Open Access Library Journal
2024, Volume 11, e11185
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Thoughts on Education and Teaching of "Curriculum Ideological and Political Education" in Advanced Mathematics

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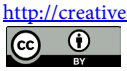
How to cite this paper: Li, T.X., Tan, X.Y., Zhang, Z.M. and Zhang, Y.F. (2024) Thoughts on Education and Teaching of "Curriculum Ideological and Political Education" in Advanced Mathematics. *Open Access Library Journal*, **11**: e11185.
https://doi.org/10.4236/oalib.1111185

Received: January 8, 2024
Accepted: February 26, 2024
Published: February 29, 2024



Abstract

Classroom teaching is one of the most important ways to cultivate students' ability and quality, and curriculum is the most important element of undergraduate education. The goal of curriculum ideological and political education is to enable students to establish a correct outlook on life and values while learning knowledge. The carrier of cultivation is the teaching content, moral education and knowledge teaching are integrated, and the way of moral education is mainly to infiltrate, sneak into the night with the wind, moisten things silently. There are many problems in the traditional higher mathematics teaching. This paper discusses how to integrate the ideological and political education into the higher mathematics curriculum, so as to combine the teaching of knowledge with the guidance of value, enhance the students' interest in learning, and promote the comprehensive and healthy development of students.

Subject Areas

Education

Keywords

Advanced Education, Moral Education, Curriculum Ideological and Political Education, Educational Reform, Advanced Mathematics

1. Introduction

In the new era, China's higher education must take fostering virtue and cultivating people as the fundamental task of education. It is essential for universities to address the fundamental task of whom to educate, how to educate, and what

kind of people to educate in the goal of talent cultivation. The integration of ideology and curriculum holds significant importance in cultivating qualified builders and successors of socialist construction. Ideological and political education within the curriculum fully utilizes the classroom teaching resources of various courses to foster a comprehensive educational environment and promote the development of the concept of fostering virtue and cultivating people [1].

As an educational concept, ideological and political education within the curriculum has attracted significant attention from a large number of scholars and is gradually forming a consensus in the field of higher education. The ideological and political curriculum refers to the construction of the whole staff, the whole course, the whole curriculum education pattern, all kinds of courses and ideological and political theory courses to the same direction, form a synergistic effect, it is a kind of comprehensive educational idea to regard "Making virtue and cultivating people" as the fundamental task of education. The aim of this concept is to fully explore the ideological and political education elements within various courses, fully leverage the inherent educational functions of all teachers and courses, and establish a teaching system that fosters individuals comprehensively, comprehensively, and throughout the entire process. Currently, the practical exploration of "ideological and political education within the curriculum" is in its initial stages and represents a new topic in the current situation, with many issues that urgently need to be addressed [2] [3] [4] [5] [6].

2. The Discussion of Ideological and Political Education in Higher Mathematicsian

The integration of ideology and curriculum is by no means simply rigidly embedding the content of ideological and political education into the teaching of higher mathematics. Instead, it requires teachers to effectively integrate elements of ideological and political education based on the characteristics of the course and the discipline. The implementation of ideological and political education within the curriculum requires a series of improvements in teaching modes, teaching content, and teaching support. Teachers of higher mathematics should grasp the characteristic of a large number of class hours and, using the teaching content as a carrier, timely integrate elements of moral education. This enables students to establish the correct worldview, outlook on life, and values while learning mathematical knowledge, spreading positive energy, and generating a stronger interest in learning.

2.1. The Core of the Course Is to Design the Teaching Content

The teaching goal of the higher mathematics course is the integrated and coordinated development of shaping values, imparting knowledge, and cultivating abilities. Therefore, ideological and political education within the curriculum requires clear moral education objectives, exploring the integration of theoretical preaching and course content, and dissecting the value support within the know-

ledge system of the course. In terms of teaching content, it is necessary to deeply explore the philosophical viewpoints and thinking methods implicit in the scientific knowledge contained in the course, the pursuit of truth and a scientific attitude, moral character and humanistic care, patriotism and spirit of dedication. In the course, by exploring a large amount of traditional culture and ancient wisdom related to mathematics and science, and applying them to mathematics classroom teaching, students can be guided to understand Chinese traditional culture, enhance cultural confidence, and national pride.

