

# The Curriculum Politics Construction of Mathematical Basic Courses in Private Colleges

-- Taking the Course "Probability and Statistics" as An Example

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**Abstract:** The integration of curriculum politics into the curriculum teaching construction in higher education institutions as the important content of curriculum provision, teaching syllabus approval and teaching evaluation should be embodied in such aspects as the design of curriculum objectives, the revision of teaching syllabus, textbook compilation and the design of teaching plan; and it should go through all parts of classroom teaching. Taking the curriculum politics teaching implementation system in the course of probability and statistics of "Tianjin Ren'ai College" as an example, there is a systemic summary of the experience of the curriculum politics construction of the mathematical basic course in private colleges, including the analysis of the nature and curriculum objectives of the course, design of teaching contents and methods, course implementation, teaching evaluation and effect feedback and other relevant methods.

**Keywords:** Curriculum politics, Probability and Statistics, Basic course, Private colleges.

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## 1. Introduction

It was emphasized in the National Conference on Ideological and Political Work in Higher Education Institutions held in Beijing from December 7 to December 8, 2016, that we should insist on making the mission of fostering virtue a central part of integrating the ideological and political work throughout the entire process of education and teaching so as to achieve the whole-process education and all-round education and to struggle to create a new development pattern of the higher education undertakings in China. The *Outline of Curriculum Politics Construction Guidance for Higher Education Institutions* printed and issued by the Ministry of Education in 2020 pointed out that who to cultivate, how to cultivate people, and for whom to cultivate people should be the essential problem for education; the effect of fostering virtue is the basic standard to inspect all works of the higher education institutions; to implement the fundamental task of the mission of fostering virtue and ideological and political education, we must integrate the value shaping, knowledge teaching and ability cultivation into together [1]. "Ideological and political education" and "moral education" cannot be undertaken through a single course of the college ideological and political course, so we should make full use of the main channel of classroom teaching of all courses to make teachers of all subjects as the "ideological and political disseminators" and the "morality education speakers", so that all kinds of courses could form a synergistic effect with "mission of fostering virtue" based on the domination of knowledge teaching. Thus, this paper takes the course of "probability and statistics" to have an exploration on the way for mathematical basic courses to pertinently have curriculum politics so as to further enhance the education effect.

## 2. Main Problems of The Mathematical Curriculum Politics Construction in Private Colleges

The college mathematical course is an important public

basic course for the major in science, engineering, economics and management in all vocational colleges and universities in China. The theory of *Probability and Statistics* comes from reality, which plays a key role in the cultivation of thinking ability and scientific skills as well as the implicit ideological and political education of college students. The further promotion of the work of ideological and political education in all higher education institutions and the way for all kinds of college mathematical courses to have a better curriculum politics has been a hotspot [2-6]. As a private college, Tianjin Ren'ai College has much more students majoring in science, engineering, economics and management. As seen from the enrollment, most of them have lower scores in math in the entrance examination of college, so it would be a tough job for them to learn math during college period. The course of probability and statistics is a new mathematical knowledge, which has less connection with high school; in addition, the public basic course focuses on theoretical teaching, and there is a higher requirement on the understanding of theoretical knowledge in mathematical courses, which would push students to lose interest in the learning process. So how to boost their interest during the learning process?

There was a questionnaire for the sophomore students and teachers of basic mathematics courses in Tianjin Ren'ai College with the data collection and analysis, which showed the following situation. Firstly, students had too little understanding of the importance of probability and statistics to raise their interest. Nearly 2/3 of students were not interested in math and reluctant to find out interesting knowledge of math; and there was about 15% of them with the recognition of the ability of college mathematics knowledge to solve practical problems, so most of the students who learned the probability and statistics were just for the examination and knew nothing about the thought of the subject, letting alone finding out the interesting knowledge and achieving certain objectives of morality education literacy. Secondly, most of the students were self-centered and focused on self-perception and self-awareness but had no collectivism or patriotism. Most of them kept the

