

## Sensitivity Education and Its Implementation Path for College Students

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**Keywords:** College Students; Sensitivity Map; Training Program; Curriculum Ideological and Political Education; Implementation Path

**Abstract:** Combined with the ideological and political reform of the course "Automatic Detection Technology and Automatic Instrument", this paper puts forward the sensitivity education and training program and its implementation path for college students based on the detailed interpretation of political sensitivity, moral sensitivity, cultural sensitivity, professional sensitivity, safety sensitivity and information sensitivity. It is hoped that college students maintain moderate sensitivity, and improve their professional knowledge and skills education and training, at the same times, we should give full play to the guiding role of ideological and political education. So as to make college students have correct values, scientific thinking and scientific spirit, and become useful professional and technical talents for economic and social development.

### 1. Introduction

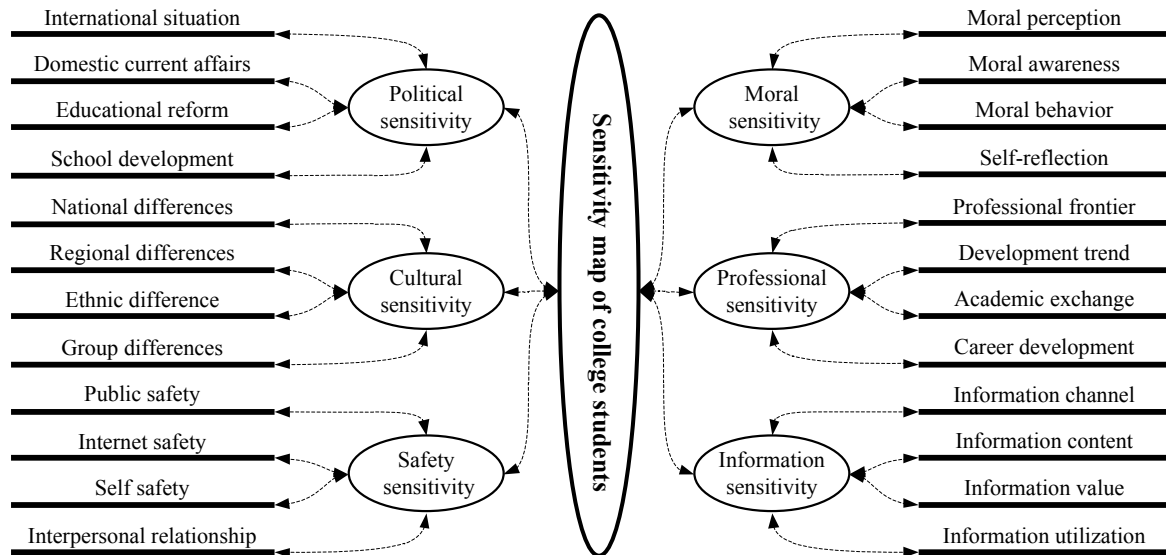
Maintaining a certain sensitivity is the basic guarantee for normal interaction between human behavior and external affairs. To be too sensitive and worry about small things all day is a kind of morbid psychology. However, a lack of sensitivity and indifference to everything is also a kind of morbid one. If a person ignores everything happening around him, fails to respond properly to environmental changes and development of things, regards everything normal and ordinary, then he will be unable to perceive subtle changes in his social life, career or life. Anyway, from small families to society, nations and even the whole world, it is not exclusive to one person. Human individuals always have to communicate and cooperate with others.

Only by maintaining proper sensitivity can contemporary college students have strong learning enthusiasm, master professional knowledge and skills, make contributions to society and family, make their career healthy development and have a happy life. Thus, it is absolutely necessary to explore the sensitivity education and its implementation path for college students, and strive to cultivate their necessary sensitivity. As a result, higher education can cultivate qualified talents who meet the needs of social development and possess correct values, scientific thinking and spirits.

### 2. Sensitivity Definition and Analysis of College Students

Sensitivity refers to being keenly aware of external things (one thing or something), able to react quickly or make judgments [1]. Sensitive antonyms in Chinese include dullness, numbness, and paralysis, which describe people (senses, thoughts, actions, etc.) that are slow to respond, insensitive to external things, slow to respond, or careless. In real life, "sensitivity" has a derogatory meaning, which is often associated with "inferiority", "indifference" and "neuroticism". Sensitive people, however, are good at analysis and reasoning, and have a strong ability to summarize the rules of things, which is a special ability. Moreover, these people do not lack safety, but can easily find out what is right or wrong (like the difference between harassment and care). Thus, no matter when and where, anyone needs to keep this sensitivity instead of being indifferent to everything.