The renowned American cultural scholar, White, once pointed out: "Mathematical truths are both discovered by people and created by people. They are the products of the human mind, but they are encountered or discovered by every individual who grows up in mathematical culture." Mathematics is the science of studying patterns. Its object of study is not the real existence in the material world, but the product of human abstract thinking. Therefore, mathematics is a form of culture. The mathematician Qiminyou once explained that "as part of culture, the most fundamental characteristic of mathematics is that it expresses an exploratory spirit; as part of culture, its eternal theme is to understand the universe and also to understand human beings themselves. In this process of exploration, mathematics fully exerts the power of rational thinking. It provides a mode and pattern of thinking, a most powerful tool, and a standard of rational thinking, opening the way for the liberation of human thought; without modern mathematics, there would be no modern culture. A culture without modern mathematics is destined to decline. A nation that does not master mathematics as a form of culture is also destined to decline." Ancient poetry is a brilliant treasure of traditional Chinese culture, and classic chapters are deeply meaningful. The profound and implicit beauty in mathematics is also frequently seen in ancient poetry [7] [8].

2.2. Establishing and Improving the Evaluation Mechanism Is an Important Guarantee to Promote the Effective Implementation of Ideological and Political Curriculum

The evaluation of mathematics teachers should focus on assessing whether the teacher helps students understand the methods, thoughts, and spirit of mathematics; whether the teacher encourages students to discuss, communicate, and explore actively; whether the teacher enables students to discover and solve problems in practice; and whether the teacher helps students acquire good values, outlook on life, and mathematical literacy through mathematics learning.

The evaluation mechanism of the ideological and political education curriculum should combine qualitative and quantitative evaluation, result evaluation and process evaluation, peer evaluation and student evaluation, as well as internal and external evaluation. It is difficult to effectively evaluate the ideological and political education curriculum with a unilateral evaluation approach. The evaluation of the ideological and political education curriculum can mainly be conducted from the aspects of the curriculum's training program, teaching out-

line, teaching plan, teaching materials, ideological and political education cases, classroom atmosphere, teaching effectiveness, student evaluations, and peer evaluations. The forms and means of evaluating students' mathematical learning should also be diversified, combining quantitative and qualitative evaluation, as well as process evaluation and result evaluation. At the same time, attention should be paid to students' individual differences, and the evaluation should play a guiding and motivating role to help students develop comprehensively [9]-[14].

3. Conclusions

The ideological and political education of higher mathematics plays an important role in training students' mathematical thinking, logical thinking and creative ability, and its main contribution and innovation lie in training students' mathematical thinking and logical thinking ability, to promote students' innovative thinking and problem-solving ability, guide students to treat mathematical knowledge correctly, and cultivate students' mathematical literacy and scientific spirit.

The teachers of advanced mathematics should innovate teaching methods, explore ideological and political elements and integrate them into the teaching content of advanced mathematics courses. They should explore various ways to incorporate ideological and political education into the classroom that are suitable for students, such as exploring the definition of knowledge points, anecdotes of famous mathematicians, the history of mathematical development, mathematical thoughts, mathematical reasoning, and the beauty of mathematics. By skillfully integrating ideological and political education concepts into course design, a set of practical and referenceable theories and learning resources can be formed throughout the entire process of learning advanced mathematics. The purpose of ideological and political education in the curriculum is to explore ideological and political elements related to the teaching content inside and outside the classroom, integrating ideological and political education while imparting knowledge to students, utilizing the classroom as the main channel for teaching, and achieving coordinated progress in ideological and political education and the comprehensive development of students. The comprehensive implementation of ideological and political education in the curriculum has gradually become a consensus in the higher education community in China. To achieve the practical effects of ideological and political education in the curriculum, higher education institutions themselves must first do a good job of top-level design.

Acknowledgements

The authors would like to thank the associate editor and the reviewers for their constructive comments and suggestions which improved the quality of the paper. This work was supported by the Support Plan on Science and Technology for Youth Innovation of Universities in Shandong Province (2021KJ086).

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Xi, J.P. (2016) Xi Jinping Emphasized at the National Conference on Ideological and Political Work in Colleges and Universities: Integrating Ideological and Political Work throughout the Entire Process of Education and Teaching to Create a New Situation for the Development of China's Higher Education. People's Daily, 2016-12-09(01).

