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Exploration of the Three in One Professional Course Ideological and Political Teaching Model of “Virtue, Knowledge, and Creativity”

-- Taking the statistics major course “Probability Theory” as an example

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Abstract: Professional courses are important carriers of ideological and political education in courses. Probability Theory, as a core course in statistics, is of great significance in cultivating students' ability to think randomly and solve complex problems. The existing ideological and political research on the course of Probability Theory mainly focuses on public basic courses. In depth analysis of the characteristics and curriculum features of statistics major, propose a deep integration of “morality, knowledge, and creativity” in the curriculum ideological and political education model, including the formation of “morality, knowledge, and creativity” integrated curriculum ideological and political education goals, the improvement of “morality, knowledge, and creativity” integrated curriculum ideological and political teaching links, the deepening of “morality, knowledge, and creativity” integrated curriculum ideological and political teaching content, and the innovation of “morality, knowledge, and creativity” integrated curriculum ideological and political teaching methods. Practice has shown that the three in one curriculum ideological and political model of “morality, knowledge, and creativity” effectively stimulates students' interest in learning and enhances their professional confidence.

Keywords: Probability theory; Course ideology and politics; Random thinking

As a mathematics course, “Probability Theory” is a comprehensive education that integrates mathematical thinking, mathematical ideas, mathematical methods, mathematical skills, mathematical abilities, and personal qualities. However, this course also has its own uniqueness, with the core being the discovery of inevitable laws from chance. Due to the abundance of random phenomena in the real world, relying on the course of Probability Theory, exploring objective laws through random phenomena, cultivating students' ability to think and solve complex problems using random mathematics methods has unique advantages. Wu Hongyan et al. [3] explored new approaches to the reform of ideological and political education in the course of Probability Theory from the perspectives of teaching cases and content, based on the characteristics of science and engineering courses. Pang Guoying et al. [4] explored a new model of integrating ideological and political education into the teaching of “Probability Theory and Mathematical Statistics” from the perspectives of mathematical history and teaching content, based on the actual teaching of engineering mathematics. Zhang Yan et al. [5] used subject knowledge as a carrier, followed the principles of integration, clarity, and student participation, and timely conducted course ideological and political education in the process of knowledge generation, problem-solving, case studies, and thematic teaching. Liu Zulin et al. [6] studied the strategies of integrating ideological and political elements into the classroom from three aspects: teaching content, teaching methods and techniques, and teaching evaluation system. Chen Xiaokun et al. [7] explored effective methods and implementation paths for carrying out curriculum ideological and political education reform based on the concept of holistic education, and constructed a new model of curriculum ideological and political collaborative education with full participation from both vertical and horizontal perspectives. Ma Xin [8] proposed that “Probability Theory and Mathematical Statistics” as a public basic course urgently needs to improve and revise the teaching syllabus, improve teaching methods, and achieve educational functions from multiple aspects such as setting teaching objectives, selecting teaching content, and evaluating teaching effectiveness.

After reviewing the current research situation, it is found that the ideological and political research on the course of Probability Theory is mostly focused on public basic courses, and the teaching objects are mostly students in science and engineering majors. However, there is relatively little research on the ideological and political education of the core course of Statistics, Probability Theory, and a systematic course ideological and political model that deeply integrates value guidance, knowledge advancement, and innovation ability has not yet been formed.

On the basis of in-depth analysis of the characteristics of statistics major and curriculum, a systematic ideological and political model of "morality, knowledge, and creativity" is proposed for professional courses. Mainly including: forming the ideological and political education objectives of the integrated curriculum of "morality, knowledge, and creativity", improving the ideological and political teaching links of the integrated curriculum of "morality, knowledge, and creativity", deepening the ideological and political teaching content of the integrated curriculum of "morality, knowledge, and creativity", and innovating the ideological, political, and educational methods of the integrated curriculum of "morality, knowledge, and creativity". Under the "trinity" curriculum ideological and political model of shaping values with "morality" as the priority, imparting knowledge based on "knowledge", and cultivating abilities with "creativity" as the soul, outstanding data analysis talents with ideals, abilities, and responsibilities are cultivated.

1. Establish the goal of integrating moral, intellectual, and creative education in ideological and political education

Probability Theory is a core course in statistics, with a distinct feature of discovering inevitable laws through chance. Based on the "four in one" characteristic of our school's statistics major, which focuses on "industry demand leading scientific research, scientific research driving teaching, deep integration of industry, academia, research, and application, and linkage of talent cultivation with industry demand", and starting from the top-level design of Marxist theory courses, we have formed the ideological and political education goal of "Probability Theory", which integrates "morality, knowledge, and creativity".