For contemporary college students, "sensitivity" is reflected in six aspects, as shown in Figure. 1.



**Figure. 1** Sensitivity Map of College Students

(1) **Political sensitivity:** Political sensitivity, to a certain degree, determines the ideological and political consciousness of college students. The ideological and political consciousness is the basic quality of college students, which determines their political belief, restricts their moral norms, and affects the formation and development of their learning attitude, learning enthusiasm and professional ability. College students should always focus on the international situation and domestic current affairs, and reasonably treat the gap between Chinese and western social development and technical ability. They should correctly handle technical exchanges and discussions, avoid making blind and irrational remarks, be politically sensitive and maintain the baseline of principles.

(2) **Moral sensitivity:** For a period of time, the existence and conflict of multiple values in the market economy have led to the phenomenon of doing things for profit, doing things for good, and doing nothing for non-profit. People gradually become accustomed to what is happening around them. Over time, it has formed a bad atmosphere of "letting things drift if they do not affect one personally" and "don't meddle in others' affairs". People are only sensitive to protect themselves and avoid "trouble" and "danger", rather than how to help others. College students are the backbone of the future economic construction and social development and shoulder the important task of the great rejuvenation of the Chinese nation. Apart from mastering solid professional skills, they also need to have a certain social responsibility, not to be refined "egoists" isolated from society.

(3) **Cultural Sensitivity:** There are great differences in value cognition and ideology between different cultures. Contemporary college students should have a full understanding and grasp of different cultures (like cultural elements and historical traditions of gender, ethnic groups, regions, social classes), can treat problems from a multicultural view, and improve the cognitive ability of emotional and attitude differences. Besides, they should always focus on the survival status and development trend of new culture (e.g. network culture) derived from new technology. Only by keeping pace with the times and sensitive to various cultures can they make full use of the characteristics and advantages of new concepts, theories and technologies to keep up with the current trend.

(4) **Professional sensitivity:** As we all know, scientific problems come from seeking relations between facts, contradictions between theories and facts, internal contradictions within a certain theory, and differences between different theories. Besides, scientific problems mainly come from identifying problems in the gap between social needs and existing technological means. Thus, college students should cultivate and train their professional sensitivity, be good at seeking scientific problems from professional learning and practice, and constantly develop, innovate and create. They need to widely collect, study and learn the research results and relevant technical data of domestic and foreign scholars, so as to make their career development as they wish and serve the

society with good professional quality.

(5) Safety sensitivity: Colleges and universities are the epitome of society. Social public safety incidents also involve colleges and universities, and affect the study and normal life of college students. Apart from making students deeply understand the safety code and code of conduct of professional technology, professional education should also take this as the focus to cultivate their public safety awareness. It should make students understand equipment failure risks and intelligent system information leakage brought by technology application, interpersonal communication and information fraud caused by public life, so that they have a high sense of safety sensitivity.

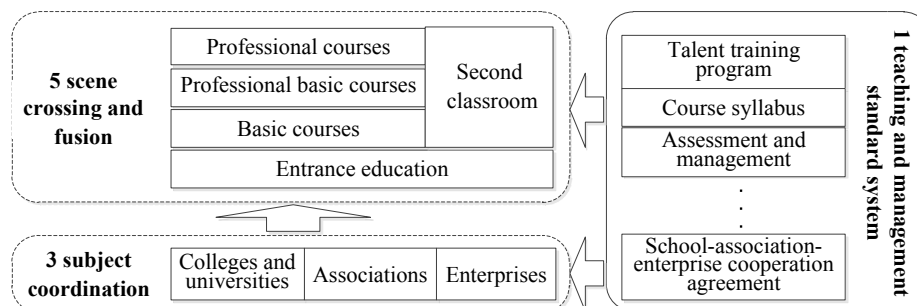
(6) Information sensitivity: Information is one of the three major resources in modern society. Moreover, some information is valuable to everyone, while some is only valuable to a certain group of people. Some information is concerned by some people and brings them wealth and opportunities, while the same information may be ignored and does not bring them any value. Thus, college students should be sensitive to the information collected from various channels, and find valuable information to make effective use. Certainly, this kind of information sensitivity and high information literacy cannot be achieved overnight, which needs to be continuously trained, exercised and improved in professional learning and social practice.

