

Classroom Education Management Discipline in Mathematics

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Abstract

In order to ensure the smooth implementation of middle school mathematics classroom education management, this study is based on the analysis of problems and influencing factors in middle school mathematics classroom education management, aiming at finding effective measures of classroom education management. This study takes Junior middle school teachers and students as the research objects, and adopts the research methods of observation, interview and questionnaire survey. It Conducts investigation and research on the behavior of teachers and students and explores the specific reasons that lead to the effective management of middle school mathematics classroom education. Through the research methods of questionnaire and interview inquiry, this paper analyses the existing problems of teachers and students in the management of mathematics classroom education in Junior middle school: first, teachers cannot effectively guide the classroom teaching effect; second, the comprehensive ability of professional teachers is insufficient; third, the polarization of students performance in class is serious; fourth, students excessively rely on teachers for self-management. The main conclusions of this study are as follows: only by constructing a good teacher-student relationship, updating the concepts of education management, optimizing the methods of education management, innovating the mode of education management and improving the professional quality of teachers, can the quality of mathematics classroom education management in middle schools be improved. This study provides a research direction and management method of middle school classroom education managers, promotes the smooth implementation of classroom education management, and provides a theoretical basis for exploring and developing classroom management programs.

Keywords: Middle School Mathematics, Classroom Education Management, Quality

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Introduction

Classroom is the main position of education and teaching activities and the most frequent place for teacher-student interaction. Good classroom education management plays an important role in improving the quality of teacher education and teaching, promoting the all-around development of students and establishing a good teacher-student relationship. However, due to various reasons, the students in the classroom education management are not concentrated in class, and teachers and students cannot communicate effectively. Some teachers or students ignore the classroom management order and other problems still exist from teachers, students, the environment and others. These problems have seriously affected the development of the teacher-student relationship.

With the development of education and teaching, the definition of classroom education management has a deeper connotation. As an important stage of classroom education management, mathematics classroom education management in middle school plays a vital role in the development of students. In order to manage mathematics classroom effectively, it is necessary not only to define the management purpose and formulate scientific management methods, but also to create a good classroom management atmosphere and accurately analyze the classroom behaviors of teachers and students in the process of classroom management. In addition, in the process of classroom management, teachers and students should maintain an equal and friendly relationship, change students' passive acceptance of knowledge to active acceptance of knowledge, mobilize students' enthusiasm to participate in classroom management, and improve students' self-management ability. Through an in-depth analysis of the current situation of mathematics classroom education management, this research explores the deficiencies in the management of mathematics classroom education in middle school, and finds that the main reasons for the failure of classroom education management are from both teachers and students. Therefore, the focus on analyzing classroom education management from the two dimensions of teachers and students is the logical starting point for this research to carry out in-depth research, and also provides a thinking paradigm for the research of classroom education management. It provides a reference for the implementation of classroom education management.

Scholars have conducted in-depth research around the issue of “what is effective classroom management”. Johnson (1970) believes that classroom education management is a process of establishing and maintaining good classroom order to achieve educational goals through teacher management. Good, T. I. & Brophy, J. E. (2009) think “looking in the classroom” can be understood from the following two parts: First, teachers stimulate learners' coordination and cooperation ability and learning activity, and create a reasonable management model. Second, all activities of teachers and students in the classroom are not affected by external factors, and can orderly promote the process of teaching. Classroom management is a critical component of effective instruction and a prerequisite for a positive classroom climate (Brophy, 1985; Gage, Prykanowski, & Hirn, 2014; Mitchell & Bradshaw, 2013). Nicholas A. Gage, HyunSuk Han, Ashley S. MacSuga-Gage, Debra Prykanowski, & Alexandria Harvey (2018) also state in their article “Classroom management is a prerequisite for effective instruction”. Nada Jaber Alasmari, & Abeer Sultan Ahmed Althaqafi (2021) think teachers' proactive and reactive classroom management strategies are a significant component of teaching effectiveness. Teachers need to develop such strategies to structure a positive classroom environment. In addition, teachers' self-efficacy beliefs concerning their classroom management strategies are equally significant. Jonathan Ryan Davis (2018) indicates that teachers' actions in their classrooms have twice as much impact on student achievement as

assessment policies, community involvement, or staff collegiality; and a large part of teachers' actions involves the management of the classroom (Marzano, 2003; Marzano & Marzano, 2003). Shi Liangfang, & Cui Yunguo.(2009), a Chinese scholar, point out that classroom education management refers to teachers' management and control of various factors in the teaching classroom to maintain the classroom teaching order and effective implementation of teaching activities. Wang Yuping (2022) believes that classroom management is the key to ensuring that teachers can effectively complete their teaching tasks. The transformation of classroom management requires the establishment of a modern education concept, the cultivation of a good teacher-student relationship, the rational arrangement of learning tasks, and the creation of a good classroom atmosphere.

