

# Brief Probe into Bilingual Teaching in Colleges and Universities<sup>\*</sup>

----Taking Qinghai Nationalities University as an example

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**Abstract** - Through the research on implementation of bilingual teaching in some universities in China, especially the study of the practice of bilingual teaching in Mathematics with English and Chinese in Qinghai University for Nationalities in recent years, this thesis carry on the comprehensive analysis through qualitative and quantitative methods, discussing the necessity of bilingual teaching, analyzing the existing problems in the performance of English and Chinese bilingual teaching, and then puts forward corresponding measures to solve these problems.

Index Terms -mathematics teaching, bilingual teaching, Chinese and English

Since twenty-first Century, taking the foreign language and computer as the features of training talents in the new century, a new round of teaching, curriculum reform is in the ascendants. More and more universities are experiment on English-Chinese bilingual teaching. The Ministry of education in 2001 #4 document "*several comments on strengthening undergraduate education and improve the teaching quality*", it put foreword that foreign language teaching courses should occupy 5%-10% in the curriculum in three years". Bilingual teaching is a two language teaching mode, using a foreign language (mainly English) to teach non-English courses, and taking the native language as an auxiliary language, to make sure that the students could understand the teaching concept accurately. Though it requires a correct and fluent English knowledge, Chinese can not be absolutely excluded in the process. Teachers should give necessary hints and explanation visually to help the students reduce the understanding difficulty aroused from the language barrier. Bilingual teaching is also one of the important contents in the implementation of quality education in china.

## I. Some viewer points for bilingual teaching

Bilingual teaching is a education form which use the second language in teaching, which means to get the students to master a second language through the learning of certain subjects with two language as the medium of instruction. Therefore, bilingual teaching is not a simple addition with first language and second language, but the integrated education through listening, speaking, reading and writing to improve the students' application ability of the second language, thus thinking and solving problems with the second language. So bilingual teaching in itself is to enhance the students' language

competence through teaching language ([1]-[3]).

### A. The definition of Bilingual teaching of mathematics

Bilingual teaching of mathematics in English and Chinese is a new teaching mode which takes the teaching of mathematical knowledge as the carrier, creating a English environment in mathematics knowledge learning for students, so that students could proceed mathematical exchanges in English, and thereby, could carry on mathematical thinking in English gradually. In this process, the students' English language ability can be improved invisibly. Therefore, the bilingual teaching is a win-win way of teaching ([4], [5]).

### B. Mode of Bilingual teaching of mathematics

First one is the penetration mode: teachers in math class can tell important concepts, theorems and key words in English, and explain, communicate the teaching contents with native language. The second is the integration mode (also known as transitional bilingual teaching mode). In this teaching mode, in order not to affect he subject knowledge, the teachers can used English and Chinese alternately in the class. Appropriately explaining in native language is good for the students who are weak in English to adjust to bilingual teaching, by offering a psychological buffer period.

## II. The meaning of bilingual teaching in the teaching of mathematics

At present, most of the mathematical journals, books are English version. All kinds of advanced mathematics international academic conferences and academic exchanges are mainly English, too. Students use a bilingual learning in mathematics can not only master professional knowledge more firmly in learning English under the guidance of strong interest, but also can read books in the foreign language to get the latest developments of mathematics. Bilingual teaching will cultivate a solid foundation of professional knowledge and ability, as well as improve the students' ability of English speaking. Only such person can better meets the needs of modern society, can go ahead of academic exchanges, research and innovation smoothly with the outside world.

Bilingual teaching is an important choice of the Chinese modernization higher education. It is a brand new career to cultivate outstanding talents to get the international

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communication ability of innovation in the younger generation. It is the bilingual teaching that can provide students with rich educational information environment. Thus development of the consciousness and habit of using English is helpful to improve the efficiency of English learning. Bilingual teaching is beneficial to the realization of combining leaning and practice. To help students to understand the content of teaching, to develop students' innovation ability, are all helpful in internationalization and modernization of China's higher education. Students taking bilingual mathematics curriculum would master mathematics knowledge more firmly by the guidance of the interest of learning English. Reading foreign books, could help to learn the latest developments of mathematics. Only have both professional skills and good command of English, can you proceed academic exchanges. At this level, bilingual teaching lays a good foundation for students' further studies ([1]-[5]).

