

# Research on the Cultivation of Good Math Learning Habits of Junior Middle School Students

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**Abstract** – Learning habit is a stable and systematic learning psychology gradually formed by people through long-term learning, and it is a maneuverable learning behavior. With the deepening of the new curriculum reform, junior middle school mathematics teachers gradually realize the importance of cultivating students' good mathematics learning habits in mathematics education, which not only helps junior high school students to better master mathematics knowledge, but also helps them to maintain their established behaviors in the learning process and finally benefits their lives. Current educational environment makes it necessary for every math teacher to probe deeply into the cultivation of good math learning habits of junior middle school students in teaching practice. Cultivating students' good math learning habits is the common requirement of quality education and lifelong education, and is also an important way to implement quality education and lifelong education.

**Keywords** – Junior School Students, Mathematics, Learning Habits, Culture.

## I. INTRODUCTION

Learning habit is a stable and systematic way of learning psychology and behavior that learners gradually establish after long-term and repeated learning activities to meet [1] individual needs. Students having good learning habits is conducive to the improvement of learning efficiency and academic performance, which makes it possible for them to maintain a fixed way of behavior in the learning process and thus benefit from life-long. Mr. Ye Shengtao once said: "What is education? A simple sentence is to develop habits. Cultivate students' good study habits, which will enable them to actively participate in mathematics learning activities and use mathematical thinking to explore problems autonomously with their companions. We can put it this way, that the premise and foundation of effective learning is the construction of good methods and habits [2] since the implementation of the new curriculum reform, the discipline setting in the junior high school mathematics curriculum has been merged into mathematics from the original algebra and geometry. The curriculum standards have also seen new adjustments in the content of the textbook, the role of teachers and students, the way of learning, the way of teaching, and the way of teaching evaluation and so on. Therefore, under the new curriculum reform, it is extremely urgent to cultivate students' mathematics learning habits. The achievement of habit cultivation is a behavioral system which is gradually established through the interaction of individuals with others and society. This behavioral system has the characteristics of stability, regularity and automation. It is unanimously recognized by educators both at home and abroad that the role of acquired learning is crucial to the

development of human beings, such as articulation should be clear, language should be standardized, communication be smooth, expression ability and reading comprehension ability be strong. The characteristics of physical and mental development of children and the laws of education in the past have made it clear that good learning habits, once formed, will be stable and consciously displayed, the improvement of students' learning effect will naturally lead to the improvement of teaching effect and teaching quality. Therefore, the cultivation of good study habits has great practical significance.

## II. ANALYSIS OF RELATED THEORIES

### A. An Overview of Learning Habits

The activities that people engage in can be roughly classified in two ways: the activities of transforming the objective world and the activities of transforming the general sense. While the habit, according to different areas of people's activities, can be divided into a variety of categories, among them learning habits are a part. It is expressed in a certain learning situation even without the deliberate control of the learner's will. Therefore, teachers should play the guiding role in the formation of students' learning habits.

### B. Cognitive Psychology

Cognitive psychology is a kind of psychological thought which first sprang up from America in the 1820s. It is divided into traditional cognitive psychology and modern cognitive psychology. Sensation, perception, memory, attention and thinking in the process of cognition are all taken as its main research areas. According to the principle of students cognitive psychology, Gagne, an American educational psychologist, divided the cultivation of learning habits into eight specific stages [3].

### C. Behavioristic Psychology

The founder of behavioral psychology is American psychologist Watson, who came up with the idea in the early 20th century. Word is it came from a school of psychology originated in the United States. Behavior is a combination of various physiological responses to adapt to environmental changes. The external expression is muscular contraction or gland secretion, while the internal manifests are different in strength and size. Chinese educator Xu Chongwen advocates the advanced concept of "learning to learn" and the idea that each of us has great potential in learning, waiting for development. To make this kind of development more fully and thoroughly, we must "learn to learn" and enjoy learning at the same time. The study of behavioral psychology emphasizes that the cultivation of students' learning habits must be based on

strong perseverance. "Cultivating strong perseverance" is the guarantee, but also a very challenging and arduous work. Hongmei Xin also made a study in the study on the planning and development mode of recreational Green-way in Zhejiang province. [4]

