

# *Research on the Cultivation of Interest in Learning Mathematics under the Background of Internet Plus*

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**Abstract**—Information technology, represented by "Internet + education", has become a hot topic in education. In view of the cultivation of interest in mathematics learning, it was proposed that traditional teaching methods should establish links with the Internet, paid attention to intelligence factors and non intelligence factors, emphasized the importance of cultivating non intelligence factors in Mathematics teaching. The strategies of stimulating students' interest in mathematics learning and improving students' mathematical literacy were given.

**Keywords**—Internet plus; Non intellectual factors; Mathematics literacy; Learning interest

## I. INTRODUCTION

Today is the era of rapid development of information technology. Internet + education is a new form of mathematics education. How to integrate education and even mathematics education with the Internet is a very important problem.

Intelligence factor is the psychological factor that directly participates in the cognitive process in people's wisdom activities, including attention, observation, memory, imagination, thinking, language and operation; non-intelligence factor refers to all psychological factors other than intelligence factor, and the closely related ones are mainly students' individual actions. Chance, interest, attitude, mood and will are five factors [1]. Improving non-intellectual factors will also promote the improvement of intellectual factors. In today's learning, we pay more attention to the cultivation of intellectual factors, but often neglect the cultivation of non-intellectual factors. Therefore, we should pay attention to the cultivation of such non-intellectual factors in our teaching. Non-intellectual factors include five items, and this paper mainly studies how to cultivate interest in mathematics learning. As far as the definition of interest in mathematics learning is concerned, Huang Hui emphasizes that interest in mathematics learning is students' interest in learning mathematics knowledge [2].

Interest in mathematics learning is essential for every mathematician to have great achievements in mathematics. Now in the environment of exam-oriented education, heavy math homework, profound and boring math problems make many students lose interest in math learning, which also makes our math ability gradually decline, contrary to the core literacy advocated. Therefore, it is very important to cultivate students' interest in mathematics. Now I will talk about the cultivation of interest in mathematics with the following points.

### A. Learning transfer

Learning transfer refers to the influence of one kind of learning on another, or the influence of acquired experience on the completion of other activities. Transfer exists widely in the study of various knowledge, skills and social norms. Learning transfer can be divided into broad sense and narrow sense. Generally speaking, it refers to the process of continuously acquiring new knowledge and skills by using existing knowledge and experience, and the acquisition of new knowledge and skills constantly expands and enriches the existing knowledge and experience. This is what we often call "one by one" and "one by one". This process also belongs to the same process. In the broad sense of learning transfer. In a narrow sense, it refers to the influence of the former on the latter or the latter on the former.

Therefore, the theory of learning transfer conforms to the law of mathematics teaching. Students who have mastered the knowledge points, mathematical thinking methods and so on will have an impact on the subsequent learning of new knowledge [3].

### B. Mathematics core literacy

Professor Ma Yunpeng defines the core quality of mathematics as the comprehensive ability that students should achieve in learning mathematics [4]. In the mathematics curriculum standard of senior high school (2017 edition), it is mentioned that the core accomplishment of subject is the

concentrated reflection of the value of educating people, and it is the correct values, essential character and key ability that students gradually form through subject learning. The core qualities of mathematics include mathematical abstraction, logical reasoning, mathematical modeling, intuitive imagination, mathematical operation and data analysis. The core literacy of these mathematics disciplines is not only relatively independent, but also intermingled with each other. It is an organic whole.

There are many knowledge points in high school mathematics, but the math class hours are limited. In the limited class hours, it is impossible to explain the key and difficult points of knowledge clearly. Therefore, teachers should guide students to learn and transfer, so that students can learn more knowledge in an effective time, and then promote the improvement of students'core mathematical literacy.

### *C. The role of learning transfer and transfer theory in high school mathematics teaching*

Function is the core content of high school mathematics and a line of high school mathematics. It plays an important role in teaching and runs through the whole process of high school mathematics teaching. In the topic of function, we mainly cultivate students'core qualities of mathematical operation, logical reasoning and mathematical modeling.

Mathematical operation index arithmetic refers to the accomplishment of solving mathematical problems according to the arithmetic rules on the basis of clarifying the object of operation. It mainly includes: understanding operation objects, mastering operation rules, exploring operation ideas, selecting operation methods, designing operation procedures, obtaining operation results, etc.