### III. Current situation of Bilingual Teaching of mathematical in China and Qinghai University for Nationalities

Since the Ministry of education put foreword the implementation of bilingual teaching in university education, most of the universities in China have experimented on bilingual teaching. Applying the ideas and methods of bilingual teaching to the subject teaching where the condition is relatively mature, we have achieved remarkable results. or example: Physics and mathematics at Shanghai Jiao Tong University; finance, financial management, MBA in Southwestern University of Finance and Economics ; satellite ocean in the Ocean University of China ; Sichuan University clinical medicine, finance, medical and other 49 professional; western economics major at Nankai University; Fudan University biotechnology, information technology, financial, law and other profession; law, pharmacology, Physics Department of Shandong University; life science, information science, economics, management science and other majors of Zhejiang University.

In Qinghai provincial universities, Qinghai University has opened the bilingual teaching class of medical immunology discipline in 2007. Approved by the Ministry of education, Ministry of Finance, Qinghai University established management the bilingual teaching of English and Chinese In 2009; Qinghai University for Nationalities opened the subject bilingual teaching in mathematics, and carried on the research of the implementation of bilingual teaching.

College of mathematics and statistics of National University of Qinghai is now having a total of three Bilingual teaching classes. These courses adopt the original English teaching materials, and whole English Teaching. Specifically: through the mode of students in the same grade signing up of there own free will, and the teachers appropriate controlling mode, select students doing well in both English and Mathematics to the English class, while other students go to Chinese class. The two classes' teaching time is cross, so the students can take both of them.

#### A. Specific measures

##### 1) Teaching object selection

Select the second or higher grade university students as bilingual teaching object. On account of the characteristics of mathematics itself, only after the study of *three basic courses*, getting to certain level in mathematics, and also only after having certain mathematical abilities, can students adapt to bilingual courses. Of course, there is also based on the consideration of language ability: the sophomore students have learned university English in the first year and possessed basic English abilities which helped to eliminate language barriers, and could better adapt to the new environment of bilingual teaching. For the first grade students, the "three" basic courses are too difficult. Therefore, the author considers it not appropriate to open bilingual class for them.

##### 2) Course selection

In the selection of bilingual teaching curriculum, we choose subjects that mathematical reasoning is relatively less in the subsequent course after the basic classes, especially the classes that have some contents expressed in English. As for the contents, the main consideration is whether it is fit for students' self-study. According to the above selection criteria, we chose the *ordinary differential equations*, *complex function* and *mathematical logic* as the mathematical bilingual teaching subjects.

##### 3) Teaching material selection

Adopt the English version teaching materials with brief content which is at the similar level with the current commonly used Chinese textbooks.

##### 4) Arrangements of bilingual teaching classes

Bilingual teaching classes and Chinese teaching courses are arranged in cross time, so that students can take a secondary learning in the Chinese teaching class if they have anything do not understand in the bilingual class. This teaching mode could makes up what the students leave out in the bilingual teaching class as well as could improve the quality of teaching. At the same time, in terms of those who are interesting in bilingual teaching, such arrangement provides a freedom choice.

##### 5) Principle of bilingual teaching in mathematics

One principle is teaching step-by-step. In the beginning of the course, the teacher should use less English in description and explanation. Emphasis should be put on the students' familiar with more specialized vocabulary, terminology and the frequently used expressions. This process would last for about four weeks. In the middle of the course, the teachers can explain most of the contents in English (more than 70%). More than 95% of the contents will be taught in English in the later stage. Another principle is to keep the students' initiative. Pay attention not to double pressure the students psychologically and physically. The teacher should teach from the shallower to the deeper, starting from some simple contents, in order to enhance students' learning enthusiasm and confidence.

### *B. The students' attitudes towards bilingual teaching (according to the questionnaire survey)*

In order to understand the students' response to bilingual teaching and to get appropriate advice and suggestions, the research group members conducted a questionnaire survey among the students who take bilingual classes of *ordinary differential equations* and *mathematical logic*. The results are as follows:

(1) 12.63% of the students think that bilingual teaching is very necessary, 44.12% think that bilingual teaching is necessary, 35.79% of the students think it rarely necessary. And the other 7.37% think it is not necessary to open bilingual classes.

