

Emotional Education in Secondary Vocational Mathematics Teaching: Enhancing Learning Interest and Classroom Engagement

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Abstract: *The dullness and abstraction of mathematical knowledge make the mathematics classroom in secondary vocational schools dull and the classroom teaching fall into Difficulties. To address this situation, secondary vocational mathematics teachers need to transform traditional instructional models. Psychological research has demonstrated that students' emotional attitudes play a critical role in learning, and a positive affective state can facilitate better learning outcomes. Therefore, integrating emotional education into secondary vocational mathematics instruction can enhance students' learning interest, encourage active participation, and ultimately yield improved teaching effectiveness.*

Keywords: Emotional Education, Secondary Vocational Mathematics, Mathematics Teaching, Learning Interest, Emotional Attitudes, Student Engagement, Teaching Effectiveness.

1. Introduction

Emotional education refers to that in teaching activities, teachers communicate with students emotionally in an appropriate way according to the students' personality characteristics, help students overcome negative and pessimistic emotions, enhance students' positive emotional experience, and teachers and students happily complete the teaching activities in a harmonious and harmonious atmosphere. Students' emotional attitudes play a key role in learning, and positive emotions can promote students to actively learn, thus greatly improving learning efficiency.

2. Basic Situation of Emotional Education in Secondary Vocational Schools

2.1 From the Perspective of Students

Most students in secondary vocational schools have to choose to study in secondary vocational schools because of their poor academic performance. Some students feel inferior because of their failure in the senior high school entrance examination, Undertaking immense pressure psychologically, have no goals in learning, and cannot devote themselves to learning wholeheartedly. Some students are used to being Accustomed to being careless, and muddle along with a muddle-through attitude. There are also some students who are influenced by their family environment, are Selfish and willful, have poor anti-frustration ability and poor psychological endurance. Facing the criticism and education of teachers, they are either indifferent or angry, and even Some students may go to extremes some individual students will go to extremes. These negative emotions seriously affect the normal learning of students and are not conducive to the healthy growth of students.

2.2 From the Perspective of Teachers

Influenced by traditional educational concepts, some vocational school teachers "emphasize teaching over education", only focusing on the imparting of knowledge and

skills while neglecting the emotional education of students. On the other hand, some negative news in education has been infinitely magnified by society. When problems occur, parents are relentless, school leaders are ineffective, and the education department adds insult to injury. Finally, the responsibility falls on the teachers involved, which has caused great psychological pressure on teachers. Some teachers "play it safe", being extremely cautious and walking on thin ice in the process of educating students, fearing that they might say something wrong and be caught by students, and thus daring not to carry out critical education on students. Some teachers even choose to remain silent in the face of students' violations or even provocations to avoid trouble, giving up on the emotional education of students.

3. Current Situation of Mathematics Teaching in Secondary Vocational Schools

3.1 Problems Existing in Secondary Vocational School Students' Mathematics Learning

3.1.1 Weak foundation and lack of attention in thought

Due to the abstraction and dullness of mathematics, many students are not interested in mathematics learning. Some students even gave up learning mathematics in junior high school. These students have a weak foundation in mathematics and lack the necessary mathematical knowledge reserve. Affected by their high school entrance examination scores, they are forced to choose secondary vocational schools. After entering secondary vocational schools, they do not attach importance to cultural courses, believing that learning professional courses is enough, and that learning cultural courses, especially mathematics, is of no importance. Therefore, they have an indifferent attitude towards mathematics learning and lack the enthusiasm, interest, and perseverance in learning mathematics.

3.1.2 Incorrect learning attitude and lack of good learning habits

Due to the lack of attention in thought and the abstract and dull content of mathematics learning, most students are not interested in mathematics learning and even fear it. Many secondary vocational school students do not develop good learning habits in mathematics learning. Many students do not have the habit of previewing before class and lack the most basic understanding of the content to be learned. They are in low spirits in class, do not listen attentively, let their minds wander, are careless about the questions raised by teachers and the exercises assigned, and just go through the motions. They cannot complete their homework independently after class, but copy it, or even do not complete it at all. During exams, many students only do multiple-choice and fill-in-the-blank questions. For multiple-choice questions, they randomly choose answers, and for fill-in-the-blank questions, they fill them in haphazardly. Some even hand in a blank paper directly.

