Exploring Teaching Reform Methods in Innovation, Invention, and Intellectual Property Practice Courses

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Abstract: "Innovative Invention and Intellectual Property Practice" is one of the specialized modules in entrepreneurial education, aimed at educating and practicing students in scientific innovation and intellectual property. The course incorporates core beliefs and values-based education, constantly exploring and boldly experimenting in teaching practice. Ultimately, a set of effective teaching strategies suitable for student needs is formed, addressing teaching challenges and enhancing the educational impact of the course. Starting from the current situation of university courses on innovation invention and intellectual property practice, this article explores the significance and practical path of integrating course ideology and teaching, introduces the application of innovative invention cases in classroom practice through practical cases, and conducts a detailed analysis. It proposes a teaching reform strategy of "people-oriented" and evaluates the effect of teaching reform, pointing out the development path and direction under the ideology of future courses.

Keywords: Innovation; Invention; Intellectual Property Practice; Core Beliefs; Values-based Education

1. Introduction

The "Guiding Opinions of the Ministry of Education on Deepening the Reform of the Title System for Teachers in Higher Education Institutions" points out the importance of prioritizing ethics and educating students. It emphasizes putting people first and innovating mechanisms, as well as focusing on problem orientation and precise measures. The guidance provided in this document is beneficial for advancing the construction of Curriculum reform teaching in university courses. Curriculum reform teaching in courses, as an emerging educational concept, aims to fully explore the educational potential of each course [1]. By integrating professional knowledge with Curriculum reform teaching, it aims to stimulate students' enthusiasm and efficiency in learning, achieve the goal of Curriculum reform teaching in a more subtle and effective way, and ultimately cultivate talents. This teaching model aims to enhance students' humanistic qualities and moral cultivation, encouraging them to apply the knowledge they have learned to solve real problems in China and explore the future development path of China [2-3].

The course aims to enable students to describe the intellectual property system, inspire enthusiasm for innovation, and enhance awareness of rights. It deepens students' understanding and practice of the core values, especially emphasizing the importance of values such as integrity, fairness, and the rule of law in the field of innovation, invention, and intellectual property practice. It guides students to abide by social moral norms in innovative practices, respect others' intellectual property rights, and cultivate correct moral concepts. Furthermore, it discusses China's achievements in innovation, invention, and intellectual property protection, enhancing students' identification and pride in national development. It guides students to pay attention to national development strategies, understand the importance of innovation for national competitiveness, and inspire them to contribute to the country's development. Emphasizing the importance of teamwork in course design and practical projects, it cultivates students' spirit of teamwork. It enhances students' communication skills, enabling them to communicate effectively with others and collaborate to solve problems. While studying the course on innovation, invention, and intellectual property practice, students also receive Curriculum reform teaching, forming good moral qualities and a

sense of social responsibility [4-6].

2. The Significance of Integrating Curriculum Reform Teaching into Teaching

Integrating Curriculum reform teaching with practical teaching on innovation, invention, and intellectual property rights is of great significance. This integration not only helps cultivate students' innovative spirit and practical abilities but also guides them to deepen their understanding of the theory and practice with Chinese characteristics. Through Curriculum reform teaching, students can deeply grasp the essence with Chinese characteristics and recognize the important role of innovation in promoting social progress. At the same time, by combining practical teaching on invention and intellectual property rights, students can learn about the transformation and protection of innovative achievements, enhancing their legal awareness and innovation capabilities. This integrated teaching also helps cultivate students' sense of social responsibility. By studying the laws and regulations of intellectual property rights, students can understand the social value of innovative achievements, thus valuing and respecting the innovative work of others more. Additionally, they will be more actively engaged in innovative practices, contributing to the development of society [7-8].

The integration of Curriculum reform teaching, innovation and invention, and intellectual property practice teaching is not isolated; they are closely related and interact with each other. Curriculum reform teaching can provide correct value orientation and ethical constraints for innovation and invention; innovation and invention can enrich the practical content and cases of Curriculum reform teaching; intellectual property practice teaching can safeguard the legitimate rights and interests of innovation and invention, promote the transformation and application of innovative achievements. The integration and coordination of the three can form a strong educational force, jointly promoting the connotative development of higher education. This integrated educational model can cultivate new talents with innovative spirit, practical ability, legal awareness, and moral concepts for the new era. These talents can not only make significant contributions in the fields of science and technology, economy, and culture but also become an important force to promote social progress and civilization development [9-10].

Therefore, the integration of Curriculum reform teaching in the curriculum with innovation, invention, and practical teaching of intellectual property rights is of great significance for cultivating new talents with innovative spirit and practical ability in the new era and is an important measure to promote the connotative development of higher education.

3. Exploration of Integrating the Curriculum Reform Teaching Concept into Practical Paths

In teaching practice, integrating the core beliefs and values-based education concepts into curriculum design and teaching practice can effectively promote the cultivation of students' innovative invention ability. The integration of ideological and practical aspects in the curriculum can guide students to establish correct outlooks on life, values, and the world, as well as stimulate their innovative potential, driving their development in the field of intellectual property practice.