This research takes the classroom education management behavior of teachers and students of B middle school in area A as the research object, aiming to investigate the influence of classroom education management of middle school mathematics on students' learning behavior. Specifically, this study attempts to answer the following questions.

1. Can teachers effectively guide the effect of classroom teaching?
2. Can the comprehensive ability of professional teachers meet the requirements of classroom education management?
3. Can students manage themselves in the classroom?
4. What intervention measures can be proposed to improve the effectiveness of mathematics classroom education management in middle school?

Methodology

This research will use questionnaire and interview to investigate the students and teachers of B middle school in area A.

First, research on students:

The researchers selected 100 students (n=100) from B middle school in area A as the subjects of the questionnaire survey by adopting the method of random sampling through questionnaire survey. The 100 participants included 56 male students (n=56) and 44 female students (n=44). Their ages ranged from 13 to 15. Their grades are from grade 1 to grade 3 of B middle school in area A. Through the investigation, we can understand the problems and the proportion of students' influence which students have in the management of mathematics classroom, analyze the positive and negative factors that affect the management of mathematics classroom in middle school, and finally propose solutions.

The questionnaire consists of 3 kinds of questions. After obtaining the formal consent of the school, the survey was conducted on the basis of protecting the personal information of the interviewees. The questionnaire is divided into three parts: (1) students' background information, (2) students' attitude towards mathematics class and mathematics classroom management, and (3) students' behavior in mathematics classroom education management. In the background information section, students' personal information (grade and gender) is inquired. The second part consists of five questions, and the third part consists of three questions.

The second part is as follows,

1. Do you like mathematics?
2. Are you afraid of the mathematics teacher?
3. Do you like the management style of mathematics classroom?
4. Do you often arrive late and leave early in mathematics classroom?
5. Is mathematics classroom management helpful to your learning?

The third part is as follows,

1. Do you chat with your classmates in class and don't listen carefully?
2. Will you be focused by teachers in class?
3. Do you follow the classroom rules?
4. Do you think teachers will treat students differently according to their academic performance?

Second, interviews with teachers:

The researchers interviewed 20 teachers (n=20) from B middle school in area A, including 10 men (n=10) and 10 women (n=10). Their teaching experience ranges from less than three years to more than 20 years. They all have bachelor's degrees, and six of them have master's degrees. All participants give mathematics subjects in different grades from grade 1 to grade 3. The actual average teaching time of 10 participants is less than 15 hours per week, 9 participants only 11-20 hours per week, and 1 participant more than 20 hours per week. Through interviews, we can understand the current situation of teachers in classroom education management in middle school from the perspective of teachers, and understand the proportion of teachers' influence in classroom education management, analyze teachers' professional background, management skills, management attitudes and methods, and find ways to improve teachers' classroom management skills.

The interview is divided into two parts: (1) background information, and (2) teachers' views, experiences and abilities in classroom management. The background information is inquired about the participants' personal information (age, gender, education background, working years, graduation school, and graduation major). The interview consists of 10 questions.

1. Do you emphasize classroom discipline in the first class?
2. Do you work with students to formulate classroom rules?
3. Do you attach importance to the establishment of a good teacher-student relationship?
4. Do you use inappropriate language for management?
5. Have you systematically learned the knowledge and skills of teacher education management?
6. Will you use the power of teacher to force students to obey yourself?
7. Do you care about the students with poor academic performance?
8. Do you attach importance to classroom education management?
9. What is the biggest difficulty you face in the process of education management?
10. Have you always been learning to improve your management ability?

The data collection lasted for three days, from September 6 to 8, 2022. The questionnaire was retrieved by a researcher with the help of the principal on September 9, 2022.

Results and Discussion

This research takes students' and teachers' behaviors and attitudes in classroom as the analysis object respectively, and uses statistical analysis methods to analyze the survey results to determine the impact of students and teachers on the teaching quality of mathematics classroom.