3.1.3 Unable to objectively evaluate themselves and having no learning goals

Many students cannot make an objective assessment of their learning ability and knowledge level. They are unclear about their mathematical knowledge level, and psychologically default that they can do nothing, thinking that they “are not cut out for learning mathematics”. Due to the existence of this subconscious, they are content with the present situation, do not want to try to work hard, do not know how to improve their learning methods, have no short-term, medium-term, and long-term learning goals, let alone an overall plan.

3.2 Problems Existing in Mathematics Teaching of Secondary Vocational School Teachers

3.2.1 Conservative thinking and traditional teaching concepts

Because there is no pressure from entrance examinations, many teachers have conservative thinking, are reluctant to learn from others’ teaching experiences, and do not accept some advanced teaching theories. Coupled with the fact that most vocational schools are “self-examined and self-evaluated”, many teachers have relaxed their teaching requirements. On the other hand, the uneven mathematical levels of students make it ineffective for teachers in teaching reform. Teachers lack a sense of achievement, and many teachers thus lose confidence and lack the motivation for innovation.

3.2.2 Single teaching mode

Many teachers still use traditional teaching means, and classroom teaching is usually the “chalk + blackboard” type. Due to the poor foundation of students, many teachers think that only by giving students mathematical formulas and having students use the formulas to solve problems is enough. For the derivation process of the formulas, even if it is taught, students cannot understand it, which is simply a waste of time. Therefore, the teaching process is limited to “teachers teach, students learn”. Teachers give definitions and formulas, use the formulas to explain examples, and students imitate the examples for practice. Students do not understand the derivation process of the formulas and cannot form a

complete knowledge system.

3.2.3 Single way of evaluating students

Many secondary vocational mathematics teachers still simply use examination results as the basis to evaluate students, and use mathematics scores as the basis for whether students “pass”. This simple and crude evaluation method lacks the evaluation of students’ learning attitudes and learning processes, and seriously dampens the learning enthusiasm of those students with weak basic knowledge. In their view, even if they work harder, they still cannot meet the “pass” requirement. Instead of doing so, there is no difference between learning and not learning. Many students thus give up learning mathematics.

4. Necessity of Infiltrating Emotional Education in Mathematics Teaching of Secondary Vocational Schools

4.1 Requirement for Implementing the Fundamental Task of Establishing Morality and Cultivating People

The 18th National Congress of the Communist Party of China pointed out that establishing morality and cultivating people is the fundamental task of education. The “Mathematics Curriculum Standard for Secondary Vocational Schools” states that the mathematics curriculum in secondary vocational schools bears the function of implementing the fundamental task of establishing morality and cultivating people and developing quality education. In order to implement this fundamental task, secondary vocational mathematics teachers must infiltrate emotional education in mathematics teaching and make mathematics teaching a process of shaping students’ emotional attitudes and values.

4.2 Requirements for Enhancing Students’ Enthusiasm for Learning Mathematics, Improving the Classroom Atmosphere, and Enhancing the Effectiveness of Mathematics Teaching

One of the reasons why many secondary vocational school students encounter difficulties in learning mathematics is that mathematics itself is abstract and boring, and students cannot experience the joy of learning mathematics. Coupled with the systematicness and continuity of mathematical knowledge, once students fail to master the previous knowledge, they will not understand the relevant chapters later. As time goes by, students will become confused, bored, and even hostile, until they completely give up. As a result, students will be idle and listless in class. On the other hand, some students feel inferior because of their poor math grades and lose confidence in learning. Some students cannot devote themselves to learning due to family reasons. That is to say, the vast majority of students who encounter difficulties in learning mathematics are caused by negative emotions. Negative emotions suppress students’ interest in learning and create a negative classroom atmosphere. If teachers want to help them out of the learning dilemma, they must first help them out of the emotional dilemma. Only by accurately grasping the psychological state of students and finding the root cause of the problem can they

prescribe the right medicine in mathematics teaching and arouse students' enthusiasm for learning mathematics.

4.3 Requirements for Enhancing Teachers' Job Satisfaction and Sense of Achievement

One of the problems troubling vocational school teachers is that it is difficult for secondary vocational school teachers to gain social recognition. Many teachers have extremely low job satisfaction due to the lack of a sense of achievement for a long time, which is also one of the important reasons why many teachers lack innovation in their work. Emotional education is not only about educating students, but also about the emotional communication between teachers and students. In the process of carrying out emotional education, the change in students' learning attitudes, the improvement of students' recognition of teachers, and the harmony of the educational atmosphere largely meet the needs of teachers' sense of achievement. Teachers' sense of achievement will become the driving force for their work and the source of their educational teaching.