### III. INVESTIGATION AND ANALYSIS OF JUNIOR MIDDLE SCHOOL STUDENTS' LEARNING HABITS IN MATHEMATICS

#### A. Implementation of the Investigation

In 2017, through the questionnaire survey and interview methods, junior high school students from two junior high schools in Yanbian and Helong City were investigated, which covered 46 junior high school students in "S" school of He-long city and 262 people in "L" school. The design of questionnaire survey mainly focuses on three questions: First, the routine study habits of junior middle school students, including pre-class preview habits, in-class listening habits and after-class review habits. Secondly, the investigation and study of mathematics on unconventional study habits of junior high school students, including learning habits that are good at questioning and learning habits of exploring cooperation. Finally, an interview survey of junior middle school mathematics teachers' training of students' learning habits Hongyang Zhao made a deep discussion on the current situation and Countermeasures of junior middle school students mathematics learning habits in the urban-rural fringe [5].

#### B. Data Processing and Analysis of Survey

Pre-class preparation is almost a task assigned to students by all math teachers before they learn new lessons. In addition, preview can also enhance the relationship between old and new knowledge, enhance students' awareness of independent learning, reduce students' dependence on teachers, and develop the ability of independent learning.

Graphics (1) Preview habit status questionnaire

	S school	L school	Total
Yes	2.9%	6.1%	4.5%
Occasionally	8.7%	13.3%	11%
No	88.4%	79.1%	84%

It can be seen from the above table that only a small number of students occasionally prepare for the pre-study, and most of the students never take the initiative to preview before the math class. This shows that the pre-study section has not been paid enough attention. Through further interviews, it was found that students did not read the new content in the textbook before learning the new lesson. Even students with occasional preview habits did not read the whole text carefully, but chose to browse roughly.

Students' learning habits in mathematics classroom are the most important part of the whole learning process. It is mainly divided into the habit of paying attention to listening and the habit of taking notes carefully. The rigour of mathematics requires our students to be more attentive and meticulous.

Graphics (2) Good at questioning the habit status questionnaire

	S school	L school	Total
Thinking about knowledge	63.6%	65.4%	64.5%
Answer questions positively	23.1%	23.5%	23.3%
Often ask questions	10.8%	7.7%	9.2%
There are different ways of thinking	4.5%	3.4%	3%

The survey found that most students can think about what they have learned in class, but seldom answer questions or raise their hands. Few students can put forward their own views and opinions on what they have learned.

Extracurricular review can deepen students' understanding and memory of knowledge. There are many complicated concepts in junior high school mathematics courses that are easy to be confused. Students can clearly distinguish and grasp concepts through review, and the application and transformation of mathematical formulas is more convenient. The conversion goes to the advanced stage from mastery to application and from input to output. A survey of students' review is as follows.

Graphics (3) Review of habit status questionnaire.

	S school	L school	Total
Often	8.7%	9.9%	9.3%
Sometimes, occasionally	26.5%	27.4%	27%
Indifferent	49.1%	50.6%	49.8%
Unnecessary	10.2%	8.8%	8%
	5.3%	3%	5.2%

As can be seen from the above table: most students know clearly that it is necessary to review, but most of this review is irregular, not targeted, few periodic review, lack of good habits of regular review. Through further interviews, it was found that most of the students were blindly reviewing, with fewer times and shorter time. The "temporary cramming" before the exam accounted for nearly half of the students. A small number of students think that reviewing is irrelevant. Obviously, many junior middle school students do not have the good habit of studying after class.

