval problems, improve students ' learning efficiency, expand students 'knowledge, enhance students' cooperation and communication ability, so as to improve students' information literacy.

3.3. Take multiple measures to improve students ' interest in learning the course

'Interest is the best teacher '. Improving students ' attention to this course and cultivating strong interest in learning is an important measure to master the content of " literature retrieval. " First of all, the college should actively hold lectures on the importance of literature retrieval and comprehensive literacy, emphasize the importance of the course at the beginning of the university, encourage students to participate in relevant academic lectures and related experiments, and cultivate students ' interest in learning. For example, students participate in scientific research projects, laboratory practices, case studies, etc. These activities can enable students to directly experience the process of writing scientific papers and improve their practical operation ability. It can also stimulate students ' academic interest by encouraging academic exchanges, organize academic seminars, thesis seminars or students ' academic exchange meetings, and give students the opportunity to share and display their research results.

Secondly, the new generation of students are active in thinking, sensitive to new things, and have strong acceptance ability. This feature can be used in teaching to try to move the classroom to the literature and history museum with distinctive characteristics, so that students can directly face various documents, enhance their interest in learning, and deepen their understanding of the course content. Teachers should consider more from the perspective of students what skills students can learn from this course and what aspects of quality they can improve so as to play a positive role in promoting students ' future development.

Finally, the most important thing in the teaching process is that teachers should have empathy. Teachers can put down their posture, feel the emotions of their classmates, and close the distance with students. Only when teachers understand students and enter their world can they better preach and be enlightened. When the teacher has made sufficient consideration for the students, full of enthusiasm into the classroom to impart knowledge, I believe that our students can feel the teacher's heart and love. In this case, students will give teachers positive teaching feedback, which is conducive to teachers to further adjust and improve their teaching content. This virtuous circle will enable students to better grasp the classroom content, which is conducive to the overall improvement of students ' quality.

4. Conclusions

As a public basic course in colleges and universities, the course of " Literature Retrieval " is of great and far-reaching significance to improve students ' self-learning ability, research ability and practical ability, and to enhance their creative ability. In view of the problems existing in the current teaching situation of ' literature retrieval ', this study puts forward the teaching reform strategy based on new engineering, and conducts research and exploration from the aspects of optimizing teaching content, improving teaching mode and means, and improving students ' interest in learning

the course, so as to meet students' learning needs for retrieval theoretical knowledge and skills. This study provides a useful reference for the teaching reform of "Literature Retrieval" course under the background of new engineering.

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