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Research on the Function Bridging Teaching Strategy of Middle and High School Under the Core Accomplishment

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Abstract **– The most obvious feeling of many students entering high school is that mathematics is difficult to learn, especially the study of function, which results in students unable to reach the high level of high school mathematics. The connection of knowledge points in mathematics teaching in junior and senior high schools can help students to make a better transition and deepen their learning content. Therefore, teachers should pay special attention to the selection of teaching methods in the transition stage and improve the acceptance effect of students. This paper, starting from the connotation of core accomplishment, takes function linking teaching in junior and senior high schools as the research object, combines the current situation of function teaching in junior and senior high schools, and makes a brief discussion from the perspectives of teaching benefits, teaching effects and teaching efficiency, so as to be of benefit to the research and development of function linking teaching strategies in junior and senior high schools in China.**

Keywords **– Core Accomplishment, Middle School, Function; Cohesion, Teaching Strategy.**

I. Connotation of Core Accomplishment

The high school mathematics and mathematics curriculum standard (2017 edition) points out: "core literacy is a comprehensive representation of knowledge and skills, processes and methods, emotional attitudes and values." "The new curriculum reform should take into account the reality of curriculum reform in senior high schools, deepen curriculum reform and implement the fundamental task of "establishing morality and cultivating people" [1]. We should further clarify the education positioning of ordinary high schools, and adhere to the unity of basic and selective. In the teaching process, it is necessary to clarify the requirements of talent cultivation, take core accomplishment as the leader, and divide the high school mathematics objectives into levels, so as to form the academic quality standard based on core accomplishment.

II. Differences in Functional Teaching Standards in Middle and High Schools

Middle school and high school function curriculum standards are different, and the requirements for function mastery are also different. Taking the pep edition as an example, the function textbook of middle and high school lacks certain consistency. In the eighth grade of junior high school, students began to learn the concept of function from the dependence between variables [2]. I have learned three kinds of notation, focusing on the features of analytical expressions, the preliminary application of simple attributes and functions, such as inverse proportion function, quadra--tic function, etc., and the understanding of functions is superficial and belongs to the objectiveness. However, in high school, the concept of function is abstracted directly, and the concept of function is extended. In addition, the study of high school functions is multi-faceted and multi-layered. Therefore, the transformation of thinking requires the reorganization of existing cognition, and the learning difficulty is also relatively large due to knowledge difference, thinking difference and other factors. This paper starts with the creation of high-quality and efficient classroom teaching and studies how to carry out functional bridging teaching in junior and senior high schools in China.

III. Function Bridging Teaching Strategy in Middle and High Schools

A. *Focus on Core Accomplishment and make the Teaching Benefits Accurate*

To reduce form, pay attention to the essence as the principle. The teaching goal should dilute the tedious narration of some nouns, terms and unnecessary form theory, and focus on improving the core accomplishment that reflects the essence of mathematics, that is, to carry out classroom teaching from the height of mathematics thought.

B. *Cultivate core qualities and Clarify the teaching effect*

The design of mathematics diagnostic teaching provides important reference for the effectiveness of classroom teaching and the cultivation of core accomplishment. The teaching design integrates teachers' teaching activities, students' learning activities and teaching diagnosis and adjustment activities according to the teaching process.

At present, the general middle and high school mathematics teachers divide the learning emphasis of middle and high school, often ignoring the function teaching cohesion of middle and high school, which will cause psychological burden to many students who just entered high school. Although this aspect has attracted the attention of some mathematics teachers, most of this attention and strategy research are in the theoretical stage, and few of them are actually put into practice.

C. *Practice Core Accomplishment and Maximize Teaching Efficiency*

Quality and efficiency means that classroom teaching follows the efficient learning concept and emphasizes the teaching design and development based on students' cognitive rules. Through activities such as dialogue, criticism and reflection, attention is paid to stimulating and maintaining students' interest in learning and guiding students to actively learn. Establish connections between old and new knowledge and strengthen students' understanding of the nature and principle of things. It is in

line with the social constructivism learning concept and the enlightenment of brain science to effective learning.

The features of mathematical concepts limit the learning of functional concepts. According to bao jiansheng et al., from the psychological perspective of conceptual learning, mathematical concepts mainly have the following four features [3].

1) *Abstract Concept Development:*

Mathematical concepts are directly reflected in the quantitative relations and spatial forms of objective things. This makes the concept of mathematics not only abstract, but also their specific content. From these two perspectives, it can be seen that mathematical concepts have two characteristics. Second, as learning object. The mathe--matical concepts mastered by individuals are adapted to their level of mathematical cognitive structure. The formation of mathematical concepts is mainly a process of abstraction, generalization and symbolization. The concept of function also has different abstractness. In junior middle school, students learn function based on the intuitive understanding of variable theory, while in senior high school, they learn function based on corresponding theory. Students' cognitive level at different stages has limited their understanding of concepts. Teachers should grasp this point and do a good job in bridging education.

