

Research on the Development Path of Humanistic Spirit Value of Mathematics

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Abstract: Mathematics is a kind of culture with humanistic value. The humanistic spirit value connotation of mathematics is mainly the cognitive humanistic spirit value of seeking truth, the artistic humanistic spirit value of seeking beauty and the ethical humanistic spirit value of seeking goodness. The development path of humanistic spirit value of mathematics is mainly embodied in the excavation of rational spirit resources, aesthetic spirit resources, dialectical spirit resources and cultural spirit resources in mathematics. Carrying forward and developing the humanistic spirit value of mathematics will surely provide greater spiritual impetus for the development of human society.

1. Introduction

In Cihai, the explanation of “humanity” refers to various cultural phenomena existing in human society. Humanistic spirit mainly refers to an idea or an idea, and it is an attitude that regards all things in the world as human-centered. In the long process of human rational knowledge development, mathematics is a very important driving force, is a kind of cultural construction and cultural phenomenon of human beings, showing a very significant humanistic spirit.

2. The Humanistic Spirit Value Connotation of Mathematics

The ultimate pursuit of humanistic spirit can be simply summarized as “three demands”, that is, seeking truth, beauty and goodness. In the course of the development of mathematics, the harmony and sublimation of the cognitive humanistic spirit of seeking truth, the artistic humanistic spirit of seeking beauty and the ethical humanistic spirit of seeking goodness have been intensively displayed, which is also the value connotation of the humanistic spirit of mathematics.

2.1 The Cognitive Humanistic Spirit Value of Seeking Truth

The development and prosperity of mathematics has shown its strong ability to create knowledge and culture. It is a discipline with rationalistic humanity and has penetrated into many fields of human culture. The rational spirit of mathematics promotes the continuous improvement of human thinking and people's cognitive ability. It is an effective tool for human to know the world and an effective way to explore truth. Independent thinking ability, rigorous thinking mode, courage to criticize and innovative spirit all embody the cognitive humanistic spirit value of seeking truth in mathematics, which has set a model of truth for the development of other disciplines and is praised as a model of scientific truth. As a kind of cultural power, mathematics is widely used in logic, philosophy, religion, medicine and other cultural fields. It embodies the spirit of truth-seeking cognitive rationality and promotes the development of human civilization and cultural prosperity.

2.2 The Artistic and Humanistic Value of Seeking Beauty

The great mathematician Russell said that mathematics has supreme beauty. Mathematics contains profound and peculiar beauty of harmony. The unique artistic aesthetic features of this scientific beauty everywhere make it rich in humanistic color, reflect the harmonious unity of humanism and artistry, and show the perfect state of art. Spiritual joy and perfection can be obtained in mathematics, providing a set of aesthetic standards for the development of other disciplines. Mathematics has its own artistic beauty in knowledge content, theoretical structure and

ideological method. Simplicity is one of the manifestations of beauty. Mathematics has this simplicity and embodies this beauty. The beauty of simplicity is also the basic working principle of natural science, while harmony, logical deduction and precise structure in mathematics also embody the value of beauty. The aesthetic value of mathematics has been inherited as a humanistic spirit and has influenced and promoted the development of other disciplines.

2.3 The Ethical and Humanistic Value of Seeking Goodness

The development process of mathematics has always been full of ethical feelings, which is a concrete manifestation of the real rationality of human social practice and reality. Seeking goodness is one of the reasons why mathematics can flourish. Mathematics can bring people upright moral character and convey the spirit of unremitting pursuit of truth. Proof in mathematics embodies a kind of advanced logical thinking ability, and embodies in-depth thinking and dialectical discussion of world things. Through perceiving the causality of things, it can purify people's hearts. The tireless research spirit and quality of mathematicians, rigorous and meticulous research attitude, and the wide application of mathematical thinking methods can all bring people the spiritual pursuit of goodness and persistent value. Being honest and doing things honestly is the virtue and conscience that mathematics can transmit to people. Mathematics's desire for goodness plays a very important role in ethical values, which is reflected in the universal applicability of mathematical knowledge and model structure. It plays a positive universal value and spiritual role in human understanding of all things in society and promotes the development of human civilization.