Table 1 Basic information of students

	Category	Number of people	Percentage
gender	male	56	56%
	female	44	44%
grade	freshman	26	26%
	sophomore	41	41%
	junior	33	33%

Table 2 Basic information of teachers

	Category	Number of people	Percentage
gender	male	10	50%
	female	10	50%
age	under age 30	3	15%
	age 30-45	8	40%
	above age 45	9	45%
teaching years	Under 3 years	3	15%
	4-10 years	6	30%
	11-20 years	5	25%
	above 20 years	6	30%
education	bachelor	13	65%
	above master	7	35%

The implementer of mathematics classroom education management in middle school is teachers, and the object of implementation is students. Successful classroom education management should have a clear education management goal, appropriate education management methods, establish a good relationship between teachers and students, create a comfortable education management environment, and achieve the unity of classroom education and classroom management. Teachers should change the traditional management concept, improve the management consciousness and correct the management attitude. Students should improve their self-management consciousness, improve their self-management ability, and establish a dual subject teacher-student relationship for management.

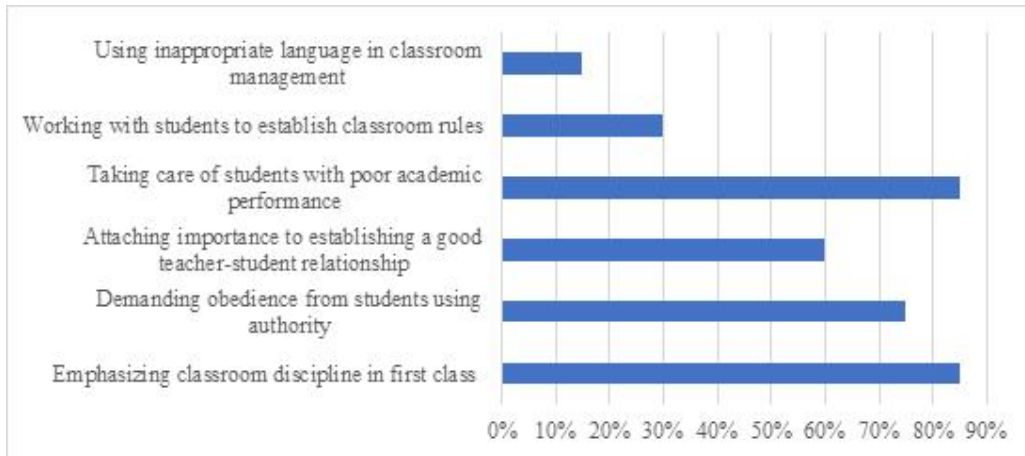


Figure 1: A survey of teachers' classroom management style

Figure 1 shows that teachers in B middle school in area A cannot effectively guide classroom management. The survey result shows that 85% of teachers emphasize classroom discipline in the first class, 75% using their authority to require students to obey their own requirements, 60% attaching importance to establishing a good teacher-student relationship, and 85% caring about students with poor academic performance. However, the proportion of whether to formulate classroom rules together with students and whether to use inappropriate language for classroom management is low, which is 30% and 15% respectively.

This fully shows that in the process of classroom education management, teachers have been in an active position and students have been in a passive position. There is no equal relationship between teachers and students, which leads to students being unable to use their subjective initiative in learning and fully showing their roles in classroom management, leading to teachers' low efficiency in classroom management.

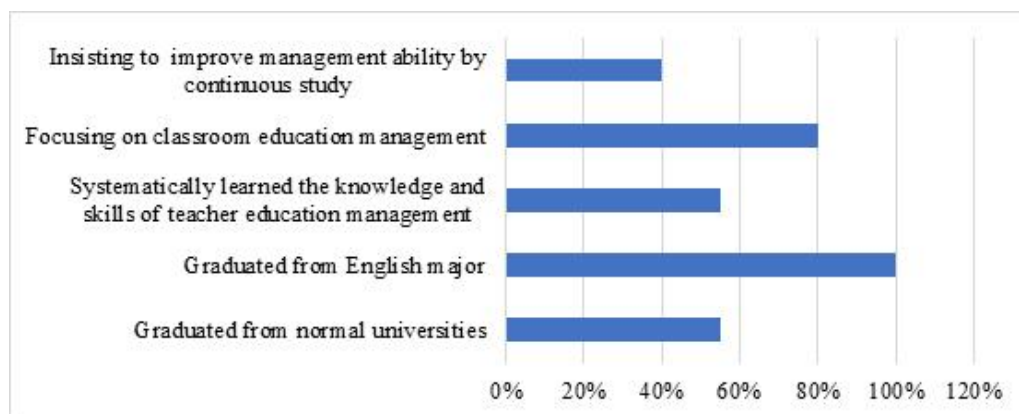


Figure 2: Survey of teachers' comprehensive abilities

Figure 2 shows that teachers lack comprehensive abilities in the process of classroom management. The survey results show that 55% of mathematics teachers are from normal universities. For teachers graduated from non-normal universities, they have mathematical expertise, but lack the comprehensive abilities of professional teacher.