### 3. Educational Training Program and Implementation Path

From December 7th to 8th, 2016, the National University Ideological and Political Work Conference was held. In the conference, General Secretary Xi Jinping emphasized to persist in taking the moral education as the central link, implement ideological and political work throughout the entire education and teaching, achieve full-staff and all-round education, and strive to create the new development of China's higher education. Each course should guard its part of the channel and be responsible, so that all courses and ideological and political theoretical courses can go together and form a synergistic effect [2]. Thus, colleges and universities must make use of the main channel of classroom to promote full-staff, whole process and all-round education, and undertake the responsibility of correct values, scientific thinking and spirits of college students, including the education and cultivation of necessary sensitivity.

#### 3.1. Practicing the Concept of Moral Education

To practice moral education, all the courses in the talent training program of colleges and universities should reflect the elements of ideological and political education. All educational and teaching activities should conduct the function of teaching and educating people, highlight the characteristics of professional theoretical knowledge and skills, supplemented by ideological and political education, and play the role of ideological and political education in the cultivation of professional and technical talents.



**Figure 2.** Sensitive Education and Training "1+3+5"

Sensitivity education, training program and implementation path can be summarized as "1 + 3 + 5". Namely, 1 teaching and management standard system, including (each major) talent training program, syllabus, assessment and management norms, and school-association-enterprise cooperation agreement, etc., is the basis for the implementation and assessment of sensitivity education and training; 3 subjects, including universities, associations and enterprises, cooperate

with each other and participate in the whole process of sensitivity education and training; 5 scenes, including entrance education, basic courses, professional basic courses, professional courses, and the second classroom, are 5 situations and places for sensitivity education and training, which intersect, converge and merge with each other, as shown in Fig. 2.

In the key period when freshmen are in the initial formation of outlook on world, life and values, entrance education provides them with timely and effective correct guidance. It helps freshmen to understand their schools, majors, familiar with the new learning environment, adapt to university life, and complete the transformation from middle school students to college students as soon as possible [3].

The second classroom refers to the learning and practice activities for college students that are voluntary, purposeful, planned, and organized outside classroom tasks. According to different educational connotations and students' quality training, the second classroom includes various types of activities, like moral self-cultivation, student associations, academic research, innovation and entrepreneurship, culture and sports, and voluntary services.

Basic courses, professional basic courses and professional courses are the main positions of professional and technical talents training. On the basis of imparting necessary basic knowledge of natural science, social science and thinking science, these courses provide systematic training of scientific thinking methods and basic skills, like calculation, experiment, design and data processing. Moreover, while training professional knowledge and skills, they focus on solving the problems of who to train people for and what kind of people to train. They define the specifications of talents training, guide college students to establish correct ideology, to learn well their majors, to serve the people, and to serve the socialist modernization.

### **3.2. Integrating the Content of Ideological and Political Education**

Ideological and political education should be integrated into various educational and teaching scenes to guide students to correctly understand the international and national situation and development trend, correctly understand Chinese characteristics and national confidence, correctly understand the era responsibility and historical mission, correctly understand lofty dreams and to be down-to-earth. In professional teaching design, some practical political, scientific, technological and engineering cases should be introduced. It is necessary to guide students to analyze and discuss, educate and train their correct scientific thinking, scientific spirit and sensitivity, and play the guiding role of ideological and political education while educating professional knowledge and skills.

For example, "Automatic Detection Technology and Automatic Instrument" is an important professional basic course for automation majors. This course integrates light, mechanics, and electricity, and comprehensively uses physics, chemistry, materials, electronics, computers, and mechanics and other multidisciplinary technologies. It covers the theoretical basis of detection technology, measurement signal acquisition, signal conditioning, signal regulation and execution, and display, etc. It involves great content, with intensive and complex knowledge, so students often feel boring and the teaching effect is not good. This paper intends to combine it with the ideological and political reform. While encouraging students to learn well their professional knowledge, we educate and train them with scientific thinking, scientific spirit and sensitivity. In particular, the relevant contents of "sensitivity" education and training are introduced from three levels: "concept and sensor characteristics", "sensor composition and instrument", "application and sensor calibration".

