

On the Infiltration of Aesthetic Education in College Mathematics Teaching

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Abstract: In the process of implementing the relevant contents of deepening the reform of the educational system, the relevant departments of the state put forward higher demands on the educational work, and made clear the prominent position of aesthetic education in the educational work of colleges and universities, therefore, relevant educators should pay attention to the effective infiltration of aesthetic education in the process of education and teaching. The following will be from the perspective of college mathematics teaching to explore how to combine teaching activities to enhance the level of aesthetic education.

Keywords: Higher Education; College mathematics teaching; Aesthetic education infiltration; Teaching quality; Function.

1. Introduction

In the current process of mathematics teaching in universities, teachers' educational duties include not only the effective teaching of mathematics knowledge, but also the effective cultivation of students' aesthetic quality based on the liberal education effect, to promote the overall quality of college students, so that college students can be able to meet the needs of social development of high-quality, high-level personnel. Therefore, the relevant educators must pay more attention to aesthetic education, clear the status of aesthetic education, so that the effectiveness of this education can be fully highlighted.

2. The Practical Significance of Aesthetic Education in College Mathematics Teaching

The specific functions of college aesthetic education include: (1) improving the aesthetic quality of college students; (2) helping college students to establish perfect personality; (3) effectively promoting the development of intellectual education in colleges and universities. 4 to promote the coordinated development of college students' physical and mental health. Therefore, strengthening aesthetic education in colleges and universities can achieve the all-round development of moral, intellectual, physical, beauty, labor and effective training of personnel to ensure that the needs of social construction can be fully met. The education and teaching work is not only the basic requirement of the national education policy, but also an important component of the educational content. Therefore, in the process of education and teaching, teachers should not only impart knowledge of relevant subjects to students, effectively train their abilities and promote the further development of their intelligence, we should also actively carry out aesthetic education, so that students can really receive the influence of beauty, so that students can really understand beauty, feel beauty, and then help students to obtain the ability to create beauty. In addition, mathematics is a relatively long-term development of the discipline, and it is also the basis of physics, chemistry and other disciplines, itself has a very important practical value. In the course of studying the subject content, the related content contains the space and quantity of the objective world,

and the related content can be combined and arranged to present the content with aesthetic feeling, therefore, carrying out aesthetic education based on mathematics in colleges and universities can promote the level of aesthetic education further, college students can imperceptibly receive aesthetic education in the process of "Combining education with pleasure", and realize the high-quality and efficient development of college mathematics aesthetic education.

3. The Concrete Embodiment of Beauty in College Mathematics Teaching

Because the subject of mathematics is very rich in content, so the beauty contained in it will also be presented in different forms, in order to ensure that the work of aesthetic education can be carried out in a high-quality and efficient manner, the following will be among the college mathematics teaching content of the concrete embodiment of the United States.

3.1. Beauty of harmony

As preciseness is the prominent feature of the content of mathematics, then the related content can naturally reveal its beauty of harmony. And in order to pursue harmonious beauty, a large number of scientists are actively removing dissonance in the mathematical discipline, such as the discovery of irrational numbers, the question of parallel axioms, the related work not only pursues the harmony in the content of mathematics, but also promotes the development of society remarkably in the process of applying the related content. Therefore, it is of great practical significance to actively pursue the harmonious beauty of mathematics. The most intuitionistic embodiment of harmonious beauty in college mathematics is the symmetry of geometric figure, plane, even the symmetry of function, if we can effectively summarize the corresponding laws, we can not only make students more convenient to explore the relevant knowledge content, but also make students have a deeper feeling of the beauty of harmony. In addition, the proportion is also a part of the content that the harmonious beauty presents, which can reflect the quantity relations between the partial object and the overall size and length, the right proportion can provide a very ample sense of beauty. For example, the ancient Greek Pythagoreanism of golden ratio (1.618:1) is a world-

recognized harmonious proportion, which shows the beauty of harmony without monotony, change without disorder, can provide a very harmonious feeling for people, according to the golden ratio of the production of objects can give people an excellent aesthetic effect. Therefore, carrying out aesthetic education to college students on the basis of the above-mentioned contents can make them have a deeper understanding of the beauty of mathematics, thus realizing the effective cultivation of college students' aesthetic quality.

3.2. Regular beauty

The beauty of law is mainly embodied in various formulas of mathematics subjects in colleges and universities. The contents of relevant formulas can present a very strong order and regularity, so that students can learn the relevant content in the process can feel the poetic rhythm. For example, the higher-order derivative of a function. Let $y = x^n$ (n is a positive integer), then the derivatives of Y are:

$$\begin{aligned} y' &= nx^{n-1} \\ y'' &= n(n-1)x^{n-2} \\ y''' &= n(n-1)(n-2)x^{n-3} \\ &\dots \end{aligned}$$

Through the above function contents, the students can not only make clear the development rule of the related function formula, understand the arrangement of the coefficients between the related function contents, but also enable the corresponding students to feel the function in the process of antithesis, feel the rhythm and rhythm of the function. If the work of aesthetic education is organically combined with the teaching of mathematics in colleges and universities, the effect of aesthetic education in colleges and universities will be further enhanced.

