

The Role of Aesthetic Education in the Ideological and Political Construction of Electronic Materials Experiment Teaching Course

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ABSTRACT

In the new era, higher education not only pays attention to imparting professional knowledge, but also emphasizes the all-round development of students. As an important way to cultivate students' aesthetic ability, innovative ability and humanistic quality, aesthetic education plays an important role in higher education. Especially in the teaching of science and engineering majors such as Electronic Materials Experiment, the integration of aesthetic education elements can not only improve students' comprehensive quality, but also effectively promote the ideological and political construction of courses and realize the organic integration of professional knowledge and ideological and political education. This paper will deeply discuss the role of aesthetic education in the ideological and political construction of the teaching course of Electronic Materials Experiment, and provide reference for further strengthening the function of educating people with aesthetic education in colleges and universities.

KEYWORDS

aesthetic education; Electronic materials experiment; ideological and political theories teaching in all course

In today's higher education system, both aesthetic education and ideological and political education play a vital role. Aesthetic education helps students cultivate life, cultivate noble and healthy character, enlighten ideological wisdom, stimulate innovation vitality and comprehensively improve students' humanistic quality through aesthetic methods. Ideological and political education is devoted to cultivating students' good moral quality and guiding them to form a correct value orientation. In the course of Electronic Materials Experiment, how to organically combine aesthetic education with ideological and political education has become an important topic in the current teaching reform.

1 The internal relationship between aesthetic education and curriculum ideology and politics

Aesthetic education, as an all-round and multi-level educational form, devotes itself to cultivating students' keen sense of beauty, accurate appreciation of beauty and positive ability to create beauty through various vivid and concrete forms of expression such as art, literature and natural beauty. This process can not only enhance students' aesthetic taste, but also deepen their humanistic

quality, so that they can have a richer emotional world and deeper rational thinking when facing the complicated world. The core of aesthetic education lies in stimulating students' inner potential, promoting their all-round development, and becoming talents with noble moral character, profound cultural background and strong sense of social responsibility in the new era. As an important concept of higher education in the new era, curriculum ideological and political education emphasizes the integration of ideological and political education into all kinds of curriculum teaching to realize the organic unity of knowledge imparting and value leading. It requires teachers to teach professional knowledge, but also pay attention to guiding students to establish a correct world outlook, outlook on life and values, cultivate their patriotic feelings and sense of social responsibility, and make them become socialist builders and successors with all-round development of morality, intelligence, physique and beauty. The core idea of curriculum ideological and political education is to realize the dual goals of education and educating people, both imparting knowledge and shaping the soul^[1].

In the science and engineering courses such as Electronic Materials Experiment, the combination of aesthetic education and curriculum ideology and politics is particularly important. Science and engineering students often pay more attention to the cultivation of logical thinking and experimental skills, and the integration of aesthetic education can greatly enrich the course content and enhance students' interest and enthusiasm in learning. Through artistic teaching methods, such as literary writing of experimental report and aesthetic presentation of experimental process, students can master professional knowledge and feel the beauty of science and experiment at the same time, so as to love their major more and actively participate in learning and research.

In addition, the integration of ideological and political course in Electronic Materials Experiment can guide students to establish a correct view of science, technology and engineering, and cultivate their patriotic feelings and sense of responsibility. By introducing the development course, frontier application and China's outstanding contribution in this field, students' sense of national pride and mission can be stimulated, and their learning goals and struggle direction can be more clearly defined. At the same time, by discussing the ethical issues and social responsibilities in the experiment, students can be guided to form correct values and morals, and become scientific and technological talents with both professional skills and noble morality in the new era. Therefore, integrating aesthetic education into the ideological and political construction of the teaching course of Electronic Materials Experiment is an effective way to realize the organic integration of professional knowledge and ideological and political education. This idea and practice is of great significance for promoting the reform of higher education and cultivating high-quality talents needed in the new era.

2 The role of aesthetic education in the ideological and political construction of the teaching course of Electronic Materials Experiment

2.1 Enhance students' aesthetic taste and humanistic quality

Aesthetic education, as an educational method aimed at cultivating students' aesthetic taste and humanistic quality, its core essence lies in leading students to actively explore beauty and deeply understand it, and then gradually shaping their unique aesthetic vision. In the teaching of science and engineering majors, such as Electronic Materials Experiment, the infiltration of aesthetic education not only adds rich colors to the course content, greatly enhances students' interest in learning, but also allows students to master professional skills and immerse themselves in the baptism of beauty, thus realizing the dual nourishment of knowledge and emotion.

In the teaching practice of "Electronic Materials Experiment", teachers should combine the

experimental contents wisely and skillfully integrate the elements of art, literature or natural beauty, so that students can appreciate the infinite charm of beauty in the journey of pursuing scientific truth.