(2) As for teaching in English, it shows that 13.13% of the students can understand 80 - 100% of the teaching content; 52.52% can understand 50% - 70%; 28.28% of the students can understand 20% - 40%, and 6.07% of the students cannot understand anything.

(3) As for the bilingual teaching materials, 3.13% of the students think it is very acceptable, 34.38% think it is acceptable, 45.83% of the students basically accept, and 16.67% of the students think it is not acceptable. .

(4) The influence of bilingual teaching in improving the learning interest. 10.31% of the students believe that it is very helpful, 35.05% of the students believe bilingual teaching can help, 41.24% think it helped a little, and another 13.4% hold the views that it do no help in improving the learning interest.

(6) As for the best grade to start bilingual Teaching: 38.54% agree with the first grade in university, 48.96% think the second grade is the best, 9.38% of the students think it is the best to start bilingual Teaching in the third grade, 3.12% it is appropriate to start bilingual Teaching in the last year of the university,

(7) As for the number of bilingual teaching subjects in each semester, 47.87% of the students think that one subject is enough; 44.68% of the students think is two, 5.31% of the students think is three, 2.13% of the students think four subjects is better .

(8) As for whether English teaching can improve their confidence, 7.07% of the students believe it is helpful, 32.32% of the students think it can help, 40.4% of the students think it helped a little, and the other 20.2% think it no help in improving self-confidence.

(9) As for the teaching methods, 45.26% of the students think it should be a whole English class, 28.42% of the students think that the teachers should write in English but speak Chinese in the class, 26.32% hold the opinion that the teachers should write in Chinese and speak English.

(10) All the students think that bilingual teaching enriched their vocabulary and oral ability. At the same time bilingual reaching stimulates their interest in learning professional knowledge and improves their self-learning ability.

### *C. The result of bilingual teaching*

From the implementation of bilingual teaching in mathematics in recent years, we can get the conclusion that the

overall effect is good, and the students interact and answer the questions more fluently in English. According to the students' feedback, through bilingual teaching they learned not only professional knowledge, but also learned mathematical vocabulary, which widened the visual field and lay a good foundation for their future study.

### *D. Existing problems*

he English speaking ability, especially the performance of English pronunciation and English competence effect the teaching and learning result. Sometimes it leads to the students' misunderstanding on the teaching contents. (2) Some of the students' English listening and speaking is not good enough, which will affect the learning effect. (3) The selection of teaching materials subjected to various conditions. The original English teaching materials system is usually deferent from the commonly used Chinese version, which brought difficulties to both students' learning and the teachers' teaching.

### *E. Improvement measures*

Keep proper number of the students' in bilingual class or teach in small class (maximum 30 students per class). (2) Strengthen the training of young teachers in bilingual teaching, and gradually expand the coverage of the bilingual teaching so that benefit more students.

### *F. Suggestions*

(1) Improve the bilingual teaching ability of the teachers who are involved in the bilingual teaching. As a bilingual teacher, they should have excellent professional knowledge and English skills. Only in this way, can they master the class skillfully explain and express in English, attract the students' attention, and stimulate students' learning interest and enthusiasm. Nevertheless, in terms of students, they should pay attention what the teacher said, and try to improve themselves in language and professional abilities.

(2) Innovation of teaching methods. It should be student-centered in order to achieve individualized teaching. Use modern teaching medium such as multi-media to meet the requirements of modern teaching, making the teaching more vivid, improving teaching effect.

(3) Reform the current examination system. The original examination system, value of test results and scores, should turn to the evaluation of the process in the students' learning.

## **IV. Conclusions**

Bilingual teaching is not only an inevitable trend of modern educational reformation and development, but also the request of modern concept of talent. The implementation of bilingual teaching in mathematics is the objective requirement of the development of mathematics education and mathematical talents training. It is also an important medium for Chinese mathematical talents to be geared to the international standards mathematical talents with international standards. The implementation of bilingual mathematics teaching can not only cultivate students' logical thinking ability in mathematics, but also shape the mathematical thinking

structure of the students. At the same time, it strengthens the students' ability in English learning and thereby cultivates the ability of international academic discussion and communication in English. Therefore we should firmly promote and popularize bilingual teaching, to foster compound talents that meet the needs of modern society.

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