Putting "virtue" first, exploring inevitable laws in contingency, cultivating students' rational thinking ability, logical thinking ability, and random thinking ability. Help students establish correct worldviews, outlooks on life, and values, lead them to explore the scientific knowledge of probability theory, pursue the truth behind stochastic science, and cultivate their sense of responsibility and mission to climb scientific peaks in exploration and practice.

Based on "knowledge", establish the basic knowledge literacy and theoretical system of the curriculum, master the general methods of exploring statistical laws of random phenomena, have the ability to raise random questions, and be able to query, search, summarize, and ultimately make self analysis and judgment based on specific questions raised.

Innovation is the soul, and students participate in innovation and entrepreneurship competitions, statistical modeling competitions, market research competitions, and other innovative activities with the support of the curriculum. This enhances students' ability to work together to solve practical problems and continuously improve through comparison and verification, develops their random mathematical innovation thinking, hones their willpower and scientific innovation spirit, and strengthens their professional confidence and pride.

2. Improve the ideological and political teaching process of the integrated curriculum of "morality, knowledge, and creativity"

Based on the characteristics of the course "Probability Theory", integrate the ideological and political education objectives of "morality, knowledge, and creativity" into all aspects of the course's ideological and political teaching.

In the pre course stage, designing probability and statistical problems that can stimulate students' interest in learning, have depth and warmth, and are both contemporary and humanistic, inspires students to think, and "moral" teaching takes precedence; Guide students to fully utilize information technology teaching methods such as micro courses, MOOCs, SPOCs, etc., to explore and think, and to integrate "knowledge" into teaching; In the process of previewing, constantly questioning, summarizing, and generalizing, walking into the classroom with questions and preliminary solutions, "creative" teaching emerges.

During the course teaching stage, we will continue to expand the depth, breadth, and warmth of the teaching content, combining "morality" and "knowledge", clarifying the time for ideological and political education during the teaching process, and subdividing the time arrangement for ideological and political elements. By using teaching methods such as lecture, case study, situational teaching, and experiential teaching, students' innovative thinking is stimulated, implicit education is utilized, and emotional resonance is achieved.

In the assessment and evaluation stage, refine the ideological and political evaluation standards for the "morality, knowledge, and creativity" course, and use some ideological and political content as knowledge points for students' daily, mid-term, and final assessments. With the help of intelligent platforms, real-time course data can be obtained, and the achievement level of students' ideological and political goals in courses can be evaluated based on statistical analysis.

In the stage of teaching reflection, comparing the ideological and political goals and assessment results of the "morality, knowledge, and creativity" course, through teacher-student discussions, teaching team exchanges, survey questionnaires, and other methods, deeply reflecting on the existing problems, formulating detailed improvement plans, and achieving continuous improvement.

3. Innovative teaching methods for ideological and political education in the integrated curriculum of "morality, knowledge, and creativity"

Team teachers innovate and explore the integration of multiple teaching methods based on personal experience, knowledge structure, and practical education. While conveying scientific and random thinking, they infiltrate and infiltrate education on life philosophy and values.

Virtue "refers to the joint teaching of problems by teachers and students. Teachers cleverly design classrooms, arrange time reasonably, and use a "leading+showcasing+analyzing+improving" approach to guide students in teaching problems together, helping them form correct emotional attitudes and value orientations; Create an environment and atmosphere of full freedom, questioning, and exploration, inspiring students to discover, analyze, think about, and solve problems. By adopting a learning approach characterized by "independent exploration, teacher-student lectures, and group cooperation", we aim to deepen our understanding of the current teaching content, ultimately cultivating students' spirit of not fearing setbacks, fostering their team communication and collaborative exploration abilities, and helping them build professional confidence.

The integrated ideological and political model of "morality, knowledge, and creativity" is first implemented in the "Probability Theory" course of the statistics major. Its teaching design concept and ideological and political model can be extended to other professional courses, and typical cases can be promoted to the public basic courses of "Probability Theory" in disciplines such as science, engineering, agriculture, and medicine, helping to shape students' outlook on life and values, awakening their inner value guidance, and strengthening their dialectical materialism thinking. Cultivate students' abilities in random thinking, logical reasoning, abstract thinking, handling of random events, and data processing.

References

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