For example, when explaining the microstructure of electronic materials, teachers can use high-tech tools such as microscopes to let students witness the microscopic world of materials and feel the wonderful texture, gorgeous colors and exquisite structural beauty. This intuitive and vivid display not only deepens students' understanding of professional knowledge, but also stimulates their awe and appreciation of the mysteries of nature, and cultivates their exploration spirit and innovation ability. When explaining the preparation technology of electronic materials, teachers can also integrate the relevant historical and cultural background, lead students to travel through time and space, and appreciate the development course of materials science and the brilliant chapter of human civilization. By telling the outstanding contributions of materials scientists, the brilliant achievements of technological innovation and the wide application of materials in all walks of life, teachers can inspire students to realize the hardships and greatness of scientific research and feel the depth and light of human wisdom. This interdisciplinary knowledge intersection not only broadens students' knowledge horizons, but also sows the seeds of patriotism and social responsibility in their hearts, prompting them to continuously improve their personal humanistic quality and moral sentiments while learning professional knowledge. Combining ideological and political education with curriculum, the integration of aesthetic education in Electronic Materials Experiment is not only to strengthen students' aesthetic and humanistic education, but also to shape and guide their ideals, beliefs and values^[3]. Through the organic combination of aesthetic education and ideological and political education, teachers can cultivate students' comprehensive quality more effectively, so that they can have solid professional skills, noble moral quality and profound humanistic feelings on the road of scientific exploration.

2.2 Stimulate students' innovative thinking and imagination

In the teaching practice of Electronic Materials Experiment, the integration of aesthetic education encourages teachers to guide students to examine scientific problems from an open and diverse perspective, and encourages them to break through the shackles of traditional thinking and dare to explore and understand experimental phenomena from novel angles and levels. In the experimental design stage, teachers can stimulate students' innovative consciousness and encourage them not to stick to the established experimental methods and paths, but to dare to try new ideas and technologies and explore unknown experimental phenomena and laws through constant trial and error and innovation. This kind of divergent thinking training can enable students to show more flexible and creative solutions when facing complex problems, and lay a solid foundation for their future scientific research and innovation. Aesthetic education also plays an important role in the analysis and presentation of experimental results. Teachers can guide students to apply aesthetic principles to data processing and chart drawing, and present data and information in an intuitive and vivid way by carefully selecting aesthetic elements such as color, line and layout, thus improving students' data analysis and visualization ability. This practice of integrating aesthetic principles into scientific experiments not only enables students to enjoy beauty visually, but also interprets scientific phenomena through the form of beauty and deepens their understanding and mastery of professional knowledge.

In addition, the integration of aesthetic education also promotes the cultivation of students' critical thinking and problem-solving ability. During the experiment, teachers can encourage students to deeply analyze and reflect the experimental phenomena and data, and dare to put forward their own opinions and questions, thus cultivating their independent thinking and

judgment ability. The cultivation of this kind of critical thinking will not only help students to better understand and master professional knowledge, but also help them to find, analyze and creatively solve problems in their future career development, and become outstanding talents with innovative spirit and practical ability.

2.3 Cultivate students' team spirit and communication ability

Teachers can make students deeply realize the importance of teamwork through the guidance of aesthetic education. During the experiment, teachers can encourage students to cooperate in groups and accomplish tasks together. Through division of labor and mutual cooperation, students can not only complete tasks more efficiently, but also learn to listen, understand and respect other people's opinions in cooperation, thus cultivating good teamwork spirit. This ability of teamwork will play a vital role in the future career development. Both scientific research teams and enterprise projects need close cooperation and effective communication among team members.

At the same time, in the reporting of experimental results, teachers can guide students to pay attention to language expression and logical clarity, and improve their communication and expression skills. Through the influence of aesthetic education, students can learn how to use appropriate language and methods to present their experimental results, and how to clearly express their views and ideas, so as to be more confident and convincing in communication with others. The cultivation of this kind of communication ability will not only help students to better display their abilities and achievements, but also play a role as a bridge and link in team cooperation and promote effective communication and cooperation among team members.

3 The concrete application of aesthetic education in the ideological and political construction of the course Electronic Materials Experiment

3.1 Combining experimental content with aesthetic education elements

In the teaching field of Electronic Materials Experiment, which is full of exploration and innovation, teachers are fully capable and should actively combine aesthetic education elements with professional knowledge, thus creating a learning environment full of scientific spirit and humanistic feelings for students. This integration can not only stimulate students' interest in learning, but also deepen their understanding of professional knowledge, and at the same time give them a broader aesthetic vision and profound humanistic quality.