3. The Development Path of Humanistic Spirit Value of Mathematics

The traditional values of mathematics place too much emphasis on the extensive application of mathematics in social life, that is, the main value at the practical level, often neglecting the value of mathematics at the humanistic spirit level. With the development of human society, the humanistic spirit value of mathematics has gradually been discovered and utilized by people. More attention has been paid to the utilization of the spiritual value of mathematics, providing a powerful and effective tool for people to know the world, providing a powerful guarantee for enhancing and enriching people's humanistic spirit, and also providing a powerful promotion for the development of mathematics.

3.1 Digging Up Rational Spiritual Resources in Mathematics

The great scientist Newton said that even the smallest error in mathematics cannot be ignored. This is the reason of mathematics and the preciseness of mathematics. From the cognitive perspective of logic, one can feel the rational spirit of mathematics, such as learning precise mathematical concepts, using mathematical formulas, training mathematical operations, understanding the essence of mathematical knowledge, and creating and constructing mathematical theorems. In order to achieve the most rigorous rational thinking, we need to carry out mathematical training and get it from mathematics. Use mathematical thinking to analyze problems, look at problems, and use mathematical methods to solve problems. Through mathematics learning and cognition, people can look at problems more objectively, fairly and rationally. Rational emotions will teach people to face existing problems and difficulties rationally and take their own life journey well. Rational mathematics can temper people's will and quality, train people's psychological quality and psychological endurance, and improve people's mind. The rationality of mathematics is embodied in abstractness and logicity. It can make people not violate scientific norms and rules. It requires diligence, tenacious willpower and spirit. The thinking training of mathematics is a good embodiment and development of rational spirit. While learning mathematics knowledge, it absorbs the wisdom in mathematics and obtains the humanistic spirit of mathematics. It teaches people how to know the world and how to get along with people. The rational spirit of mathematics is constantly discovered and absorbed by people in the learning and teaching of mathematics knowledge, and is constantly discovered and absorbed by people in the dissemination of mathematics culture and mathematics wisdom. The rational spirit of mathematics embodies the

instrumental value of mathematics, the technical value and wisdom value of mathematics, and the cultural value of mathematics. The charm of the rational spirit of mathematics is of great value. In the process of understanding mathematics, it can improve people's love and interest in truth, and then transform it into a powerful motive force for exploring things.

3.2 Digging Up Aesthetic Spiritual Resources in Mathematics

There are abundant aesthetic spiritual resources in mathematics, which are mainly manifested in the beauty of unity, logic, preciseness, singularity, symmetry, thought, conciseness and harmony. Specifically, in the process of mathematics revealing the laws of nature, mathematics can beautifully show the harmonious unity of concrete and abstract, simple and complex, unique and diverse, and can express the beauty from nature. The beauty of mathematics comes from life, and the beauty of mathematics also comes from nature. Such beauty always exists around people and in people's thinking. He is good at digging aesthetic resources in mathematics and improving his ability to discover, utilize and appreciate beauty. In mathematics, delicate concepts, excellent conclusions, simple formulas, complete systems and precise figures are all the concrete embodiment of mathematical beauty. Especially in geometry, all kinds of precise figures embody the beauty of mathematics and are typical aesthetic resources in mathematics. In mathematics, the plane inlaid geometric figures embody the aesthetic thought and the perfect combination of all kinds of figures. The Forbidden City of China and Angkor Wat of Cambodia are all examples of symmetrical beauty. The golden section in mathematics is knowledge closely related to life and can be used in photography composition, stage management, literary writing, painting composition, etc. Even in the design of Egyptian pyramid of khufu, ancient Greek Parthenon and other buildings, the aesthetic principle of golden section 0.618 was applied. Many mathematical conjectures can arouse people's interest and also make use of the aesthetic value of mathematics. The mathematics originated from mathematicians' wisdom and mind embodies the eternal beauty of art and harmony.