#### C. Main Problems and Causes

1) About teachers: There are mainly three aspects, first is math accomplishment. As a math teacher, the first thing he needs is an interest in mathematics, which is embodied in the active or even enthusiastic pursuit of mathematical knowledge. Then come a solid understanding and mastery. Secondly, on teaching level and teaching method. Enthusiasm about mathematics teaching and dedication are the starting point for our junior middle school mathematics teachers to carry out the work of the basic starting point. Besides a comprehensive knowledge system, there is also an need to understand the actual needs of students, Teachers should also know how to figure out the planning of learning ways. Finally, about the attitude of rigorous scholarship. Teachers tend to feel the need to achieve the value of personal life, and in the face of all kinds of temptations around us in modern society, the ordinary and noble profession of teachers requires us to do our job well, and stay true to the original goal and always be rigorous.

- 2) About students: Psychologists have found that due to the inability to control their emotion, students in junior high school often have greater ups and downs, therefore, education has become relatively difficult. At this time, their poor self-control, emotional impulse and lack of reason, coupled with the lack of cognitive experience, all together make it difficult for them to distinguish right from wrong.
- 3) About family: Family is the earliest school for children, and parents are the first teachers in the process of children's growth. Therefore, the formation of personality is closely related to family education. Modern society is in a period of economic change and knowledge explosion, usually, parents' work and life pressure increase. That explains why in the education of children, the pressure will be grafted on their children in an unconscious way, thus, academic performance has become the only criteria for assessing children, only score comes first. If parents fail to actively and effectively guide their children to understand the importance of learning habits, then the monotony and dullness of mathematics makes it easy for junior high school students, who are in the reversal period, to give up psychology, and let alone to cultivate learning habits.

#### IV. TRAINING STRATEGIES FOR JUNIOR MIDDLE SCHOOL STUDENTS' GOOD MATH LEARNING HABITS

##### A. *Effective Pre-Class Habits Training Strategy*

Preview before class is the first step in mathematics learning. Effective preview can lay a solid foundation for further learning and improve the effect of [6] listening. Anticipate problems to be solved in advance, through which students can improve learning efficiency. Preview is often done by self-study, which reduces the dependence on teachers and develops the ability to learn independently, so as to give full play to self-initiative. Preview makes listening more purposeful in class, notes more pertinent in class, and changes the state of students' passive learning. In preview, our basic process is: to understand the content of the new lessons in the textbook, to find out the relationship between the old and new knowledge, to collect and supplement the required mathematical knowledge, to deepen and consolidate the ones that students have already learned. Find out the key and difficult points of this lesson, as the focus of class listening, mark or take notes where they do not understand.

##### B. *Effective training Strategies for Listening Habits in Class*

- 1) Actively create situations for. At the beginning of exploring new knowledge, students will be brought into the relevant situation of new knowledge, so that students can quickly enter the learning state, making it possible for inadvertent attention and intentional attention being alternately present, and always maintain the concentration and stability of students' attention, making them to develop the good habit of paying attention to listening and speaking.
- 2) Maintain the stability of attention. The stability of attention

determines the quality and effect of students' listening in class, therefore, in order to maintain the stability of attention, the following two aspects should be carried out: Firstly, it should conform to the psychological characteristics of junior high school students. The study found that the time for primary school students to concentrate on the content of the course was 15-20 minutes, and for middle school students 20-40 minutes. That is to say, at different stages of student growth, the stability of attention will show differences. Second, stimulate interest in learning. Junior high school students generally have the psychological characteristics of being active, curious and competitive. We can just make use of them and constantly excavate the interesting elements in the relevant knowledge points of textbooks to stimulate students' interest. We must clearly recognize that in addition to using coercive means (such as verbal warnings, strict requirements, etc.) to maintain attention stability, we can also use more flexible and proactive means [7].

- 3) Instruct students to take notes in mathematics. Students should learn to take notes of mathematics in class. This kind of notes should not only cover the contents of the teacher's explanation, but also have analysis from students themselves and annotations, so as to facilitate the output of knowledge and strengthen their memory. As the saying goes, "It's better to write it one time than to say it three times." Classroom notes are a summary of what you have learned, and are a reference for students to review it periodically or systematically in future.