4. The Concrete Infiltration Way of Aesthetic Education in College Mathematics Teaching

4.1. Give full play to the aesthetic function of mathematics teaching content

In the process of mathematics teaching in colleges and universities, in order to ensure that aesthetic education can be carried out with high quality and efficiency, teachers should give full play to their organization and guidance, and lead students to conduct in-depth research on the content of mathematics teaching, so that students can have a deeper understanding of the subtleties of the teaching content, and in the process according to the degree of mastery of knowledge, to guide the students to understand the artistic elements in the teaching content from various angles, so that the beauty in the teaching content of mathematics can be fully displayed[1]. In this process, the students will feel the infinite charm of the mathematics teaching content, and have deep resonance with the students, so that the aesthetic function of the teaching content can be brought into full play, and then realize the high-quality and high-efficient development of aesthetic education. For example, when teaching calculus and the related content of definite integral, the teacher can make the students feel the beauty of the function by presenting the graph of the particular function, it can make the students memorize the corresponding function better, improve the teaching quality and efficiency, and realize the coordinated development of intellectual education and aesthetic education.

4.2. Create aesthetic education situation according to mathematics teaching content

In order to further enhance the effectiveness of aesthetic education, teachers should pay attention to the creation of aesthetic education context in the process of carrying out this work, relevant educators should conduct in-depth research on college mathematics teaching content, and then create aesthetic education situation based on actual teaching content. Through the rational application of relevant teaching resources, let the students have a more profound feeling to the colorful mathematical world, and through a variety of teaching methods, so that the students can have a more profound understanding of the corresponding mathematical knowledge, strengthen their own feelings of the corresponding knowledge content in an all-round way, and give full play to the practical value of the corresponding mathematical aesthetic education situation, so that students can perceive the beauty of mathematics, the performance of the beauty of mathematics, and then have the ability to create the beauty of mathematics. For example, in the course of teaching the calculus of a definite integral, the teacher can calculate it not only by applying definitions and integral, but also by breaking it down into curved trapezoids, it makes students fully feel the flexible beauty of mathematical knowledge in the teaching process, and improves the quality of aesthetic education in colleges and universities[2].

4.3. Strengthen students' aesthetic ability based on multimedia equipment

The most important goal of aesthetic education in colleges and universities is to cultivate students' aesthetic ability, so in the process of education and teaching, the teachers concerned should pay attention to the effective application of various teaching methods, especially multimedia equipment, computer software and information technology. In the process of college mathematics aesthetic education, teachers can effectively use the relevant digital technology, so that the beauty of mathematics can be more fully displayed, so that students fully feel the charm of college mathematics. For example, in the teaching of drawing and integration, teachers can reasonably use multimedia equipment and MATLAB software and other auxiliary tools to skillfully show students the beauty contained in the relevant teaching content, let students appreciate it, experience, and let them realize the mathematics teaching content contains infinite wisdom. In addition, carrying out mathematics teaching in colleges and universities in this way can also fully exercise students' aesthetic ability and enable students to create aesthetic content independently, therefore, teachers in the process of teaching should pay attention to the effective play of their own functions, as far as possible to participate in student learning and life, with the support of relevant teaching tools, let students combine their own understanding of the content of mathematics, show their own views on it, actively express their own views, so that students can have a deep feeling of the beauty of mathematics, and then realize the effective enhancement of their own aesthetic ability[3]. In addition, in order to cultivate students' aesthetic ability effectively, teachers should encourage students to explore and pursue beauty in the process of education and teaching, so that students can constantly strengthen their own aesthetic literacy and aesthetic ability in teaching practice.

4.4. Lead the students to excavate the content of beauty in mathematics teaching

In the process of mathematics teaching in colleges and universities, aesthetic education can be effectively combined with all kinds of teaching work, so teachers should guide students to explore the content of beauty in each process, to realize the high-quality and efficient development of college mathematics aesthetic education. For example, in the process of problem-solving, teachers can lead students to explore the beauty of simplicity in mathematics, especially in solving calculus and fixed integral and other related problems, the problem-solving steps are often more complex, it is difficult to understand it effectively. Therefore, in the process of teaching, teachers should guide students to explore the nature of the phenomenon through the phenomenon, reasonable use of complex into simple and limited instead of infinite ways to solve the corresponding problems, so that the steps can be clear at a glance to further improve the quality of teaching. In addition, through this concise expression, students can have a more profound sense of the beauty of simplicity, and in the process of solving problems alone to create a positive beauty of simplicity. When calculating the area of a trapezoid of curved edges enclosed by a non-negative continuous curve, students can make use of Leibniz's formula to make the calculation more concise, it is also of great practical significance to stimulate students' interest in learning calculus. In addition, in the process of teaching, teachers should lead students to explore the beauty of symmetry, which is one of the most important parts of mathematical beauty, it is also the most important form of mathematical beauty, which is reflected in the teaching of mathematics in colleges and universities, especially in calculus and the calculation of definite integral. In the process of calculating the relevant

integral questions, the exploration of the beauty of symmetry can not only fully cultivate the students' aesthetic quality, but also simplify the calculation steps, ensure that teaching is conducted in a high quality and efficient manner. For example, when calculating the area of a sphere with radius a by applying multiple integrals, the teacher can apply the spherical surface to all three surfaces symmetrically, thus making it easy for students to calculate the area of a sphere.

5. Conclusion

To sum up, in order to promote the all-round development of students' comprehensive quality, teachers should pay more attention to aesthetic education in the process of college mathematics teaching. Through the deep excavation of mathematics teaching content, let the students have a deeper feeling of mathematics beauty, fully cultivate the students' aesthetic quality, and promote the teaching efficiency and quality.

References

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