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Mathematics Teaching at the University to Foster the Creativity of Students

LI Hongyi[1,*]; PAN Chengwei[1]; ZHANG Weiran[1]

[1]LMIB, School of Mathematics and System Science, Beihang University, Beijing, 100191, China
[*]Corresponding author.
Email: Hyl6980@sina.com

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Abstract

High-level creative talent is the driving force for national development; so university should pay attention to the cultivation of students'creativity. Mathematics as a very important basic disciplines, directly related to the development of quality and creativity of student development. In mathematics teaching to cultivate the creativity with the inevitability and necessity, this paper presents some suggestions to develop students' creativity.

Key words: College students; Teaching methods; Creativity; Training

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The 21st century is international science and technology, culture, economy increasingly competitive era; while the core competition is the quality of its creative talent competition. Innovation is the soul of a nation, an inexhaustible motive force for national prosperity[2]. Creation also known as innovation, is an individual based on certain objectives and tasks, using all known conditions, to produce new and valuable results of cognitive and behavioral activities. The goal of higher education cannot be confined to professional education of students, but to cultivate a culture of high quality and professional quality of the overall development of talent, not only to train a single professional technical talent, but to cultivate a high level creative talent.

Mathematicsis the foundation of natural science, and art of wisdom and creativity. Mathematics education is one of the core issues of education. As students compulsory public basic course, mathematicalplays an important rolein the cultivation of students' creativity.

I. THE NECESSITY IN MATHEMATICS TEACHING TO ENHANCE THE CULTIVATION OF STUDENTS' CREATIVITY

Although the vast majority of students in kindergarten and even before that had been exposed to mathematics education, but there are still lots of mathematics learning problems[1]. There are many college students follow the mode of learningin high school study, the mathematical formula and concluded that learning by rote, without understanding. This has led to the following phenomena: the knowledge learned before has been forgotten; to solve a problem must have a ready-made sample template to apply, or become unable to start. As the objective conditions, the University teaching hours gradually reduced, while the capacity of the teaching content has not been significant changes. In this case, the teacher's teaching pattern is unchanged, mainly based on traditional teaching methods, to a certain extent, neglected the cultivation of creative thinking of students. Many students feel that course content is too much, learning prone to fatigue, loss of interest in learning. These problems are actually because of the lack of mathematics education of the cultivation of students'creative abilityat the University.

With the continuous development of society, more and more people recognize the importance of mathematics, mathematics as the basis for the various disciplines has been a consensus. In fact, any discipline requires math, even the fields that people once thought there was no need of math such as literature research, and speech research

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are now keen to find research tools from mathematics. Math has moved from "Queen of the natural sciences." evolved intoan important tool for people to participate in social production and do scientific research. University as the cradle of human culture, shaping the students with a better mathematical thinking and innovation,cultivating the creativity of students, is a bounden duty.

2. THE MAIN FACTORS INHIBITING STUDENTS' CREATIVITY

In order to address how to cultivate students' ability to innovatein teaching of mathematics in the university, we must findthe main factors that inhibit the development of students' creation, and to remedy those causes. By communication with some students and teachers, I have found that to affect students creativity are the student's own and external factors[3].

Among these factors, mainly is a lack of willpower in the students, besides a lack of confidence and creative thinking. Many college students say that they have too many courses, andthey have to spend a lot of timejust to cope with their homework and make preparation for exams. They do not have time to stop and think about their own interest, and no time to consider something about invention and create their own ideas. Of course, some students are afraid to compete with others, think they're worse than others. These students are lack of confidence, so they deny themselves, consider themselves worse than others, so they avoid forming their own ideas and even have a little self-abnegation self-denial. This greatly affects the cultivation of their creative thinking. Many college students are accustomed to one kind of positive mindset, not like from the reverse or multi-angle reflection; most of them care about how to solve a problem, and do not care about the methods to solve the problem. This lack of creative thinking clearly inhibited the generation of many novel ideas.

On external factors, mainly teaching, there are some problems. In teaching, teachers, lack of attention to individual students. Teachers give homework not from the characteristics of individual students, but the layout of a unified operation. Most teachers only use the answerswhich are rigid to assess students' work, and won't encourage the creative answers of students'. The current traditional education method is not able to motivatestudents'willpower, enthusiasm and creativity in learning, and also not able to guide and encourage students' creative ideas, which to some extent, directly devoid the creative thinking of students. Assessment of a student in school, mainly to see the students' tests scores. Many students are ignoredbecause the test scores are not good enough. This scores first guiding principle of education these students are seriously hampered the development of personality and creativity.

