

# Research on the Educational Reform of Economic Mathematics for the Professional Application and Quality Training of Students Majoring in Finance and Economics in Higher Vocational Colleges

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**Abstract**—According to the current situation and development trend of mathematics teaching reform in higher vocational and technical education, our college takes the existing higher vocational students as the research object and takes the improvement of students' core literacy as the "dissolving agent" of discipline barriers. In theory, this paper expounds the importance, necessity and urgency of mathematics teaching reform in higher vocational education from multiple perspectives for the first time. In practice, it regards improving students' core literacy as the key point to enhance the core literacy of higher vocational students, and puts forward for the first time several characteristic methods of cultivating and improving students' emotional intelligence and core literacy in mathematics education and teaching. The purpose is to play the role of enlightenment, reference and radiation in promoting the mathematics teaching reform and scientific research in higher vocational and technical education.

**Keywords**—Higher Vocational Colleges; Economic mathematics; Professional application, quality training; Educational reform

## I. INTRODUCTION

Currently, from the perspective of professional application for finance and economic majors in higher vocational colleges, lots of reform and explorations are made in the teaching of economic mathematics from the contents of textbooks, the teaching method, experiment practice, and evaluation, etc. However, phenomena of teaching emphasis theory, the emphasis on knowledge, textbooks, but less emphasis on cases, experiments and applications still exist in economic mathematics. Weak professional application capacity is still a serious problem that restricts the employment of students. From the perspective of quality cultivation, reform explorations were made for the teaching of economic mathematics from textbook contents, teaching method, teaching approaches, evaluation, etc. We can still see some problems caused by traditional "cramming" and "duck-stuffing" education that focuses on knowledge transmission as well as mathematic classroom teaching behaviors that focus on intelligence development, but neglect the development of emotional intelligence based on students' core literacy, such as high

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scores and low abilities, personality defects, psychological problems, the lack of accountability and team spirit, the lack of "craftsmanship spirit", self-abasement, weariness, fear of difficulties, impulsions, and the lack of perseverance and persistence. Therefore, we should reinforce the formation of mathematics migration capacity and the cultivation of core literacy among students.

## II. HIGHER VOCATIONAL COLLEGES MUST INCREASE STUDENTS' EMOTIONAL INTELLIGENCE IN THE EDUCATION AND TEACHING OF ECONOMIC MATHEMATICS

From the perspective of docking our education demands with international education, higher vocational colleges must reinforce the cultivation of emotional intelligence among students, in respect of mathematics education and teaching. Our socialist modernization enters a new era, and school education should advance with the times, and reflect vivid characteristics of the times. From the perspective of the world, developed countries focus on cultivating students' emotional intelligence while cultivating their intelligence. In order to dock with international education, shorten our gap with developed countries, such as America and Britain, build into a power of higher education, and reinforce our competitiveness, we must reinforce the cultivation of emotional intelligence among students. In respect of improving students' emotional intelligence in the mathematics education and teaching of higher vocational colleges, lots of people think that this is the teaching task of psychology, rather than the teaching task of mathematics. This is a mistake area of recognition in contemporary discipline education. We must get out of this mistake area as soon as possible. We must adhere to "whole-course cultivation", "all-staff cultivation", and "Equal emphasis on emotional intelligence and intelligence" in the mathematics education and teaching of higher vocational colleges, start and comprehensively improve students' comprehensive quality to adapt to social competition.

From the perspective that our education should serve the national strategies, higher vocational colleges must improve students' emotional intelligence in mathematics education and teaching. A big batch of high-qualified technical and skilled

talents are requested for the national "national rejuvenation by science and education", "poverty alleviation", and "Belt and Road" strategies as well as socialist modernization. Although first-rated technical talents can be cultivated by traditional education mode, it can never cultivate true scientific spirits or future geniuses. Based on the educational characteristics of higher vocational colleges, we must update educational concepts, and implement national education policies into all educational links carefully in higher vocational mathematics teaching; It requests students to learn "necessary and sufficient" basic knowledge and theories of mathematics carefully, and possess important mathematics migration capacity; It requests students to establish the correct value concept, morality and "lifelong learning" concept; Cultivate students to possess the basic qualities to adapt to production, construction, management and service line.

