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Research on the Current Situation of Mathematics Learning Enthusiasm of Master of Mathematics Education in China

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Abstract

From the first appearance of the master of education to the maturity of the development of the master of education, in recent years, more and more researches on the master of education have emerged. Most of the researches are aimed at the cultivation and teaching of the master of education while ignoring the study of the master of education's own learning, and lack of empirical research for the master of mathematics education. This research takes all the 2020 graduate students of the School of Mathematics and Statistics of Shandong Normal University as the survey object and uses the method of a questionnaire survey and quantitative analysis to study the current situation of the students' enthusiasm for mathematics learning. The results show that the Master of Education has a certain degree of enthusiasm for mathematics learning, but the enthusiasm is not high, although the students are very enthusiastic in taking notes and thinking about problems. According to the conclusions of this research, it is suggested that graduate tutors should take corresponding measures in their usual teaching to guide the students of Master of Education to understand the true meaning of mathematics learning in a timely manner and to improve students' enthusiasm in mathematics learning. Only in this way will the Master of Education be more actively involved in mathematics education and scientific research activities.

Keywords

Mathematics Learning, Positivity, Master of Education, Current Situation

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1. Introduction

In 1996, the Academic Degrees Committee of the State Council formally approved the establishment of a master's degree in education. In 2006, the Chinese master's degree in education entered the formal implementation stage. It can be seen that with the rapid development of the country's economy and society, the demand for high-level talents continues to rise [1, 2]. In recent years, the enrollment of graduate students has been greatly expanded. While the scale is expanding, how to improve the quality of graduate education has become an important topic [3]. Among the education masters, the group of mathematics education masters has its own unique characteristics, so it is of great significance to conduct research on mathematics masters [4]. Graduate students are at a more advanced stage than undergraduates. They are a group based on knowledge learning. Higher education institutions are also a combination of knowledge [5]. With the continuous development of modern social science and technology, the pace of people's life is accelerating, and students' learning enthusiasm is shrinking [6]. In the teaching practice of colleges and universities, only by fully mobilizing the enthusiasm of students in learning can the quality of college teaching be improved [7]. Therefore, stimulating students' enthusiasm for learning is a big issue related to quality education and improving teaching quality [8]. According to the current research situation, most of the research on students' learning

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enthusiasm is concentrated on the research on the learning enthusiasm of primary and middle school students, while the research on the learning enthusiasm of college students is less [9]. There is even less research for graduate students. Therefore, this article intends to take the master of education in mathematics as the research object, and carry out research on the current situation of the mathematics learning enthusiasm of the students of the master of education through questionnaire survey and other empirical research methods. This has a certain significance for improving the enthusiasm of mathematics learning of the master of education and the quality of teaching.

The question studied in this article is: What is the enthusiasm for studying mathematics for the Master of Chinese Mathematics Education?

2. Theoretical Basis

2.1. Understanding of Learning Enthusiasm

Different people have different opinions on the understanding of learning enthusiasm. Wang believes that learning enthusiasm refers to the earnest and diligent, active, and tenacious mental state of students in learning activities [10]. Xu and Song believe that learning enthusiasm refers to a conscious and active mental state of students in learning activities, which is the driving force that stimulates learning, maintains learning, and directs learning to a certain goal [11]. Yan believes that learning enthusiasm refers to a student's learning state, and is a manifestation of students' learning needs and behaviors [12]. Ding believes that learning enthusiasm is a conscious and active mental state of students in learning activities [13]. Ma et al. believe that learning enthusiasm can be expressed through learning behavior [14]. Therefore, in this research, mathematics learning enthusiasm is defined as a positive learning state shown by the subject in mathematics learning activities.

2.2. Understanding of Investigation

Based on the above definition, the author believes that the enthusiasm for studying the mathematics of the Chinese Master of Mathematics Education is reflected in the following aspects: (1) I often set my own learning goals before class. (2) I often make a study plan that suits me before class. (3) I often do a sufficient and effective preview of class content before class. (4) I often actively answer questions in math class. (5) I often take the initiative to ask questions in math class. (6) I often actively participate in class discussions in math classes. (7) I often take notes carefully in math class. (8) I often think hard about math problems in math class. (9) I often exchange math learning content with my classmates after class. (10) After class, I often take the initiative to ask teachers and classmates for questions that I don't know. (11) I often take the initiative to complete learning tasks. (12) I often summarize the mathematics I have learned. (13) I often reflect on my math learning situation. (14) I often make summaries and generalizations of my learning situation during a period of time. (15) I often give myself appropriate rewards and punishments based on the results of my studies. (16) I often take measures to correct my deficiencies in math learning.