##### C. *Effective Extracurricular review Habits training Strategy*

Extracurricular review is a necessary habit for junior middle school students. Teachers should properly supervise and supervise junior middle school students to review key content, misleading questions and knowledge that has been learned but not well mastered repeatedly. Specific requirements are as follows:

- 1) Review knowledge the very day. Students can be asked to recall in their minds what mathematical knowledge they learned on that day, what are the key points, and how to analyze and solve the difficulties, so as to deepen the impression while also testing their own learning effect.
- 2) Sort out notes. Students can be asked to organize their own math classroom notes in combination with the textbook, to find out the missing points, and correct errors, new knowledge can be summed up into a small system, then into the large system of mathematical knowledge learned, finally forming a complete knowledge system and context.
- 3) Wholeheartedly, using more senses at the same time to perceive and obtain information, in that the effect of memory is better than a single memorization. In order to enhance memory and improve the efficiency of review, we must fully devote ourselves to learning.
- 4) Often review, Teachers can ask students to review regularly, repeatedly and frequently [8]. Students should first do it densely, then sparsely. According to the

Ebbinghaus forgetting curve, the newly learned knowledge is quickly and frequently forgotten. Therefore, many reviews with short intervals are needed, that is, "review frequently".

#### D. *Cultivating Strategies for Questioning Learning Habits*

Doubts should be examined by certain logical standards and practical experience, and should not be faced with subjective and blind attitude. Students participate in the whole process of mathematical knowledge discovery. They can make timely discovery and put forward valuable, targeted and exploratory mathematical problems. Whether their queries are justified is not critical, but rather whether they think they are justified. What we encourage is to question, the behavior itself, not to emphasize the scientific nature of the content. This requires teachers to always respect students and cultivate their students' attitudes when they are questioning. Teachers should not look at their opinions from the perspective of themselves. They should give full encouragement and affirmation to their questioning behavior, for each mathematical fact, it is necessary to provide students with a time difference, let them use this time difference to observe the analysis, and then the teacher will explain and summarize, the effect will be twice the result with half the effort.

#### E. *Training Strategies for Cooperative Inquiry Learning Habits*

The objectives of cooperation, the relationship of members, the responsibility of members and the self-assessment of the group together constitute the basic elements of collaborative inquiry learning. Therefore, the author believes that the cultivation of cooperative learning habits should be carried out as follows:

- 1) Grouping: How to properly divide the basic units of learning is the prerequisite to ensure the smooth development of cooperative learning. Therefore, before grouping, teachers should have a thorough understanding of the actual situation of students, including students' knowledge structure level, interest and hobbies, learning habits and characteristics of thinking mode, etc., combining with the teaching content of scientific and rational grouping.
- 2) Define the content of group cooperation: Define the learning task of the group, make the learning goal concrete and realizable, make sure each group member can gain something in cooperation, finally enhance the effectiveness of cooperative learning.
- 3) Standard classroom management: Team cooperation is not only reflected in the search for knowledge content, but also in the interaction and behavior norms between members of the group. Therefore, we should pay attention to the following points: first of all, we should take a rational view, knowing that the development of cooperative inquiry learning is required from the previous dull classroom model. Students should have a positive discussion and argue reasonably, rather than blindly coax. For the latter, teachers should, of course, stop them and ask students to return the basic task of learning. Secondly, we should standardize the requirements, establish a standardized and reasonable

cooperation mechanism to strengthen cooperative behavior, and restrict students through some clear rules and requirements. Finally, we should timely evaluate, establish a positive evaluation system, and make timely praise as well as correct mistakes. It is very helpful for students to build up self-confidence and get into the next learning task in a better state.

### V. CONCLUDING REMARKS

The new curriculum reform has shifted the focus from the problem of "how to teach" to the problem of how to learn", a formidable change which our junior middle school math teachers are also facing. The cultivation of students' good math learning habits studied in this paper is precisely from students' learning to teachers' teaching. The two are integrated, achieving the effect of learn to grow up, that means in the process of learning, students will inevitably make better teaching. From this point, cultivating good math learning habits in junior high school students naturally becomes the catalyst for this transformation.

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