rebellious psychology to the college period, so solving the psychological and ideological issues of college students should also be implemented in the teaching process. Thirdly, most of the teachers focused on knowledge teaching for teachers, but they had insufficient attention to the integration of education of fostering virtue and classroom teaching. The problem was mainly shown in the difficulty in exploring ideological and political elements in public basic course knowledge and the poor connection between the ideological and political elements and the knowledge teaching. Fourthly, college mathematical teachers had a full understanding of the instrumental, applied, and ideological aspects of the profession, but there should be an exploration of the aspect of the specific ideological and political teaching combined with the mathematical knowledge. Classroom teaching could not take care of the cultivation of knowledge goals and the cultivation of fostering virtue. On the contrary, students could not sense the interest in math, the improvement of their own ability and the assistance for their major, let alone the guiding significance of math in life, so they ignored the importance of learning math. What was reflected in the professional learning was the unfamiliarity with mathematical knowledge, lack of mathematical thinking and application ability, which would be bad for the learning of professional courses, the achievement of educational and teaching philosophy of the university and the cultivation of applied talents with thoughts, morality, culture and discipline.

Thus, the curriculum politics must be integrated into the college mathematical courses in private colleges, so how to achieve the synergistic effect of probability and statistics and the “mission of fostering virtue”? In the curriculum politics construction, the teacher is the subject of ideology and politics, and the course content is the carrier of ideology and politics, so the way the subject reasonably delivers the ideological and political thoughts to students through the carrier is the essential problem for the teaching reform. Finding out the ideological and political elements from the course content and subtly conveying ideological and political ideas when lecturing the course content is the most effective approach for the public basic courses. As a subject of the curriculum politics construction, teachers should make use of their own theoretical knowledge and professional literacy to creatively handle the teaching contents and have profound and effective exploration of the philosophical ideas, ideological and political elements, and moral education elements included in the teaching content in the daily teaching, and all of these are penetrated into students during the teaching process to make them realize of the truth when learning knowledge and build up a correct view of the world, view of life and value. In addition, students could also understand the essence of the course of probability and statistics and inspire their learning interest.

### **3. The Pertinent Construction for The Mathematical Curriculum Politics in Private Colleges**

This paper divides the main construction problems into the following four aspects for the curriculum politics of mathematical courses in private colleges for description: first,

the establishment of curriculum objectives; second, the exploration of ideological and political elements; third, the design of ideological and political cases; fourth, the process assessment and evaluation.

(1) Clarifying the general curriculum construction objectives

Based on the necessity of the profound integration of modern teaching reform and curriculum politics and relying on the need for talent cultivation, there is the domination of the implicit ideological and political elements through the profound theoretical decomposition and the exploration of teaching methods for the public basic course, Probability and Statistics; and it would push the knowledge teaching and mission of fostering virtue to generate the synergistic effect so as to build up a diverse mechanism of ideological and political collaborative education aimed at enhancing teachers' education ability of the curriculum politics, highlighting students' subjectivity, providing effective assessments, and serving the majors. It would enhance students' realization of math and cultivate the applied talents with literacy and high quality. The main teaching objectives of the curriculum reform begin from the knowledge goals, ability goals, and literacy goals to establish the general teaching objectives of the curriculum:

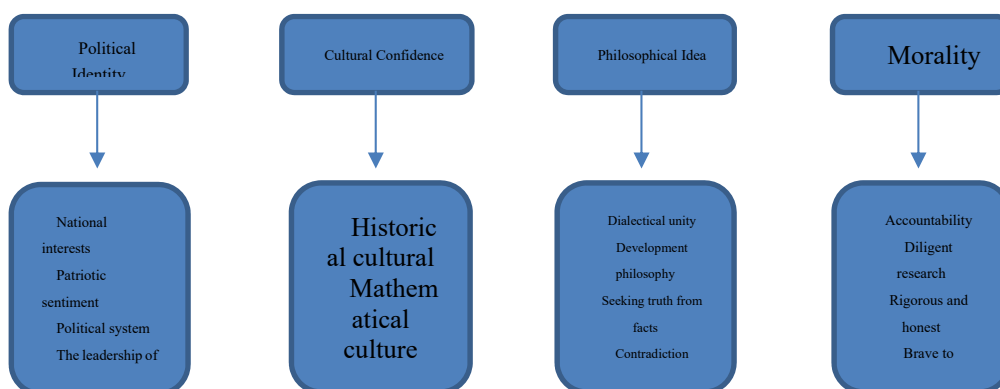
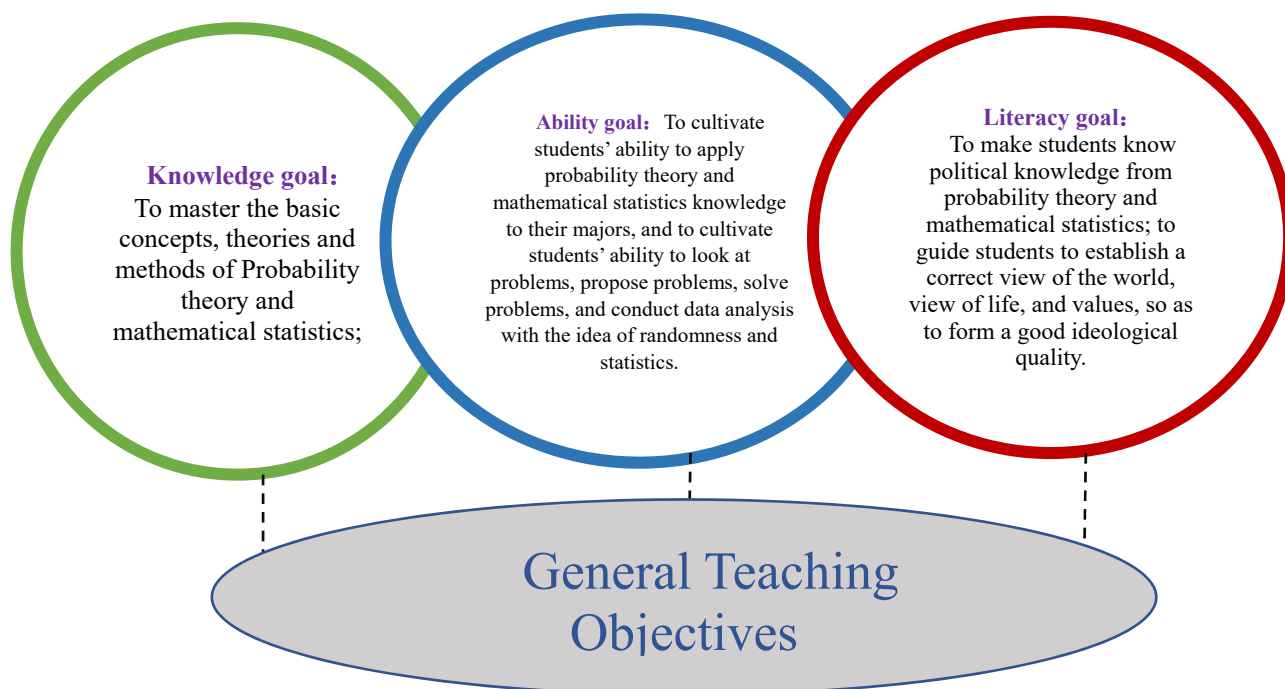
For the teaching reform based on the “synergistic effect between probability and statistics classroom teaching and the mission of fostering virtue”, to ensure the effective implementation of the teaching reform, the curriculum politics system design goals of the four aspects should be established according to the need:

(2) Confirming the contents of the general construction of curriculum politics

Design the classroom teaching contents according to the probability and statistics reform and have a reform of the classroom teaching method, so as to practice for the assessment system of probability and statistics rich in literacy assessment and build up the dominant role of students. Make the ideological and political elements penetrate into the entire course teaching process from all directions and during the whole process, so as to make the ideological and political education and knowledge education dominant to ensure the practical conduction of the classroom reform.

1. Revise the new teaching syllabus according to the course of probability and statistics with the integration of curriculum politics