When explaining the preparation and performance test of semiconductor materials, teachers can skillfully guide students to appreciate the beauty of color and shape of semiconductor materials. Semiconductor materials, such as silicon and germanium, often show unique crystal structure and color changes from a microscopic perspective. These natural phenomena themselves are masterpieces of beauty endowed by nature. Teachers can use microscopes, electronic scanning and other means to let students observe the microscopic world of these materials at close range and feel their colorful and beautiful shapes. This intuitive visual experience can not only deepen students' understanding of the characteristics of semiconductor materials, but also stimulate their perception and pursuit of scientific beauty.

Similarly, when explaining the packaging and testing of electronic devices, teachers can combine the relevant historical and cultural background and the progress of human civilization to present a vivid picture of scientific and technological development for students. From early vacuum tubes to modern integrated circuits, the development of electronic devices has witnessed the rapid progress of human science and technology and the continuous leap of civilization. Teachers can tell the

stories behind these devices, such as their inventors, how they have changed the way people live and work, and their potential applications in future science and technology. This kind of knowledge transfer across time and space can not only broaden students' scientific and technological horizons, but also make them feel the far-reaching influence of scientific and technological progress on human society, thus inspiring their enthusiasm and determination to contribute to the cause of science and technology. Through this teaching method, students can not only master professional knowledge, but also be nurtured by beauty and humanistic spirit. They not only learned how to use scientific principles to solve practical problems, but also learned how to examine and appreciate the beauty of science with aesthetic eyes and how to understand and care for the social significance behind science and technology with humanistic feelings. This comprehensive and profound educational experience will lay a solid foundation for their future academic research and career, and make them become scientific and technological talents of the new era with both professional skills and humanistic feelings^[4].

3.2 Establish an evaluation system of aesthetic education

In order to ensure the effective implementation of aesthetic education in the teaching of Electronic Materials Experiment, and continuously promote the overall improvement of students' aesthetic taste, humanistic quality, innovative thinking, imagination, teamwork spirit and communication ability, teachers need to build a scientific, comprehensive and inspiring aesthetic education evaluation system. This system is not only an objective measure of students' learning achievements, but also an important tool for teachers to teach accurately and students to improve themselves.

First of all, the evaluation system of aesthetic education should cover multiple dimensions to fully reflect the growth of students in aesthetic education. In terms of aesthetic taste, it can be evaluated by students' appreciation ability and creative performance of artistic works and natural scenery; Humanistic quality can be measured by students' understanding of history and culture, their understanding of humanistic spirit and the embodiment of moral quality. In terms of innovative thinking and imagination, we can examine students' novel ideas, unique opinions and creative achievements in the process of experimental design and problem solving. Team spirit and communication ability are evaluated by observing students' cooperative attitude, role assignment, communication efficiency and conflict resolution ability in team projects.

Secondly, the evaluation system should adopt diversified evaluation methods and means to ensure the objectivity and fairness of evaluation. In addition to the traditional homework, test and report, we can also introduce evaluation methods such as project presentation, oral report, peer evaluation and self-reflection to collect students' learning performance information more comprehensively. At the same time, the use of modern information technology, such as online learning platform, electronic portfolio, etc., can achieve immediate feedback and continuous tracking of evaluation, making the evaluation process more efficient and transparent. Furthermore, the implementation of the evaluation system should pay attention to the combination of process evaluation and summative evaluation. Process evaluation pays attention to students' efforts and progress in the learning process, and encourages students to gain something in every attempt; Summative evaluation is a summative evaluation of students' learning achievements, which is used to test whether students have achieved the established learning goals. The two complement each other and together form a complete and coherent evaluation chain. Finally, the establishment and implementation of aesthetic education evaluation system requires teachers to have a high degree of professionalism and keen insight. Teachers need to constantly study the theory of aesthetic education and understand the new trends and methods of aesthetic education practice in order to

better guide students to participate in aesthetic education activities and practices^[5]. At the same time, teachers should also pay attention to communication with students, understand their needs and puzzles, give timely guidance and help, and stimulate their learning enthusiasm and creativity.

4 Conclusion

The role of aesthetic education in the ideological and political construction of the teaching course Electronic Materials Experiment not only injects new vitality and depth into science and engineering education, but also is a profound practice for students' all-round development. The combination of aesthetic education and curriculum ideology and politics not only enriches students' knowledge system, but also shapes their firm ideals and beliefs and noble moral quality. During the experiment, the students not only exercised their professional skills, but also cultivated independent thinking, critical thinking with the courage to question, as well as deep patriotic feelings and social responsibility under the influence of beauty. Looking forward to the future, educators should continue to deepen the practice of aesthetic education in the ideological and political construction of the teaching course of Electronic Materials Experiment, and constantly explore more effective educational methods and ways to build a broader platform for students' all-round development.

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