Therefore, the above performance can be divided into three aspects, respectively, from the three aspects of mathematics learning before class (1~3), class mathematics learning (4~8), and mathematics learning after class (9~16). Learning enthusiasm is reflected in the options, which are divided into five levels: "very consistent", "consistent", "general", "inconsistent", and "very inconsistent".

3. Method

3.1. Sample

This research selects 50 educational masters from the School of Mathematics and Statistics of Shandong Normal University as the research objects.

3.2. Instrument

In this study, the questionnaire survey method was used, and 50 paper questionnaires were distributed during the break time. After answering, the questionnaires were collected on the spot.

This questionnaire is divided into three dimensions, namely mathematics learning before class, class mathematics learning, and mathematics learning after class. Mathematics learning before class includes three indicators: formulating learning goals, formulating learning plans, and preview before class. Mathematics learning in the class includes five evaluation indicators: actively answering questions in mathematics class, actively asking questions, taking notes, actively discussing, and earnestly thinking about mathematical problems. Mathematics learning after class includes eight evaluation indicators such as communication after class, taking the initiative to ask for advice, completing learning tasks, summarizing mathematics knowledge, reflecting on mathematics learning, summarizing mathematics learning, appropriately rewarding and punishing yourself, and correcting inadequacy.

This questionnaire mainly includes two parts. The first part is the student's personal information, namely gender. The second part is the main part of the questionnaire, which

collects the evaluation results of students' mathematics learning before class, math learning in class, and mathematics learning after class through the form of single-choice questions. The 5-level scoring method in the scale is adopted, "very consistent" is "4 points", "consistent" is "3 points", "general" is "2 points", "inconsistent" is "1 point", " "very inconsistent" is "0 point".

There are 17 questions in the questionnaire. Questions 2 to 4 belong to mathematics learning before class, questions 5 to 9 belong to mathematics learning in class, and questions 10 to 17 belong to mathematics learning after class.

3.3. Data Processing

Using Excel's data statistics function, calculate the percentage of each option of each question, and calculate the average score of each question and the overall average score of each aspect.

4. Results

4.1. Mathematics Learning Before Class

According to the statistical results, about 70% of the students chose "general" and "consistent" in the two topics of the learning plan and learning objectives, which shows that most students have a certain degree of enthusiasm, but the enthusiasm is not high. About 80% of the students chose "general" and "inconsistent" in the topic of preview before class, which indicated that most students were not active in preview before class. Secondly, the overall average score is 1.94, which shows that the master of education students have enthusiasm in mathematics learning before class, but the enthusiasm is lower than the general level. The details are shown in Table 1.

Table 1. Mathematics Learning before Class.

	2 Learning Target	3 Learning Plan	4 Preview before Class
Very consistent (%)	2.33	2.33	2.33
Consistent (%)	20.93	25.58	13.95
General (%)	48.84	53.49	60.74
Inconsistent (%)	18.60	11.63	16.28
Very inconsistent (%)	9.30	6.98	6.98
Overall average score (points)	1.94		

4.2. Mathematics Learning in Class

According to the statistical results, about 80% of the students chose "general" and "consistent" in the three topics of answering questions, asking questions, and actively discussing, which indicates that most students have a certain degree of enthusiasm, but the enthusiasm is not high. About 70% of the students chose "consistent" and "very consistent" in the two topics of taking notes and thinking, which showed that most students were more active in taking notes and thinking about problems. Secondly, the overall average score is 2.41, which shows that the master of education students have enthusiasm in mathematics learning in class, but the enthusiasm is at the general level. The details are shown in Table 2.

Table 2. Mathematics Learning in class.

	5 Answering Question	6 Asking Questions	7 Active Discussion	8 Taking Notes	9 Pondering Problem
Very consistent (%)	0.00	0.00	4.65	34.88	20.93
Consistent (%)	20.93	16.28	41.86	44.19	39.53
General (%)	48.84	62.79	46.51	18.60	37.21
Inconsistent (%)	27.91	16.28	2.33	0.00	0.00
Very inconsistent (%)	2.33	4.65	4.65	2.33	2.33
Overall average score (points)	2.41				

4.3. Mathematics Learning After Class

According to the statistical results, about 70% of the students chose "general" and "consistent" in the three topics of communication after class, reflection on mathematics learning situation, and summary of the mathematics learning situation, which shows that most students have a certain degree of enthusiasm, but the enthusiasm is not high. About 80% of the students chose the two options of "general" and "conformity" in the five topics of active consultation, learning tasks, summarizing mathematical knowledge, appropriate rewards and punishments, and insufficient improvement, which shows that most students have a certain degree of enthusiasm, but the enthusiasm is not high. Secondly, the overall average score of mathematics learning after class is 2.53, which shows that the students of the master's degree in education are active in mathematics learning after class, but the enthusiasm is at a general level. The details are shown in Table 3 and Table 4.

Table 3. Mathematics Learning after Class.