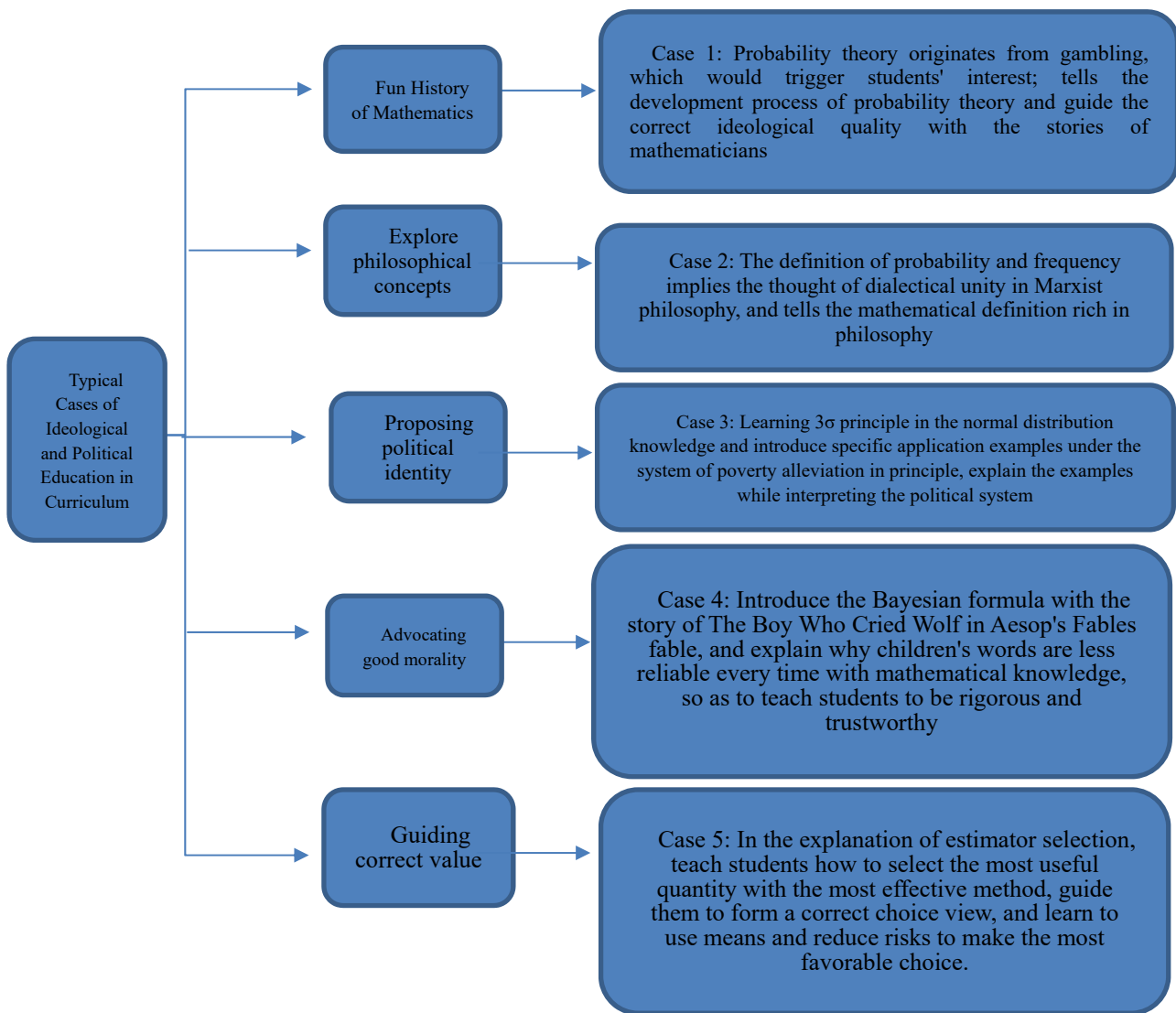
According to the subject features of the probability and statistics and the teaching need of the curriculum politics, select the corresponding teaching contents which could be properly integrated with the curriculum politics to make students acquire the improvement in the ideological level and knowledge of moral education when mastering the necessary knowledge for the major with the guaranty of basic concepts, basic theory and basic teaching skills of probability and statistics. Consequently, design the curriculum politics teaching syllabus based on these to enhance and supplement the combination of math and ideology and politics so as to form a synergistic effect with curriculum objectives. The specific ideological and political elements knowledge points and goal orientation according to the teaching plan are shown as the following form:



| Section Contents  | Ideological and Political Knowledge Points       | Goal Orientation                                  |
|---|--|---|
| Chapter 1 Random Events and Probability                       | The Origin of Probability                        | Cultural confidence, Morality, Philosophical Idea |
|   | Definition of frequency and probability          | Philosophical Idea                                |
|   | Using Fables as Examples in Bayesian Formulas    | Morality, Cultural confidence                     |
|   | Event Independence                               | Morality, Philosophical Idea                      |
| Chapter 2 Random Variables and Distributions                  | Citation of Discrete Random Variables            | Political Identity, Cultural confidence, Morality |
|   | Introduction of Binomial Distribution            | Morality  |
|   | Citation of Normal Distribution                  | Political Identity, Morality, Cultural confidence |
| Chapter 3 Multidimensional Random Variables and Distributions | Two-dimensional Random Variable                  | Philosophical Idea, Morality                      |
|   | Marginal Distribution                            | Philosophical Idea, Morality                      |
| Chapter 4 Numerical Characteristics of Random Variables       | Random Variable Numerical Characteristic Formula | Morality  |
|   | Citation of Mathematical Expectation             | Philosophical Idea                                |
|   | Definition of Correlation Coefficient            | Philosophical Idea, Cultural confidence, Morality |
| Chapter 6 Basic Concepts of Mathematical Statistics           | Overall and Individual                           | Political Identity, Morality, Philosophical Idea  |
|   | Image of Sampling Distribution                   | Morality, Philosophical Idea                      |
| Chapter 7 Parameter Estimation                                | Citation of Parameter Estimation                 | Political Identity, Morality                      |
|   | Estimator Selection                              | Morality, Cultural confidence                     |
| Chapter 8 Hypothesis Testing                                  | Citation of Hypothesis Test                      | Morality  |
|   | Understanding of Two Types of Mistakes           | Philosophical Idea, Morality                      |

2. Confirm the beginning points of the curriculum politics

design and the case design



The course of probability and statistics has many abstract concepts and complicated formulas, so it would be difficult for students to understand within a short time. While probability and statistics is a very practical course and the foundation for the follow-up study of many majors, teachers should find out the beginning points of the ideological and political education according to the actual teaching content of the course and introduce them to the cases and videos close to the life to trigger students' interest and exploration of knowledge and make them have a profound understanding, which would efficiently cultivate their political identity, cultural confidence, philosophical idea and excellent morality. The specific focal point of the curriculum politics is as follows: 1. talking about the mathematical story with the mathematical history to explore the implicit ideological and political elements and guide students to learn the excellent ideological quality of mathematicians; 2. Beginning from the practical case of the classroom to find out relevant fable stories and classical stories of probability statistics, and the typical examples under modern political systems, so as to integrate the ideological and political content into the questions to talk about the ideological and political story when lecturing knowledge; 3. Having a profound exploration of the philosophical elements and concepts contained in

probability and statistics, so as to transform the definition presentation to be the mathematical definition with philosophical meaning; 4. Connecting the practical problems in life with the teaching samples to make students immersed in the knowledge application guidance and morality education. The typical case design of integrating ideological and political elements into the classroom is designed as follows:

3. To boost the benign progress of curriculum politics and effectively test the teaching outcomes, formulate the classroom evaluation standards.

The classroom evaluation standard includes the learning situation of students and the teaching situation of teachers. The learning situation of students mainly includes the evaluation of learning processes such as participation state, thinking state, autonomy state, and emotional state and the evaluation of learning outcomes such as knowledge mastery, method application, and literacy improvement, which accounts for 60 points. The teaching situation of teachers includes the evaluation of teaching content, methods, links, and other teaching design, as well as the evaluation of teaching wisdom that respects, cares for, and inspires students, accounting for 40 points. The standard of teachers' teaching situation is mainly tested by the experts to formulate relevant

standards.

## 4. Conclusion

Curriculum politics is a need in the era for the higher education institutions' "mission of fostering virtue" and the full embodiment of the advancing education and teaching concept. It is the necessary product and main hotspot for the curriculum reform of the higher education institutions. This paper mainly takes the mathematical course at private colleges, *Probability and Statistics*, as the main reform object to explore the specific implementation plan and path of curriculum politics education throughout the entire process of education and teaching, which provides the theoretical reference and practical evidence for the comprehensive and efficient proceeding of the teaching reform and practice for the private colleges' curriculum politics. It would make a contribution to cultivating the applied talents with morality and thoughts.

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