The investigation on teachers' comprehensive abilities is mainly reflected in professional knowledge, teachers' management ability, teachers' management attitude, learning of management ability and teachers' management concept. 100% of teachers graduated from

mathematics, 55% systematically learned teachers' education management knowledge and skills, 80% attaching importance to classroom education management, and 40% insisting on continuous study to improve classroom management ability.

This fully shows that classroom education management has a high demand on teachers' comprehensive abilities. Teachers need not only to understand the knowledge content of mathematics, but also to understand the comprehensive knowledge of psychology, pedagogy, management and other aspects. Teachers' comprehensive abilities directly affect the effect of classroom education management. Therefore, teachers should constantly improve their comprehensive management abilities and optimize the concept of education management.

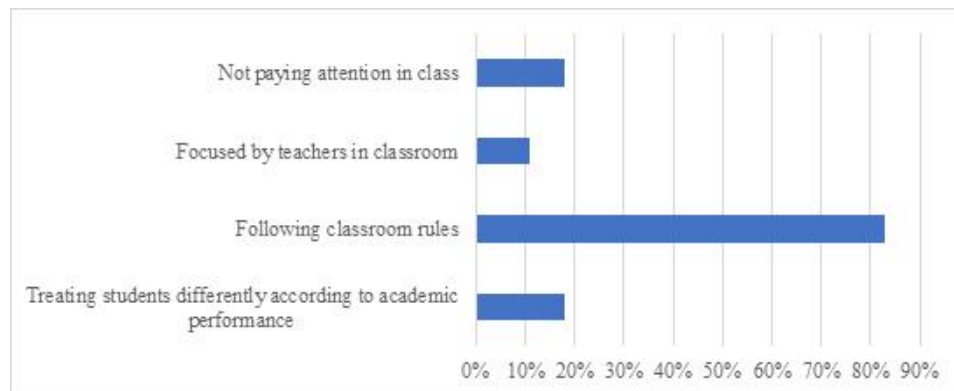


Figure 3: Investigation on the polarization of students' classroom performance

Figure 3 shows the serious polarization of students' performance in class. The survey results show that 18% of the students think that teachers treat students differently according to their academic performance, 83% abiding by the classroom rules, 11% thinking that they are focused by teachers in class, and 18% not paying attention in class.

This fully shows that some teachers treat students differently according to students' performance in the class and carry out differentiated management on students, which is specifically shown as follows: teachers have a mild attitude towards students who obey classroom management and like learning mathematics. They have established a good teacher-student relationship with each other; On the contrary, teachers are strict with students who have weak mathematical foundations and lack learning motivation in the class, which leads to some students' resistance to teachers. It is difficult for teachers and students to establish a good teacher-student relationship, and students are unwilling to cooperate with teachers in classroom education management.

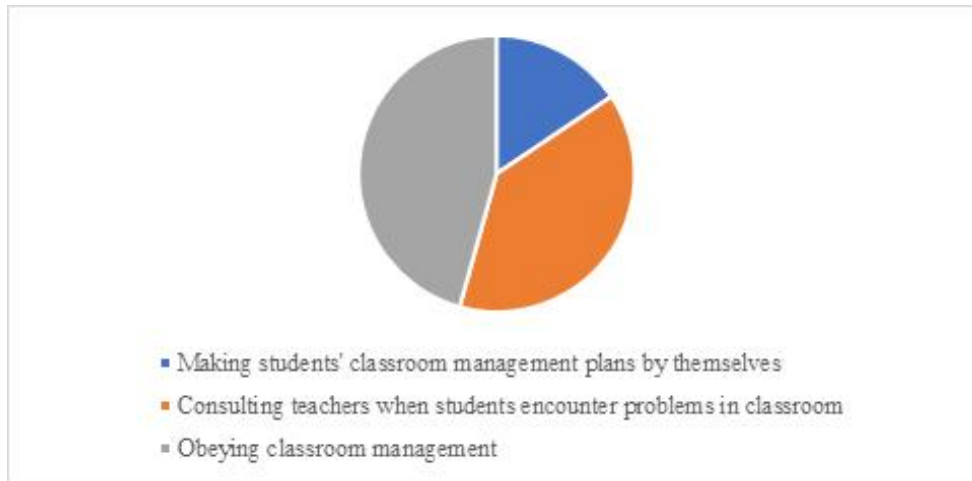


Figure 4: Investigation on students' self-management

Figure 4 shows that students rely too much on teachers for self-management. It is investigated from three aspects. One is whether students will make management plans by themselves. Another is whether students will ask teachers for help when encountering problems in class. The last one is whether students will obey teachers' classroom management. The results show that 27% of students make classroom management plans by themselves, 67% consulting teachers when encountering problems in the class, and 79% obeying classroom management, which fully shows that middle school students rely on teachers excessively in the process of classroom management.