Mathematical abstraction refers to the process of thinking in which all physical attributes of things are discarded and mathematical research objects are obtained. It mainly includes abstracting mathematical concepts and concepts from the relationship between quantity and quantity, graph and graph, abstracting general rules and structures from the concrete background of things, and using mathematical symbols or mathematics. Terminology is characterized.

Logical reasoning refers to the quality of deducing other propositions from some facts and propositions according to rules. There are two kinds of reasoning: one is from special to general reasoning, the other is from general to special reasoning, and the other is deduction.

Mathematical modeling refers to the process of taking practical problems as abstract objects, expressing problems in mathematical language, solving problems with mathematical knowledge and methods, constructing mathematical models and carrying out practical tests.

## II. WAYS TO DEVELOP INTEREST IN MATHEMATICS LEARNING

### *A. Use the internet to open up students'horizons*

Aristotle said that "people should start exploring from the amazement of nature all the time". Confucius said that "those who know are inferior to those who are good, and those who are good are inferior to those who are happy." All these fully emphasized the importance of learning interest to learning. In 2015, Premier Li Keqiang put forward the concept of "Internet +". Internet + mathematics education is undoubtedly an upgraded version of traditional mathematics education. How to cultivate students' interest in Mathematics Learning under the environment of Internet + mathematics education? First, on the basis of the traditional classroom, we can properly add the new mode of network education, such as flipping classroom and micro-class, to enable students to receive different voices; secondly, we introduce the concepts and theorems of mathematics in classroom teaching by means of mathematical animation and mathematical customs clearance games, which are rich in graphics, text, sound and image. In this way, arouse students'curiosity, and then cultivate students' interest in mathematics learning [5]. Finally, we can use mathematical software, such as matlab, Geometric Sketchpad and so on, to learn mathematics better. For example, when explaining the image and property of triangular function, drawing, observing and analyzing by Geometric Sketchpad can form rules and get the transformation law of sinusoidal function. Through this intuitive and dynamic analysis, students'interest can be greatly increased.

### *B. Arousing the students'interest by using mathematics history, mathematics stories, etc.*

Mathematics is not only a method, an art or a language, but also a knowledge system with rich contents. Everything has its soul, and the soul of mathematics is the history of mathematics. First of all, it arouses students'interest through the history of mathematics. In the study of rational and irrational numbers, we can introduce the discovery of irrational numbers, the first crisis in mathematics, to arouse students'interest. Secondly, we can also arouse interest in mathematics learning through mathematicians'stories and mathematical paradoxes. For example, we can introduce the barber paradox when we study sets, and then lead to Russell's paradox [6]. Therefore, we introduce some mathematic stories, mathematicians'stories, mathematical paradoxes, mathematical history and so on in combination with the textbooks, which will certainly arouse the enthusiasm of students.

### *C. Making mathematical problems simplified by mathematical ideological method*

Mathematics is a subject with high abstraction and rigor. Mathematics has its own way of thinking, such as the idea of function and equation, the idea of classifying and discussing, the idea of equivalence transformation, the idea of combination of numbers and shapes, etc. According to the idea of the number-shape set, we can better understand the function through the graph of the primary function and quadratic function; in solving practical problems, we can more clearly

express the problem by the graph, and so on. Based on the idea of equivalence transformation, we can transform unfamiliar problems by the idea of equivalence transformation. A well-known problem. Mathematical thinking and methods not only simplify mathematical problems, but also make mathematics not complicated and boring in the eyes of students, thus cultivating students' interest in mathematics learning.

#### *D. Effective group discussion in mathematics classroom*

Bacon said, "Discussions are like gravel, thoughts are like sharp edges, and two-phase examination will sharpen the mind." In mathematics class, some controversial and multi-solution problems are put forward for discussion, and students express their own opinions. For example, in the course of explaining triangle similarity, we can arrange students to discuss what conditions are needed for two triangles to be similar. In the process of this discussion, the teacher should guide the students so that they can interact with others' thoughts on the basis of independent thinking, open the door of students' thinking, collide with the sparks of ideas, and fully mobilize the enthusiasm of each student. This mode not only greatly improves the enthusiasm of students, but also enhances their interest in learning.