5. Countermeasures for Infiltrating Emotional Education in Mathematics Teaching in Secondary Vocational Schools

5.1 Explore the Materials in Mathematics and Discover the Beauty of Mathematics

In life, beautiful things always bring visual and psychological pleasure to people, attracting people's attention more easily and arousing their initiative to explore. The same is true for mathematics learning. In the eyes of most students, mathematics is a boring subject with abstract theorems and cumbersome calculations, without any fun at all. In fact, there are never lacking beautiful elements in mathematics. Take mathematics in secondary vocational schools for example. The graph of an odd function is symmetric about the origin, and the graph of an even function is symmetric about the y-axis, showing "symmetry beauty"; the logic of mathematical proof is rigorous, showing "logical beauty"; mathematical problem-solving is concise and clear, showing "simplicity beauty". When teaching "ellipse", introduce the simulation animation of "Tiangong-1" orbiting the earth to show the "science and technology beauty" of our country and cultivate students' national pride. When teaching the "binomial theorem", introduce "Yang Hui's Triangle" to students to show the "exploration beauty" of the ancient people in our country. Teachers should explore the beautiful elements in mathematics, change students' inherent perception of mathematics courses, stimulate students' interest in learning mathematics, and guide students to explore actively.

5.2 Change the Traditional Teaching Mode and Explore a New Mode with Students as the Main Body

5.2.1 Create a life situation to make students understand that "learning is useful" and "learning must be useful"

Most secondary vocational school students think that learning professional courses is more important and that learning

mathematics is useless. Coupled with the abstractness of mathematics, many students have relaxed their mathematics learning. In fact, in secondary vocational schools, mathematics is a tool for learning professional courses, and the learning of many professional courses is based on relevant mathematical knowledge. In teaching, teachers should create more life situations related to the learning content and, if necessary, integrate them with students' professional knowledge to make students understand that mathematics "is useful in learning". In addition, although many students have chosen secondary vocational schools reluctantly, they are still unwilling and still have the dream of further study. Whether it is the spring college entrance examination or the adult college entrance examination, mathematics is a compulsory subject. For these students, learning mathematics "is useful in learning". Therefore, whether students choose to further their studies or get employed, learning mathematics well will lay a good foundation. It can be said that mathematics learning is closely related to students' future. With a learning purpose, students' learning of mathematics changes from "learning reluctantly" to "needing to learn", their learning initiative will be enhanced, and the learning effect will also be significantly improved.

5.2.2 Implement hierarchical teaching to satisfy students' sense of achievement

The traditional secondary vocational school mathematics teaching adopts a "one-size-fits-all" teaching model, formulating the same teaching objectives and using the same evaluation criteria for all students at all teaching stages. This teaching model ignores the knowledge and emotional differences among students, resulting in students with good foundations being "unsatisfied" and those with poor foundations being "unable to cope". Under this teaching model, students "gain nothing" in mathematics learning and lack a sense of achievement, directly affecting their enthusiasm for learning mathematics. To ensure that every student makes progress, teachers can implement hierarchical teaching. First, objectively stratify students according to their mathematical cognitive levels and emotional attitudes; then formulate teaching objectives for students at each level, with a certain gradient. Implement hierarchical teaching at all stages of classroom teaching (problem introduction, example explanation, exercise setting, homework assignment), and the teaching content at each stage should also have a certain gradient, fully taking into account students at each level. During the examination stage, easy questions should account for a certain proportion, or multiple sets of test papers with a certain gradient can be used for hierarchical assessment to ensure that students with poor foundations can obtain a certain score. Finally, in the comprehensive evaluation, in addition to referring to students' test scores, more attention should be paid to comprehensively evaluating students' learning processes and attitudes, and appropriately increasing the proportion of usual scores. In this way, as long as students work hard, their mathematics scores can be improved based on their own foundations. "As long as there is effort, there will be gain", and this sense of learning achievement will become the driving force for students to further learn mathematics.