From the perspective of realizing higher vocational mathematics education and teaching, we can only effectively improve the quality of mathematics education and teaching by improving students' emotional intelligence. The essential task for higher vocational education development is to improve the quality of discipline education and teaching, and cultivate high-qualified technical and skilled talents that can adapt to production, construction, management and service line. Both advanced mathematics and elementary mathematics are originated from actual production and life, but the former one has stronger theoretical property, logistics and abstraction, and has more obvious learning difficulties, and will sometimes make people dizzy. Only when we eliminate students' negative emotions, actively guide them to resist setbacks, strengthen self-confidence and self-motivation, and face difficulties can we help them learn well professional "necessary" basic knowledge and theories of advanced theories, improve professional "necessary" mathematic consciousness, language, skills, and thinking quality, reinforce professional "necessary" mathematics migration capacity, and successfully obtain "double certificates". Fully dig out necessary elements in teaching and make full use of mathematical elements organically in textbooks, fully stimulate students' learning interests, fully mobilize students' initiative and enthusiasm to learn mathematics, and engage in higher vocational mathematics teaching. Therefore, the important precondition for students to successfully get "double certificates" and even "multiple certificates", and improve the quality of mathematics education and teaching is to improve students' emotional intelligence.

From the perspective of current employment conditions about students in higher vocational colleges, we can increase the probability for college students to obtain employment is to focus on improving the emotional intelligence of students. By cultivating students' psychological quality to correctly read and control others' emotions, correctly handle interpersonal relationship as well as the emotional capacity that can adapt to the society, we can improve students' employment capacity, employment competitiveness and the employment rate. Modern society is a diversified society, which requires talents with not only high skills, but also high emotional intelligence. Professional knowledge and skills are not enough for a person, they must learn the skills to take care of themselves, handle

personal relations, communicate with their leaders, colleagues, students, relatives and families, properly control their own and others emotions, and cooperate with others.

From the perspective of the long-term development of students in higher vocational colleges, we can increase the probability for students to succeed is to focus on improving the emotional intelligence of students. The rich or cold interests, active or passive attitude, positive or negative emotions, confidence or self-esteem showed by students of higher vocational colleges when learning advanced mathematics are the external expression of emotional intelligence. We should make full use of circumstances in the teaching link of higher vocational mathematics, actively guide students to control, regulate and handle such emotions, realize self-discipline, learn well the "necessary and sufficient" basic theories and professional skills for employment, establish correct values, morality and the concept of "lifelong learning".

### III. SEVERAL CHARACTERISTIC MEASURES FOR CULTIVATING AND IMPROVING STUDENTS' EMOTIONAL INTELLIGENCE IN THE ECONOMIC MATHEMATICS EDUCATION AND TEACHING OF HIGHER VOCATIONAL COLLEGES

By making full use of the mathematics classroom teaching front in higher vocational colleges, we can give full play to its essential leading role in improving students' emotional intelligence. Make full use of mathematics classroom teaching front, adhere to paying equal stress on "students' emotional intelligence and intelligence", "mathematical capacity and professional application capacity", focus on cultivating and improving students' emotional intelligence, and adhere to "eight requirements" in the practice of education teaching reform: Firstly, we should improve students' emotional intelligence in the classroom teaching link of mathematics. Secondly, we should integrate the teaching contents of mathematics to improve students' emotional intelligence. Thirdly, we should introduce the history of mathematics to improve students' emotional intelligence. Fourthly, we should use stories of scientists to enhance students' emotional intelligence. Fifthly, we should enhance students' emotional intelligence, while teaching the basic theories of mathematics. Sixthly, we should enhance students' emotional intelligence by teaching the basic knowledge of mathematics. Seventhly, we should use the practice activities of mathematics to enhance the students' emotional intelligence. Eighthly, we should use the elective courses and minor courses of mathematics to enhance students' emotional intelligence.

In order to cultivate and improve students' emotional intelligence, it is critical to optimize the environment conditions of teaching and educating in colleges. Focus on "seven-emphasis" in the practice of education and teaching reform: Firstly, it is to focus on converting inherent education concept. Secondly, it is to build a campus culture that is conducive to the cultivation of students' emotional intelligence. Thirdly, it is to include the cultivation of emotional intelligence into the teaching plan. Fourthly, it is to improve the emotional intelligence of teachers. Fifthly, it is to carry out a variety of practical activities. Make full use of class and campus club activities, students' social practice and internship activities, and provide actual practice opportunities for students. Sixthly, it is

to give full play to the role of psychological counseling and guidance. Seventhly, it is to establish and perfect the emotional intelligence evaluation reward mechanism.

In order to cultivate and improve students' emotional intelligence, it is of crucial effect to motivate students' cognition and give full play to main role of students. Focus on "nine-emphasis" in the practice of education and teaching reform: Firstly, it is to learn how to cognize personal emotions, and envisage personal advantages and disadvantages. Secondly, it is to learn how to delimit psychological boundaries, treat others and handle affairs properly. Thirdly, it is to learn how to control personal emotions, and never be excessively ambitious. Fourthly, it is to learn how to eliminate things wasting your energy. Fifthly, it is to learn to resist distractions and setbacks and stay motivated. Sixthly, it is to learn to choose the living examples around as their own benchmark to march forward. Seventhly, it is to learn to recognize the emotions of others and be "empathetic". Eighthly, it is to learn to control others' emotions, and the skills to handle personal relations.