	10 Communication before Class	11 Taking the Initiative to Ask	12 Learning Tasks	13 Summarizing Knowledge
Very consistent (%)	18.60	9.30	18.60	13.95
Consistent (%)	30.23	34.88	46.51	30.23
General (%)	37.21	41.86	30.23	51.16
Inconsistent (%)	11.63	13.95	4.65	2.33
Very inconsistent (%)	2.33	0.00	0.00	2.33
Overall average score (points)	2.53			

Table 4. Mathematics Learning after Class.

	14 Reflecting on Mathematics Learning	15 Summarizing the Math Learning Situation	16 Appropriate Rewards and Punishments	17 Insufficient Improvement
Very consistent (%)	16.28	16.28	9.30	9.30
Consistent (%)	27.91	37.21	41.86	39.53
General (%)	37.21	34.88	34.88	48.84
Inconsistent (%)	18.60	11.63	13.95	2.33
Very inconsistent (%)	0.00	0.00	0.00	0.00
Overall average score (points)	2.53			

5. Discussion

5.1. Mathematics Learning Before Class

From the above statistical results of the questionnaire, it can be seen that most students have a certain degree of enthusiasm for formulating learning plans and learning goals, but they are not very motivated, and most students are not actively preparing for class. The overall average score is 1.94, indicating that the overall enthusiasm is lower than the average level. This shows that the enthusiasm for studying mathematics before class is not high for the students of the Master of Education.

5.2. Mathematics Learning in Class

From the above statistical results of the questionnaire, it can be seen that most students have a certain degree of enthusiasm for answering questions, asking questions, and actively discussing, but the enthusiasm is not high. Most students are more enthusiastic about taking notes and thinking about problems. The overall average score is 2.41, indicating that the overall enthusiasm is at an average level. This shows that the students with a master's degree in education are active in studying mathematics in class, but their enthusiasm is at a general level.

5.3. Mathematics Learning After Class

From the above statistical results of the questionnaire, it can be seen that most students have a certain degree of enthusiasm for communicating after class, reflecting on mathematics learning, and summarizing mathematics learning, but the enthusiasm is not high. Most students are actively asking for advice, learning tasks, summarizing mathematical knowledge, Appropriate rewards and punishments, and lack of improvement have a certain degree of enthusiasm, but not high. The overall average score is 2.53, indicating that the overall enthusiasm is at an average level. This shows that the students with a master's degree in education have enthusiasm in mathematics learning after class, but the enthusiasm is at a general level.

Overall, in the 16 question items, 13 items showed a problem most students have some enthusiasm, but enthusiasm is not high, the overall average score of 2.33. It shows that the students of the Master of Education have enthusiasm in studying mathematics, but the enthusiasm is at a general level.

5.4. Previous Research Results

Through a series of statistics and analysis through questionnaire surveys, Zhang concluded that the general learning enthusiasm of college students is not high [9]. Through a questionnaire survey, Xu and Song found that college students' learning enthusiasm and initiative are not high [11]. Through a questionnaire survey, Yan found that the current college students learning enthusiasm is at an average level [12]. Ma et al. believe that students lack the spirit of active thinking and active research [14]. Mei believes that higher teacher students still have a certain degree of enthusiasm and initiative in learning, but these behaviors do not mean that students have clear learning goals and correct learning attitudes [15]. Zhang and Yang believe that some college students are currently less motivated to study [16]. Liu believes that students' learning enthusiasm has a gratifying side, but there are also hidden worries [17]. Through the statistics and analysis of questionnaires, Shao can conclude that students are not very motivated to learn [18].

It can be seen from the above that the results of this survey are more consistent with previous survey results on learning motivation. However, due to the small sample size selected in this survey, only 50 students with a master's degree in education from the School of Mathematics and Statistics of Shandong Normal University were surveyed, and there will be some deviation in the results.

6. Conclusion

From the above analysis, it can be concluded that the Master of Mathematics Education in China has an enthusiasm for mathematics learning, and the enthusiasm is at an average level, although students are very motivated in taking notes and thinking about problems.

The student's learning enthusiasm directly affects the teaching effect, the ability to successfully complete the teaching task, and the success of students [19]. The enthusiasm for mathematics learning affects the mathematics learning and scientific research ability of the students of the master of education. Therefore, teachers should promptly guide the students of Master of Education to understand the true meaning of mathematics learning, cultivate their interest in mathematics, correct their attitudes to mathematics learning [20] [21], and improve students' enthusiasm in mathematics learning. In this way, the students of the Master of Education can be more actively involved in mathematics education and scientific research activities.

This survey and research only selected 50 students with a master's degree in education from the School of Mathematics and Statistics of Shandong Normal University as the research objects. The sample size is small. In the subsequent research, the research sample will be expanded and the research conclusions will be more widely promoted.

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