(1) Concept and sensor characteristics: Combined with the concepts of sensor and signal measurement, as well as its sensitivity, resolution, error and other characteristic parameters, this paper introduces the sensory organs (eyes, ears, mouth, nose, skin, etc.) of human beings to observe the world, and the abilities and characteristics to understand the world, sensitivity, right and wrong distinguish, and cognitive bias. In this way, students can realize that sensors are designed to expand human's perception ability, and make objects or systems have sense of hearing, sight, touch, taste and smell. Human beings use sensory organs to observe and understand the world, just as sensors

for signal measurement, which also has sensitivity difference (sensitivity). Moreover, the experience and knowledge gained from observing and understanding the world will also have cognitive bias (error).

(2) Sensor composition and instrument: Combined with the knowledge of measurement objects, measurement ways, sensor types, signal transmission, signal conditioning and instrument display, this paper introduces different observation objects or affairs, observation ways (direct or indirect), different observation subjects (individuals), nerve conduction system, information processing, right and wrong distinguish, brain reproduction, etc., while observing and understanding of the world. While mastering the principles of sensors and instruments, students can also have a deeper understanding of human cognition of the world, and know that observation is the earliest and most commonly used scientific research method. Besides, inspirational thinking is a process in which people suddenly emerge and disappear to solve problems in the process of scientific research, creation, product development or problem solving. It is obvious that the ability of inspirational thinking is not available to everyone, which can be met but not sought, and everyone has different sensitivity levels. Otherwise, there may be more great scientists and inventors in the world. Thus, it can be seen that the importance of sensitivity education and training.

(3) Application and sensor calibration: Concerning the temperature compensation, multi-sensor information fusion, sensor installation and debugging, sensor calibration, etc., involved in the application of sensors and instruments, in the process of observing and understanding the world, especially in the information and knowledge society, more emphasis is placed on knowledge accumulation, innovation, application and transformation. Thus it can promote industrial progress and guide the growth and development of individuals, organizations and society. People must screen, filter and judge the massive information they receive, constantly learn new knowledge and technology, and try to make up for their own shortcomings and improve their comprehensive quality. Besides, high quality knowledge-sensitive decision making depends on the decision-maker's mastery of adequate scientific knowledge. As college students in the new era, only by keeping a high sensitivity to the outside world and trying to construct and perfect their own knowledge system, can they win their own development space in the fierce competition.

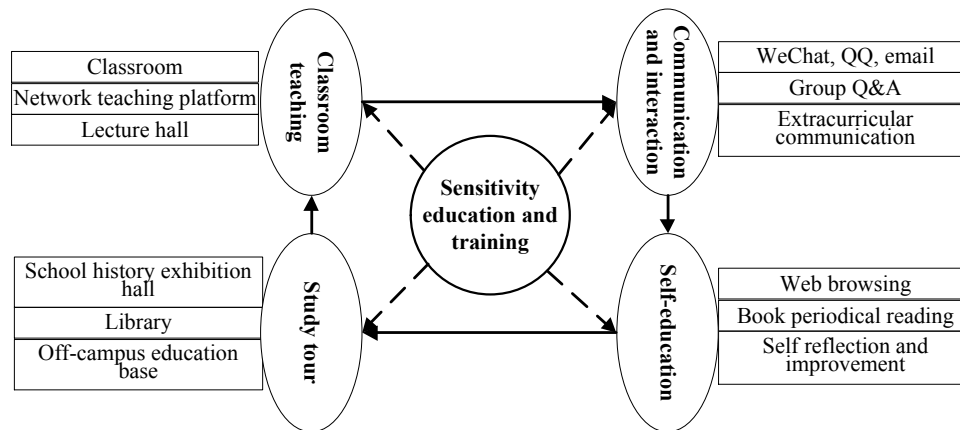
### 3.3. Innovating Educational Methods

Firstly, university teachers are the main organizers and instructors in each teaching scene, and they are also the most direct and authoritative models for students [4]. Every word and action of teachers will leave deep, even indelible memory in students' subconsciousness. Teachers' enthusiasm, confidence, perseverance and noble moral cultivation for their own work are most likely to be recognized by students, and will also have a huge impact on students. Therefore, university teachers should make themselves good teachers with ideals, beliefs, moral sentiment, solid knowledge and benevolence. They should closely focus on "moral education", unify the talent and morality education to transmit positive energy, and try to cultivate socialist builders and successors with all-round development of morality, intelligence, physique, beauty and labor.