In the teaching of innovative inventions and intellectual property practice, the integration of Curriculum reform teaching in the curriculum can be reflected in various ways. Firstly, in the course design, emphasis can be placed on integrating Curriculum reform teaching elements throughout the entire course structure, guiding students to recognize the importance of technological innovation and establish the correct concept of innovation and invention while studying practical knowledge of intellectual property. Secondly, in teaching content and case analysis, elements of Curriculum reform teaching can be integrated to guide students to face moral dilemmas and intellectual property protection issues in innovation and invention practice with the correct ethical and legal concepts. Furthermore, in teaching methods, various teaching methods such as case discussions and practical exercises can be used to cultivate students' innovative thinking and practical abilities, while guiding them to integrate innovative inventions with social responsibility and enhance their overall quality.

The integration of ideological and practical courses can not only help students acquire

professional skills in innovation, invention, and intellectual property practice, but more importantly, guide them to distinguish right from wrong, establish correct values, and combine innovation and invention with social development and human well-being. In this way, students can not only form correct outlooks on life and values in practice, but also make positive contributions in the field of intellectual property practice, promoting the development of innovation and invention. In conclusion, the integration of ideological and practical courses is not only conducive to cultivating students' ability in innovation and invention, but also guides them to establish correct outlooks on life and values, injecting more positive energy into the development of intellectual property practice.

4. Selection and Interpretation of Innovative Invention Cases

As part of the exploration of teaching reform in the course of "Innovation Invention and Intellectual Property Practice" under the core beliefs and values-based education, representative innovation invention cases are selected for in-depth interpretation and analysis in the course teaching to help students better understand the practical application of innovation invention. Through this approach, it is hoped to inspire students' creativity and innovation awareness and guide them to apply the knowledge they have learned to solve practical problems.

Take the case of Tu Youyou's development of artemisinin as an example. Tu Youyou successfully extracted the neutral extract from Artemisia annua in 1971 and found that it had a 100% inhibition rate against Plasmodium berghei and Plasmodium knowlesi. However, at that time, China did not have a truly meaningful patent system and did not attach enough importance to intellectual property rights. The technology became a publicly available resource after being published in the form of a paper. Foreign companies used this technology to apply for a large number of peripheral patents, thus gaining huge profits. According to relevant data, the annual sales of artemisinin and its derivatives reached as high as 1.5 billion US dollars at that time. In the public market, which accounted for over 80% of the total, Chinese companies accounted for less than 10% of the profits. China only began to implement its first patent law in 1985. Tu Youyou won the Nobel Prize in Physiology or Medicine in 2015 for successfully extracting artemisinin, but artemisinin, as one of the few original drugs recognized by the world from China, did not have its own patent. By interpreting this case, students can be guided to strengthen their awareness of patents, improve the intellectual property protection system, enhance independent innovation capabilities, and balance research input and output to ensure that China gains an advantage in global competition. Without patent protection, a new technology would result in significant losses for both individuals and countries.

Another case is Jay Sorensen in the documentary "Million Dollar Genius." This is a typical example of an ordinary person turning whimsical ideas into huge wealth through relentless efforts and innovative thinking. An experience of burning his hand while buying coffee prompted Jay Sorensen to think about how to better hold a hot cup of coffee. His initial idea was to create a new type of paper cup with a sleeve, but this design was too complicated, and he was not successful. In the process of seeking a solution, he was inspired by shirt collar protectors and decided to make a paper cup sleeve that wraps around the center of the cup. After repeated experiments and improvements, he finally developed a unique coffee cup sleeve. This sleeve was not only cost-effective but also effectively prevented hot coffee from scalding hands. Jay's insulated cup sleeve was warmly welcomed in the market as soon as it was launched. His product quickly became popular, selling two million sleeves a day with annual sales reaching $700 million. This innovative product completely changed the way coffee is served worldwide, allowing more people to enjoy hot coffee safely and comfortably.

The story of Jay Sorensen tells us that with innovative thinking and relentless effort, ordinary people can also become true "million-dollar geniuses". His experience inspires more people to explore their potential and create their own wealth and success with wisdom and hard work.

First, analyze the case and extract the key elements. Analyze the reasons for the success of the case and extract the key elements of innovative inventions. These elements may include keen observation, courage to challenge

the status quo, perseverance in continuous experimentation and improvement, etc. Through this analysis, students will understand that innovative inventions require not only inspiration but also continuous effort and practice.

Next, discuss cases and expand thinking. In order to help students have a deeper understanding of the importance of innovative inventions, group discussions can be organized. In groups, students can share their views and feelings about the story of Jay Sorensen, as well as discuss other cases of innovative inventions. Through discussions, students can expand their thinking and understand the significance and value of innovative inventions from different perspectives.

Once again, design practical tasks to cultivate innovative abilities. Design some practical tasks to cultivate students' innovative abilities. These tasks can include having students design an innovative product, solve a real-world problem, etc. Through practical tasks, students can experience the process and challenges of innovation invention firsthand, thereby gaining a better understanding of its importance and value.