#### *E. Establish good communication with parents*

It is often said that "parents are the first teachers of children, parents, students, teachers are three indivisible individuals, and childhood is the formation of many good qualities and habits of people." As a math teacher. We should make a good bridge between teachers and students, communicate with parents, make a deeper understanding of students' learning habits and interests in mathematics, so as to cultivate students' interest in learning in a targeted way.

#### *F. Comprehensive design of mathematical exercises*

The new curriculum standard emphasizes that learning mathematics should vary from person to person and learn mathematics useful to oneself according to one's specialty. In designing exercises, first of all, we should follow the principle of "easy first, difficult later", step by step, and secondly, we should diversify the forms of exercises, so that students have enough space to think, expand their logical thinking ability, and give full play to their strengths [7]. Therefore, in teaching, we should design some open topics to diverge students' thinking and stimulate and cultivate students' interest in learning. Secondly, the exercises should be from easy to difficult, so that students can improve themselves on the premise of laying a good foundation, so that students can learn more actively and actively.

#### *G. Protecting and affirming students' Interest in mathematics learning*

We should not only cultivate but also pay attention to protecting, affirming and respecting students' interest in learning. When Newton found an apple falling down, he asked the question: Why did the apple fall down instead of up in the sky? Such a seemingly absurd question became Newton's first step in discovering the law of gravitation. Albert Einstein said,

"It is often more important to ask a question than to solve a problem, because solving a problem may only be a mathematical or experimental skill, but to raise a new problem requires creative imagination, and marks the real progress of science." Students' thinking is active, and they often ask different kinds of questions. At this time, as a teacher, do not prevaricate or even attack students, if it is within their own ability, effectively guide students to help students solve problems; if it is not within their own ability, also encourage students to continue to study.

Based on the reflection on the current research situation of mathematics literacy in China, the problems existing in the actual implementation of mathematics literacy and the background needs of implementing core literacy with subject curriculum as the carrier, since 2015, the focus has been shifted to the core literacy of mathematics, expecting to analyze the basis of the essence and value of mathematics discipline. On the one hand, it is the most important and necessary to clarify what mathematics literacy is for students' lifelong development, and reflect on the results of education and teaching that students should obtain in mathematics, so as to carry out mathematics teaching and learning evaluation more effectively. Mathematics core literacy is a concentrated reflection of the objectives of mathematics curriculum, which is formed in the process of mathematics learning. Implicit and non-transferable determine that it is a long-term and gradual process. Therefore, it is particularly important for the orderly implementation of mathematical core literacy to construct an operable system of mathematical core literacy [8].

### III. CONCLUSION

Therefore, in our teaching process, we should pay attention to the cultivation of interest in mathematics learning. Interest is the best teacher for students. There are many ways to cultivate interest in mathematics learning. On the basis of traditional teaching, we should grasp the opportunities brought by the Internet. As a teacher, we should pay attention to teaching students in accordance with their aptitude, enhance their love for mathematics, and then improve their mathematical literacy.

Through the comparison of mathematics teaching methods between China and foreign countries, the trend of International Mathematics Education Development in recent years and the current situation of mathematics education development in China, according to the requirements of quality education, the reform of mathematics teaching methods in our country should pay attention to students' independent inquiry, emphasize the adaptability of teaching and highlight the emotionality of teaching. It is embodied in:

(1) Pay attention to the communication between teachers and students, improve the relationship between teachers and students, strengthen the comprehensive understanding of students, and mobilize students' enthusiasm for learning;

(2) Pay attention to the cultivation of students' knowledge and skills, processes and methods, emotional attitudes and values, so that students can develop in an all-round way;

(3) Emphasizing the role of emotion in teaching and the influence of non-intellectual factors on teaching;

(4) Pay attention to the whole process of the occurrence, exploration, discovery, argumentation and application of mathematical problems, from the injection teaching method to the heuristic teaching method;

(5) Teaching methods should effectively use modern educational technology;

(6) Reform the examination system, break the theory of "only going to school" and lighten the burden on students. It is necessary to change the unreasonable situation that examinations are superior to teaching and that examinations are "batons of command", so that examinations can become the means of testing teaching and play the role of assistant teaching.

There is no definite method of teaching, but there is a proper method of teaching. The stone of other mountains can attack the jade. Absorbing the excellent teaching methods of other countries, combining Chinese and Western, removing the dregs, extracting the essence, removing the false and retaining the true, the reform of mathematics teaching methods will be effective, and the new curriculum reform of basic education will be implemented.

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