3. THE CULTIVATION OF STUDENTS' CREATIVITY

The following briefly describes some proposals about the teaching of undergraduate mathematics to develop creative.

There are some reasonable adjustments to the teaching of mathematics knowledge structure. In the eyes of most people, mathematics is piled into a number of formulas and theorems, is a very boring subject. Mathematics teaching emphasizes on some of the formulas and proof of the theorem and derivationin the past. Rely solely on several examples and reasoning process from the book, it is impossible for students to understand mathematical ideas involved in them. Teachers to teach students in the course, students should be made to understand these mathematical methods and applications of specific ideological background, and even introduce some knowledge of the history of mathematics. Let the students know how this mathematical knowledge is formed in which backgroundsand in order to solve which kind of problem. So that students can have a deeper impression and understandingof these formulas and theorems.

In order to combine the theory with practice,teachers should not only focus on student understanding for basic knowledge, they should also pay attention to the ability of students to flexible use of knowledge. Before the transfer of knowledge, teachers can introduce to the students with some practical problems. This will not only inspire students to think, but also allows students to know how to use their learned knowledge. Today, mathematics is widely used in social production and scientific research. Teachers can raise many questions, and for students to indicate the relevant direction, so that the students themselves are able to find relevant information, and know about their learning how to be applied to practice. In therepeated practice, not only to deepen students' mastery of theoretical knowledge, but also can improve flexibility in the use of students of knowledge.

Inspire the motivation of students to create. Teachers should be good at inspiring students to ask questions and guide students to solve their own problems, to stimulate students' curiosity, thirst for knowledge and cognitive needs to create internal motivation of students to create. While focusing on the role of external inducement, the correct use of incentive measures to encourage students to participate in various forms of creative activities to stimulate students to create motivation. For example, teachers can focus on a particular topic, and organize several students to participate in the discussion to learn. In this "brainstorming" type of communication, students can make all kinds of ideas, play to their strengths. In teamwork, I believe students will be more profound awareness of the problem; students can fully utilize their own creativity.

Focus on student's personality development. As part of

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self-awareness self-confidence, not only an important part of personality, and is an integral part of creativity, one of the characteristics of personality psychology. Therefore, teachers should not judge the performance of students by their scores. Instead of it, teachers should understand the strengths of students; encourage students to develop their personality. In education, to train their quality of daring to question, challenging authority, not afraid of setbacks, develop their creative self-confidence.

Focus the attention of students in the classroom.Course time isthe main time of students to acquire knowledge; only with a good grasp of classroom time to carefully listen to the teacher so that students can lay a solid foundation. Teachers in the classroom should use a variety of teaching methods to fully mobilize the enthusiasm of the students, so students can concentrate. Through the use of demonstration experiments, teaching videos, slides and computer-aided teaching system teaching a variety of modern teaching methods, to provide students with a lively image of the information, mobilize the students' perception, hearing and other organs, through language, music and images, three-dimensional access to knowledge. The visualization of the teaching methods to the active screen, magnificent colors, wonderful sound together in the person's organs, so that students of high concentration of attention, the natural effect of classroom teaching will be better.

Encourage students to participate in practical activities. Practice has a very close relationship with creativity. Practice richer, broader thinking, the more prone to create sparks. Therefore, students should be encouraged to actively participate in and organize practical activities, and use their learned knowledge. In practice, students can also be exposed to new things, get new knowledge that cannot obtain from the books, which to improve themselves, to enrich themselves, develop their own creativity. For example, organize students to participate in mathematical modeling competition. Mathematical modeling is often the subject of the game for some practical problems, by participating in the game, one can test students for mastery of the knowledge, on the other hand can bring out a student's creative ability and problem-solving abilities.

Improve the quality of teachers. Teachers need to have a high-level mathematical training, and think about the reason of each problemand method, while also considering how to make students understand the methods and problems. This makes a very high demand for teachers, that is, university teachers have more time to think about things other than books. Only by strengthening the development innovative thinking of university teachers,can that better enable teachers to guide students to think creatively and solve problems, and to foster and develop students' creativity. Teachers canuse various means to improve their quality such as engaging in advanced studies.

In short, the above is just some personal opinion. It is essential to develop students' create ability in the education of university mathematics. The cultivation of students'create ability is a very complicated system. Teachers should teach the students based on their own characteristics and advantages, individualized.

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