Finally, guide reflection and summarize the gains. At the end of the course, students should be guided to reflect on and summarize the content they have learned. Through reflection, students can think about their strengths and weaknesses in innovation and invention, and how to improve their innovative abilities. At the same time, encourage students to apply the learned content to real life, using innovation to change their own lives and society.

By selecting representative innovative cases, conducting in-depth analysis and developing strategies, students can better understand the practical application of innovative inventions, stimulate their creativity and innovation awareness, and guide them to apply their knowledge to solving practical problems. The use of such practical cases in classroom teaching will provide students with richer learning experiences, promote their professional development in the fields of innovation, invention, and intellectual property.

5. ‘People-oriented’ Teaching Reform Strategy

Exploring the teaching reform of Curriculum reform teaching in the undergraduate course 'Innovation, Invention, and Intellectual Property Practice', digging out core beliefs and values-based education elements in professional courses, refining the value of education, balancing knowledge imparting and value guidance, and cultivating high-quality innovative talents with both morality and talent [1]. Through innovative classroom teaching, the organic integration of subject knowledge teaching and Curriculum reform teaching is strengthened. In the Curriculum reform teaching of the course, emphasis is placed on using touching stories around us, teachers' words and deeds, care and concern for students, guidance and assistance during critical academic periods, and other ways to enhance emotional communication between teachers and students, achieving Curriculum reform teaching in daily life and emotional support for education.

Learning is not simply the process of teachers imparting knowledge to students, but rather the process of students autonomously constructing knowledge. Therefore, teachers need to conduct in-depth analysis of students before class, understand students' receptivity to new knowledge, use appropriate teaching methods that suit students, design teaching content that adapts to students' personalities and abilities, and take remedial measures for students who have learning difficulties. That is, teachers should prepare for students before preparing for lessons, implement differentiated instruction, enhance the pertinence and effectiveness of teaching, optimize the teaching process, and promote the achievement of teaching goals. For example, in the first class, a questionnaire survey can be used to understand students' needs and interests in the course. In addition, through classroom interactions, teachers can identify which students are more likely to answer questions, which are more introverted and silent, and which are more proactive. This information can be used to tailor teaching methods in subsequent courses, especially in interactive teaching sessions.

In addition, teachers should focus on stimulating students' innovation consciousness and guiding them to apply the knowledge they have learned to solve practical problems, cultivating students' innovative thinking in classroom teaching. By designing heuristic questions, case studies, and other methods,

teachers can stimulate students' thinking, guide them to come up with novel ideas and solutions. At the same time, teachers can encourage students to carry out extracurricular research projects, provide necessary support and guidance, and help students continuously improve their innovation ability and independent thinking skills through practice.

Finally, schools can also encourage students to participate in intellectual property competitions, patent applications, and other activities, rewarding outstanding works and inventions to stimulate students' enthusiasm and motivation for innovation. By comprehensively applying the above strategies, students' innovative thinking can be effectively cultivated, their awareness of intellectual property rights can be enhanced, and a solid foundation can be laid for the development of students' comprehensive quality and innovation ability.

6. Evaluation of Teaching Reform Effects

By observing students' performance in experiments, practices, projects, and other practical activities, evaluate whether they have effectively mastered the relevant skills. Evaluate students' academic level by comparing their exam scores, homework quality, course papers, etc., before and after the reform to see if there has been an improvement. Assess whether students can think independently, solve problems, and demonstrate innovation awareness and abilities. Understand students' satisfaction with the course and teaching, as well as their participation in classroom discussions, group activities, etc., through surveys, interviews, and other methods. Evaluation methods and tools include quantitative assessment: using quantitative indicators such as exam scores, participation, satisfaction, etc., for evaluation; qualitative assessment: obtaining in-depth feedback through interviews, observations, case studies, etc.; diversified assessment: combining various assessment methods and tools to ensure the comprehensiveness and accuracy of the evaluation results.

Through continuous curriculum development and the implementation of curriculum Curriculum reform teaching reform, students' evaluation of the teaching quality of the course "Innovation, Invention, and Intellectual Property Practice" has significantly improved. The evaluation results for the year 2022 show that after the end of the course, students gave a comprehensive score of 95.67 (out of 100) for indicators such as clear learning objectives, emphasis on key points in teaching, classroom atmosphere, teaching effectiveness, assessment and management, and serious guidance outside of class. Regarding the situation where students deeply understand the technological innovation brought by the patent system through learning this course, it accounts for 95.1%. Through the implementation of course projects, the combination of innovative thinking and intellectual property awareness based on their own strengths' accounts for 93.75%. In addition, after the implementation of curriculum Curriculum reform teaching, the sense of responsibility and mission of the teachers has also significantly improved. In the student evaluation of teaching quality, 95% of the participating students believe that the ethics and style of the teachers are excellent.

7. Conclusions

In general, the future development path of the course should be the comprehensive integration of innovative practices and intellectual property education. Through continuous exploration and practice, it can promote the creativity of students, cultivate more talents with innovative spirit and competitiveness, and make greater contributions to the development and progress of society.

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