3.3 Digging Up Dialectical Spiritual Resources in Mathematics

Engels once pointed out that mathematics is a dialectical auxiliary tool and form of expression. The relationship between the unity of opposites and the relation between changes of mathematical knowledge derived from life practice embodies the dialectic of mathematics. Mathematics contains many philosophical thoughts. Mathematics and philosophy are inextricably linked. The two disciplines are interrelated and influence each other. Mathematics has a very important influence and unique effect on cultivating people's dialectical thinking. Variable is the turning point of mathematics, which makes mathematics have motion and dialectics. Many knowledge in mathematics embodies dialectical methods and viewpoints: constant and variable, finite and infinite, maximum and minimum, etc. This is the dialectical relationship of unity of opposites, while number and shape, whole and part, etc. embody the dialectical relationship of harmony and unity between them. Hua Luogeng's proof of Goldbach's conjecture and Zu Chongzhi's calculation of pi are examples of mathematicians' diligent exploration of knowledge. In the process of reasoning mathematical knowledge, the final dialectical result is obtained. This is the knowledge content that well embodies the dialectical spirit in mathematics. The movement and change, opposition and unity of mathematical knowledge all contain philosophical principles and exercise people's dialectical thinking. In the process of understanding the essence and laws of mathematical knowledge, people's dialectical thinking and cognitive level can be improved.

3.4 Digging Up Cultural and Spiritual Resources in Mathematics

Mathematics has played a very important role in promoting culture in the process from ignorance to wisdom. There are rich cultural resources hidden in mathematics. Various thoughts and methods of mathematics enlighten people's wisdom and cognitive ability, making people feel the strong cultural value, cultural spirit and cultural strength in mathematics. Historical data of mathematics is a treasure house of cultural resources of mathematics. Mathematicians' persistent pursuit of mathematical knowledge can learn excellent qualities and let people set up correct value orientation. Making use of the stories of mathematicians Chen Jingrun and Hua Luogeng can make people feel

infinite love for the motherland and strong interest in mathematics. No matter what they do, they will certainly get something if they work hard and pay attention to it. It plays a very good role in warning people to face and deal with things correctly. The power of role models can constantly inspire people to explore and complete various challenges. Mathematical knowledge is also contained in literature. For example, the poem “Three thousands of feet Flowing Down Directly, Doubtfully the Milky Way Falling Nine Days” is the finishing touch of this poem. Numbers can express rational science as well as emotional feelings in a lively and interesting way. Literature and mathematics are not unrelated, they are closely linked. Literature is full of fun and variety with mathematics, while mathematics is more meaningful and profound with literature. Mathematicians show cultural spirit all the time in the process of creating mathematics mansion, in the process of pursuing scientific truth diligently, and in the process of constructing complete mathematics knowledge system. They all show perfect personal wisdom and radiate the light of culture. It is the cultural contribution of mathematicians to the development of society that makes mathematics knowledge promote the development of society, makes mathematics closely linked with other disciplines, makes mathematics spirit, mathematics culture and mathematics thinking methods influence the world, exerts the powerful cultural power of mathematics, and continuously improves people's scientific literacy and cultural accomplishment.

4. Conclusion

People pay more and more attention to the humanistic value of mathematics. Learning mathematics can make people understand honesty and integrity, make people do things strictly and objectively, make people learn to struggle and struggle, make people know and appreciate beauty, and make people treat everything calmly and realistically. Carrying forward and developing the humanistic spirit value of mathematics can not only promote the construction of social civilization, but also enrich people's cultural connotation, so that more people can benefit from mathematics, so that more people like mathematics, love mathematics, spread mathematics, so that more people can realize their own goals in life and walk their own way of life because of mathematics. The humanistic spirit value of mathematics will certainly provide greater spiritual impetus for the development of human society and make greater contributions to the progress of human beings.

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