Contemporary college students have an open personality, emphasize self, and value participation, but lack strong political concepts and psychological endurance [5]. Thus, in the design of sensitivity education and training methods for college students, we should emphasize their participation, and promote the benign interaction between participants (teachers, technicians, managers, etc.) of educational subjects (schools, associations, enterprises) and the educated subjects (students) in various educational scenes, as shown in Figure. 3.

Apart from the sensitivity education in the classroom, network teaching platform, lecture hall and other professional knowledge and skills training, the communication and interaction, study tour can be arranged appropriately. Through WeChat, QQ, email, group Q&A (class meeting, dormitory), extracurricular communication (between teachers and students on campus, between students and freshmen, and between off-campus teachers and freshmen), etc., one-way preaching turns to two-way communication. Counselors and head teachers should communicate more with students in class meetings and dormitories, and timely and comprehensively understand the

ideological trends of freshmen [6, 7]. Through exhibition halls of school history, libraries and off-campus education bases (talent training bases, industry-university-research bases, museums, enterprise, etc.), students can understand schools, know how to use the library, and how to make better use of the resources inside and outside schools to assist their rapid growth in ideological understanding. Besides, in the process of sensitivity education and training, we should emphasize the initiative of college students. It is necessary to instruct college students to quickly improve their scientific thinking, spirit, and sensitivity through self-education, like web browsing, book periodical reading, self-reflection and improvement.



**Figure3.** Sensitivity Education and Training Methods

### 3.4. Clarifying Curriculum Reform Goals

As a new educational idea and method, ideological and political education breaks the limitation that traditional teaching takes professional skill training as the goal. Integrating ideal and belief education into professional teaching can help students establish correct values and outlook on life, and stimulate their endogenous motivation to learn professional knowledge and skills, which is the same to their sensitivity education and training. The ideological and political reform of "Automatic Detection Technology and Automatic Instrument" must achieve two educational goals, including the educational objectives of this course and the "sensitivity" education and training objectives.

(1) Curriculum education objectives: "Automatic Detection Technology and Automatic Instrument" mainly focuses on the relevant theories of information detection in information science and engineering practice. It is for undergraduates majoring in intelligent science, electronic information, automation, mechanical engineering, and offers modern detection technology with sensor technology as the core. Finally, it enables students to master basic concepts and characteristics of sensors, principles of various sensors, the calibration, correction and error control methods of sensors, and the design principles of detection application system, and get the ability of automatic and intelligent design and transformation of information systems.

(2) "Sensitivity" education and training objectives: Through the ideological and political reform based on "sensitivity" education and training, the "sensitivity" of college students has been improved in six aspects (as shown in Fig. 1), including political sensitivity, moral sensitivity, cultural sensitivity, professional sensitivity, safety sensitivity and information sensitivity. Only by facing life with a positive and optimistic attitude, keeping a keen insight into things around, and always maintaining a high sensitivity to their professional study and future career, can college students complete their studies excellently.

## 4. Conclusion

At present, the curriculum ideological and political reform is still in the initial stage, the reform methods and approaches still need to be explored, so as to fully tap the ideological and political education potential of professional courses, and play their ideological and political education function[8]. It is necessary to train college students' proper sensitivity, enhance their autonomous

learning ability, realize the instrumental value and ideological and political value of professional curriculum, and help colleges and universities undertake the mission of training qualified builders and reliable successors of socialism with Chinese characteristics.

### **Acknowledgements**

This paper is one of the results of the ideological and political project of Foshan University: The Ideological and Political Teaching Reform of "Automatic Detection Technology and Automatic Instrument" Based on "Sensitivity" Education and Training, and higher education teaching research and reform project: Training and Practice Research of Modern "Science-Technology-Engineering" View of Engineering College Students.

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