[2] Liu, H., Shi, Y. and Jin, X.L. (2019) The Rational Connotation and Implementation Path of Curriculum Ideological and Political Construction. *Chinese University Teaching*, No. 3, 59-62.

[3] Zheng, Y. (2019) Reflection and Practice of "Curriculum Ideological and Political" in College Mathematics. *Journal of Ningbo Institute of Education*, **21**, 59-61.

[4] Liu, S.Q. (2018) Cases of Curriculum Ideological and Political Education in Advanced Mathematics. *Education and Teaching Forum*, **52**, 36-37.

[5] An, X.M. (2018) Research on the Function of "Curriculum Ideological and Political" in College English. *Comparative Studies on Cultural Innovation*, **47**, 89-90. https://doi.org/10.1088/1475-7516/2018/11/047

[6] Ning, X.B. and Chen, F. (2017) Food Safety: Design and Practice of Ideological and Political Education. *Anhui Agricultural Bulletin*, **23**, 153-154. https://doi.org/10.1016/S1530-891X(20)44534-3

[7] Gao, M. (2019) Exploration of Ideological and Political Teaching in Advanced Mathematics Courses. *Journal of Tianjin Institute of Education Sciences*, No. 3, 60-66.

[8] Zheng, Y.X., Wang, X.C. and Cai, Z. (2001) Mathematical Cultural Studies. Sichuan Education Press, Chengdu. https://xueshu.baidu.com/usercenter/paper/show?paperid=4a3b8bd2df76bfc95ee8c58c0c0e796e&site=xueshu_se

[9] Mei, Q. (2018) Connecting Points and Lines, Integrating Lines and Surfaces: Exploration and Practice of Ideological and Political Education in Two Types of Comprehensive Coverage Courses in Higher Education. *Chinese University Teaching*, No. 9, 20-22.

[10] Qin, Y.H., Guo, Z.H., Yuan, C.F., *et al.* (2024) Exploration of Integrating Ideological and Political Elements into the Teaching Reform of Engineering Surveying Courses. *Higher Education Journal*, **10**, 185-188.

[11] Lu, L., Liu, J., Chen, S., *et al.* (2023) Design and Evaluation of the Ideological and Political Elements Library in Curriculum. *Journal of Higher Education Research*, **46**, 66-69. https://kns.cnki.net/kcms2/article/abstract?v=F5NaIWgMQ1DaSnYVtG_UdNTNE_wbxtBIVXl6EGBJqGMqtepINM12GBHlnXPB8p3aUS5JvgzBhFfoeVX57-Lc73C7xL2aV59p7kEDDIcFHPiCXEbyAd9_U5VYi-ToR4hM3bhTfAakwFREP3yRtwR_O2xT27N5kQGC&uniplatform=NZKPT&language=CHS

[12] Dai, H.Y., Li, M.L. and Li, C.Y. (2023) Exploration and Practice of Integrating Ideological and Political Elements into the Automotive Theory Course under the Background of New Engineering Education. *Automotive Practical Technology*, **48**, 168-173. https://kns.cnki.net/kcms2/article/abstract?v=U6-nvttFko2ViNUpA8ZnQHvJWHMqj11x-QPzIWnDlHOGjMeMWzjOaCeP5zQ1S8RE4Z2TFpeJpgOd0Dr312_Ea81z

nkwaSxw-_60UPxJdUww7nN7gG-1_TH3YwTRqi7NtYK7pyCMIvyw=&uniplatform=NZKPT&language=CHS

[13] Tang, S.N. (2023) Ideological and Political Teaching Practice in Business English Listening and Speaking Courses in Higher Vocational Colleges Based on the Concept of OBE. *Foreign Trade*, No. 12, 111-114. https://kns.cnki.net/kcms2/article/abstract?v=U6-nvttFko1ftoAjyiU4TKE6S1k0kETUAxT38CNPYtvuN69wB-ysO8U-qLnfwixMSrlvh9tP4AGKaJmPC2zEhtTCYlkO0IyMxJ14QmB0DDwwD3hqxSQvNSLi8YY0qI95ozeBmhjR68Y=&uniplatform=NZKPT&language=CHS

[14] Xue, Z.H., Teng, Y.M. and Ma, Q.F. (2020) Curriculum Ideological and Political of Higher Mathematics: Taking Extreme Value as an Example. *Open Access Library Journal*, **7**, 1-8. https://doi.org/10.4236/oalib.1106858