2) *Pluralism of Conceptual Representations:*

Expressing things or ideas in some form for the purpose of communication; When the meaning of expression is mastered, representation can further become the material for thinking, thus simplifying the process of problem solving. With regard to the representation of mathematical concepts, leich proposed five kinds of representations to represent different levels of thinking activities, namely, actual situation, image, operation, oral symbol and writing symbol, and used them to analyze physical representation, graphic representation and symbol representation [4]. Therefore, the teacher should guide students to effectively concept will be put in a variety of characterization, the characterization of a given system, the student should be able to flexible handle concept, so as to have a deeper understanding about the concept of function, vision is more open, so can stimulate students learning function, understand the functions and research interests.

3) *Hierarchy of Concept Understanding:*

Concepts of mathematics, principles, principles, arithmetic skills, etc. all have certain order and learning ladder. From a cognitive perspective, the concept of function involves preprogram, program, process, object, and program concepts. The pre-program level is the preparation period for students before the program. The program level is the student must carry on the operation according to the concrete step; the process level is the process that can exist in the mind without the specific operation. The object level is that the student can carry out the concrete operation in mind, as a kind of psychological object; the conceptual level of the program is that students can switch between the two. Therefore, the learning of the concept of function is in a reasonable order, and the teacher guides and connects teaching for grasping the rationality [5].

4) *Systematicness of Concept Connection:*

There are extensive connections between concepts, including the connection between concepts and their backgrounds, and the connection between concepts (and concepts). Mathematical concepts are embedded in well-organized conceptual systems. In a concept system, some concepts are the core, and other concepts are either derived from them or closely related to them. The learning function in junior high school starts from the perspective of motion change. The concept of junior high school function does not highlight the "function", which should refer to the law itself, while the function in senior high school does not emphasize that X must be in a changing process. This kind of change constitutes the system of concept connection. The high school function concept has further explored the meaning of the function, and enlarged the application scope of the function to a greater extent, making the three elements of the function: the domain, the range and the corresponding relationship clear. The teacher can explain the concept of function from simple to deep [6].

For example, it is difficult for students to judge whether a function is a function or not according to the definition they learned in junior high school. The corresponding rule in the three elements of function concept, the function with the same domain and corresponding rule is the same function [7]. The content can be connected by analogy, for example: the meaning of 0 changes, the initial learning of 0 means no, but after the introduction of negative Numbers, what is less than nothing? It is difficult to explain, so the significance of 0 should be interpreted from different perspectives, that is, positive and negative demarcation points. Another example is: the concept of multiplication of decimals, initially learning is more and more multiplication, later learning can be more and more multiplication, which explains the meaning of multiplication from different angles.

D. *Overall Planning and Coordination of the Three*

Only if the teaching efficiency is neglected and the effectiveness and efficiency of teaching is ignored, students can't achieve the real development of core literacy after the classroom teaching, and finally become "oral developme--nt". Only talking about the teaching effect and neglecting the teaching benefit and efficiency only increases the burden on teachers and students, leading to "high quality of low efficiency". However, only the teaching efficiency, no matter the teaching effect, the classroom teaching may mislead the children, deviate from the three-dimensional goal and the core accomplishment, falls into the blind practice. Therefore, teachers can effectively combine the three in order to do a better job of middle and high school function cohesion.

IV. Conclusion

On the linkage between the high school mathematics teaching, students' own core mathematics accomplishment play an important role, so in the teaching process teachers should according to the request of new curriculum reform, cultivate the students' core literacy, let the students to better grasp the skills in the process of learning mathematics,

improve efficiency, find out the internal relations of knowledge points, to stimulate interest in learning. In the process of arranging teaching plans, teachers should take cultivating students' core qualities as the starting point, and summarize experience in each link, so as to promote the teaching development in the link stage of middle and high school mathematics.

REFERENCES

[1] Ministry of education, People's Republic of China. Full time compulsory education junior middle school mathematics curriculum standards (revised) [s]. Beijing: people's education press, 2011, 1.
[2] Ministry of education of the People's Republic of China. Mathematics curriculum standards (experiments) for ordinary high schools [s]. Beijing: people's education press, 2015, 7.
[3] Huang Rongjin. Study on classroom Teaching of Mathematics [M]. Nanchang: Shanghai Education Press, 2016 (2): 15.
[4] Wu Gang. Curriculum reform running in confusion [J].Education review, Peking University, 2013 (08): 09.
[5] Gu Lingyuan, Bao Jiansheng. Psychological basis and process of mathematics learning [M]. Shanghai: Shanghai education press, 2009, 109-117.
[6] Ordinary middle school curriculum standard experimental textbook [s]. Beijing: people's education press, 2017, 3.
[7] Ordinary high school curriculum standard experimental textbook [s]. Beijing: people's education press, 2017, 1.

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