5.2.3 Group cooperation to cultivate students' sense of collective honor

Students in secondary vocational schools are in adolescence, and “being concerned about face” is their common characteristic. Taking advantage of this characteristic of students, teachers can introduce a competition mechanism in mathematics teaching and conduct group cooperative learning. First, according to students’ cognitive levels, learning abilities and personality characteristics, divide students into several relatively fixed learning cooperation groups. There should be students at different levels in each group, and the proportion of students at each level between groups should be quite similar. In teaching, the teacher puts forward mathematical problems, and students in the same group cooperate collectively. Through discussion, they find solutions to the problems. A horizontal comparison is made between groups to see which group’s method is faster and better. The winning group gets a certain score, and the scores are summarized and announced every week. Because of “being concerned about face”, in order to win in the competition with other groups, students in the same group will help each other and encourage the students with poor mathematics in their group to make progress together. Because of “being concerned about face”, for the collective honor of the group, students with poor academic performance will also study hard to narrow the gap with other students. Carrying out group cooperation in secondary vocational mathematics teaching improves students’ cooperation ability, cultivates students’ sense of collective honor, increases students’ interest in learning, and achieves the goal of improving the effect of mathematics teaching.

5.2.4 Introduce multimedia teaching to make abstract mathematical knowledge intuitive and vivid

Mathematics is a subject that emphasizes abstract thinking. Because of its abstraction, many students shy away and give up learning mathematics. Therefore, how to make classroom teaching vivid is a question worthy of consideration for mathematics teachers. In secondary vocational mathematics teaching, using multimedia technology can make static graphics “move” according to teaching needs, make the abstract thinking process intuitive and vivid, and make complex content concise and clear. Therefore, using multimedia technology can make the abstract and obscure content in mathematics teaching easy to understand and master, achieving effects that cannot be achieved by traditional teaching methods.

For example, solid geometry is a difficult point in mathematics teaching. For some abstract solid figures, it is very difficult for students to build a spatial model in their minds. Regarding the positional relationships among the points, lines, planes, and solids of the figures, relying solely on the teacher’s drawing on the blackboard and verbal explanations, students often cannot understand and master them. When explaining the line-plane and plane-plane relationships of the typical solid model, the cube, a three-dimensional model of the cube can be drawn using Geometer’s Sketchpad, and the animation effect can be used to demonstrate the generation process of the solid figure. Then, the “omnidirectional rotation” of the model can be achieved using the animation effect, enabling students to observe various positional relationships from different angles. Through this dynamic demonstration, students have an

intuitive understanding of the concept of the space of geometric bodies, and their understanding of the line-plane and plane-plane relationships of the cube is transformed from abstract literal memory to vivid graphic memory. Using multimedia teaching makes the originally dull and abstract mathematics classroom become vivid and easy to understand, stimulating students’ interest in learning.

5.3 Timely Appreciation and Appropriate Criticism

5.3.1 We should safeguard students’ self-esteem and give them more appreciation

The students in secondary vocational schools have strong self-esteem but poor psychological endurance. When criticized, their self-esteem is easily hurt. Many students develop psychological shadows after being criticized. Some become listless, some develop resistance to teachers and mathematics learning, and in extreme cases, they may take extreme measures.

Psychologically speaking, receiving the affirmation and appreciation of teachers is a psychological need for the healthy growth of students. Once this need is met, it will become a positive driving force for their learning. Even students with poor mathematics performance have the desire to show themselves and often take advantage of all opportunities to do so in order to attract the attention of teachers and classmates. Therefore, in secondary vocational mathematics teaching, teachers should pay attention to safeguarding students’ self-esteem and creating opportunities for them to show themselves. In class, teachers should consciously set some simple questions and give these students the opportunity to answer, and promptly affirm the correct parts of their answers. Even if a student’s answer is completely wrong, the teacher can praise them for their attitude in answering the question. In short, in the teaching process, teachers should strive to find the bright spots in students and promptly appreciate them to meet their psychological need for “being appreciated” and further help students build confidence in learning mathematics.

5.3.2 Appropriate criticism is essential

In secondary vocational mathematics teaching, various problems often arise. For example, students don’t listen attentively in class, disrupt classroom discipline, copy homework, cheat in exams, etc. Regarding these principled issues, teachers must make their attitudes clear and not be muddled. If not stopped and left unchecked, students will be unable to distinguish right from wrong and will become even more demanding in other matters. Therefore, in matters of principle, teachers should not indulge students’ mistakes but promptly criticize and educate them to urge them to correct. It should be noted that when criticizing and educating students, teachers should adopt appropriate methods, taking into account students’ self-esteem while achieving the purpose of educating them.

In short, emotional education plays an important role in secondary vocational mathematics teaching. With emotional education, the secondary vocational mathematics classroom is no longer a stagnant pool without vitality. Carrying out

emotional education in secondary vocational mathematics teaching is conducive to creating a harmonious teaching environment and cultivating students' rich emotions, and is of great significance for improving the mathematics teaching appearance and quality in secondary vocational schools.

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