#### IV. RESEARCH ON THE REFORM OF HIGHER VOCATIONAL MATHEMATICS EDUCATION AND TEACHING LED BY THE CORE LITERACY OF STUDENTS

##### A. *Current status and development trend of economic mathematics education and teaching in higher vocational colleges*

(1)China's current status of economic mathematics teaching in higher vocational colleges is achieving some success but also facing with challenges. On the bright side, economic mathematics teaching has made many innovative explorations from the content of teaching materials, teaching methods, teaching methods, experimental internships, and examinations and evaluations. The worrying aspects are: effective docking in teaching basic theories of advanced mathematics, mathematics knowledge and professional application skills of economic mathematics is relatively weak; the organic combination of cultivating mathematics ability and cultivating students' core literacy is relatively weak; the practice of effectively combination of developing students' EQ and IQ in mathematics classroom teaching is relatively weak.

(2)The current development trend of mathematics education and teaching in higher vocational colleges is to deepen educational reform. As the basic teaching course in higher vocational colleges, economic mathematics plays an important role in cultivating students' universal ability and professional ability for lifelong use. All the courses offered by the college are very important, which play a mutually promoting role in the exploration and cultivation of students' EQ factors and the improvement of students' core qualities. All the staff engaged in education, management, and service should jointly concentrate on "playing the same game of chess" and "singing the same song".

##### B. *Several characteristic measures for leading the economic mathematics education and teaching in finance and economics of higher vocational colleges by core literacy of students*

(1)To improve students' core literacy, mathematics teaching should be changed from "narrow teaching" to "broad teaching". To expand the scope of cultural literacy, we need to achieve "four-demand". Firstly, it is to adopt course resources as the teaching object in broad teaching, and reflect the individual contributions of mathematics discipline. Secondly, we need to break through the traditional concept of "teaching is to teach in the classroom" in broad teaching. Thirdly, we need to adhere to broad teaching. Mathematics teacher should establish the concept of "educating people by knowledge". Fourthly, we need to adhere to broad teaching. Mathematics teaching should play a leading role based on the cross-discipline concept.

(2)To improve students' core literacy, mathematics teaching should be changed from "teacher-centered" to "student-centered", and help students achieve "five-necessity" in their independent development. Firstly, mathematics teaching should be changed from "teaching" to "learning", and we must establish a good communication atmosphere. Secondly, mathematics teaching should "focus on learning", and we must cultivate students' learning capacity. Thirdly, mathematics teaching should "focus on learning emotions". We must pay high attention to the leading position of learning emotions. Fourthly, mathematics teaching should "be student-oriented", and must highlight the dominant role of students. Fifthly, mathematics teaching should "be student-oriented", and must make clear the core position of learning.

(3)To improve students' core literacy, mathematics teaching should be changed from "knowledge-centered" to "ability-centered", and guide students and the society to achieve "five-promotion". Firstly, mathematics teaching should improve students' learning capacity of mathematical knowledge. Secondly, mathematics teaching should be gradually extended to the improvement of cultural cultivation from the improvement of students' mathematical quality. Thirdly, mathematics teaching should be based on mathematics quality and improve students' innovation capacity. Fourthly, mathematics teaching should improve the emotional capacity for students and the society to participate. Fifthly, mathematics teaching should improve students' social service and resource integration capacity.

(4)To improve students' core literacy, mathematics teaching should be changed from "moral education" to "character education". Besides, we should also optimize students' personality charm, to achieve "four-reinforcement". General Secretary Jinping XI pointed out that: "No country can thrive without morality, no man can stand without morality". Firstly, mathematics teaching should reinforce the moral education required for the era. Secondly, mathematics teaching should reinforce the value education required for the era. Thirdly, mathematics teaching should reinforce the professional spiritual education required for the era. Fourthly, mathematics teaching should reinforce the professional character education required for the era.

## V. CONCLUSION

We still have a long way to go on the road of education and teaching reform for higher vocational education cultivation. We just took the first step on the road of education and teaching reform for economic mathematics in finance and economics of higher vocational colleges, for which the improvement of students' emotional intelligence is the breakthrough point, while the improvement of students' core literacy as the emphasis. Please don't hesitate to give your comments. In order to accelerate the modernization of higher vocational education in our country, and deepen the reform of higher vocational mathematics education and teaching, let's continue to work hard in composing a new chapter of higher vocational mathematics and teaching that complies with the new era.

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