Because of their younger age, the students have not developed their own minds of self-management totally. On the contrary, they have developed the habit of "relying on their parents at home and relying on their teachers at school" since childhood. They have even been overindulged by families and teachers since childhood. The students have lost the ability of self-evaluation, self-awareness and self-control, and they fully follow the guidance and management of teachers at school. In this case, classroom education management will have a high requirement on teachers, and teachers must always maintain the correct direction of guidance. If the direction of teachers' guidance deviates, it will inevitably lead to deviation in students' behavior, affecting the correct cultivation of students' world outlook and values.

Conclusion

Through the investigation of mathematics teachers and students in B schools in area A, this study found that mathematics teachers play a decisive role in education management and directly affect the effect of education management. Although students are the objects in the process of education management, whether students abide by classroom management in the process of education management is also an important factor affecting education management. Therefore, in the process of teaching classroom management, teachers should change traditional classroom management ideas, master scientific classroom management skills, and form a set of reasonable management methods. Students should abide by the classroom management system and obey teachers' classroom management.

1. Teachers should construct a good teacher-student relationship

Teachers' awareness of classroom education management is important. A good way to communicate with students is to establish a good teacher-student relationship. On this basis,

teachers need to establish their communicating concepts, reposition their roles, and sort out the teacher-student relationship. The original role of only lecturing and teaching is adjusted to the role of a multi-dimensional manager, so as to better realize the model of clear rights and responsibilities in classroom management.

2. Teachers should update the concepts of education management

The concept of teacher's classroom education management directly affects how teachers conduct classroom education management. A qualified classroom education manager should first have a scientific education management concept that meets the requirements of the development of society. Teachers should establish the concept of "management is education" and adhere to the principle of equality between teachers and students. However, in the actual process of classroom management, teachers often ignore other behaviors such as students' speaking or sleeping in the classroom and continue to teach their scheduled teaching content. There is no classroom interaction between teachers and students, which leads to difficulties in classroom education management. The concept of classroom management for teachers should keep improving. In addition to returning to classroom teaching, it is also necessary to arrange a teaching schedule, reasonably use multimedia courseware, and focus on an efficient classroom.

3. Teachers should optimize the methods of education management

Teachers use inappropriate language, body language, etc. in classroom education management, and criticize students incorrectly in the classroom, which causes students to be not interested in mathematics classes, and also causes students to be tired of classes and learning.

Teachers force students to accept and obey too many instructions and criticisms, exerting a negative influence on students. Frequent negative verbal reminders will affect the effect of classroom management, reduce the efficiency of classroom teaching, and fail to establish a harmonious and relaxed classroom teaching atmosphere.

Teachers need to have their own set of effective management methods to realize students' self-management, cultivate students' learning ability and mutual cooperation abilities, and promote the development of education and teaching. As a manager, teachers need to participate in students' activities, interact with students, and understand the deficiencies in education and education management so as to improve their own classroom management ability and stimulate students' initiative.

4. Teachers should innovate the mode of education management

Middle school students are more likely to form a healthy psychological state when they are in a good teacher-student relationship, and then they can think rationally, establish their own logical relationship, and actively face learning life. Therefore, in the process of classroom education management, it is advocated to establish "a dual subject teacher-student relationship mode". That is, in mathematics classroom management, teachers, as one of the subjects, play the role of educators. And students, as the main body of learning, play the role of learners and classroom masters. However, in the actual process of education management, teachers and students often ignore this dual subject teacher-student relationship mode. Students' awareness of self-management is weak, and students completely rely on the

guidance and management of teachers, which leads to low autonomy of students in classroom management.

5. Teachers should improve the professional quality

Some mathematics teachers, who do not graduate from normal universities, learn less about pedagogy, psychology and other courses. Teachers' professional skills are weak, and they lack the educational management skills that teachers should have. So, teachers should improve the skill of teaching, managing classroom, and caring for students. Teachers should manage classroom using professional education management concepts.

The results of this study are not only applicable to the classroom management of mathematics in middle school, but also applicable to the classroom management of other disciplines in middle school. It is not only a reference for the current classroom management, but also a certain reference value for future classroom management.

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