Research of Advanced Mathematics in English Teaching for International Students in China Based on “One Belt and One Road"

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Abstract. In order to respond to “One Belt and One Road” strategic alliance of universities and promote the international cooperation platform of higher education. Taking Xi’an Petroleum University as an example, the paper analyzes the current situation of advanced mathematics teaching, and discusses the teaching mode and method of advanced mathematics course for international students. Student-centered teaching model according to their aptitude and a diversity assessment method based on big data and Internet Q&A were proposed, which can be used as reference for future teaching and other basic courses for international students in China, and to improve the teaching quality of advanced mathematics courses in “One Belt and One Road”.

Introduction

“One Belt and One Road” refers to the abbreviation of “Silk Road Economic Belt” and “21st Century Maritime Silk Road”, abbreviated as “OBAOR”. It is a global strategy that attracts attention from all over the world. China's cooperation with higher education in the "OBAOR" countries is based on economic interoperability. In the direction of communication, we attach importance to "bringing in" rather than "going out", especially in National exchanges and cooperation in higher education. In order to respond to the strategic alliance of universities, promote the international cooperation platform for higher education, and stimulate inter-school exchanges among universities and regions along the “New Silk Road Economic Belt”. Xi'an Petroleum University has continuously expanded the enrollment of international students in China. After several years of hard work, the school was approved by the Ministry of Education to “study a base for studying in China” to build a university in 2014, the first in Shaanxi Province and the first in China's petroleum and petrochemical colleges. Since 2008, the number of international students country has reached 52, including Chile, Venezuela, Tanzania, Nigeria, Angola, Gabon, Cameroon, , Dominica, Uganda, Zimbabwe, Kenya, Mozambique, Ghana, South Sudan, Sierra Leone and other countries along the "OBAOR". We will seize the good opportunities of "OBAOR" construction, cultivate global scientific and technological talents, and enhance the international academic and cultural influence of our school, in order to meet the development goals of the school's "comprehensive, research-oriented, and globalized".

Orientation, Training Objectives, Current Situation and Difficulties of Advanced Mathematics Teaching for International Students in China

Orientation of Advanced Mathematics for International Students in China

The "Advanced Mathematics I" taught in the school is mainly for students who are studying in petroleum engineering and geology. After years of hard work, the scale of students is expanding and the number of students is increasing year by year. Through strategic analysis and demand analysis, we will give full play to the three major advantages of discipline, culture and location, and establish the development orientation of the education for international students in our school, which focus on oil
and gas engineering majors and the development orientation of “facing Asia, developing Africa and expanding the Middle East”.

**Training Goal**

International students in China should have the necessary mathematics knowledge and ideas, can solve some practical application problems, improve students' comprehensive ability, improve students' personality, and have certain mathematical qualities through the study of this course. Meanwhile, international students will master certain mathematical ideas and logic methods after studying of advanced mathematics courses, and have the ability to use mathematical modeling to solve practical problems.

**Current Situation and Difficulties of Advanced Mathematics Teaching**

During the teaching, the author found that students from Sudan, Ghana, Yemen, Cameroon and some other countries would know factor the decomposition, while some students in Pakistan didn’t know that, then they will ask the process. Coupled with the abstract definitions of limit and continuous in advanced mathematics, it is difficult for international students with weak mathematical foundations to master. The author also found that some students are more casual, late for the class, or even absent, loud speaking, free walking and other phenomena are more serious, and teachers need to spend some energy to maintain class order. Some international students’ desire to learn actively and complete their homework is not strong. However, the normal class atmosphere of international students is better, students are confident, and they think positively about some interesting questions. In addition, they always ask the questions and interrupt the normal process at any time, which cannot meet the high requirements for the teaching progress.

**Diversity Assessment Methods for International Students in China**

It isn’t scientific for the traditional assessment methods, which are mainly based on attendance or homework performance. Since some students attend the class but do not listen to the teacher, copy homework; while other students who are doing their homework seriously, but scribbled handwriting, grades of former is higher than latter. Students' enthusiasm for learning will be affected in such assessment methods. Therefore, diversity assessment method must be adopted.

**Usual Grades**

The usual grades, which take 20%, including four parts, attendance, homework, class performance, and the degree of innovation in solving the problem, the students who can actively answer questions or ask questions have higher grades. Such assessment is more authenticity and objectivity, which taking the ability and learning attitude as an important basis, and can also stimulate students to work harder.

**Test Scores and Finals**

There will be five tests in every semester according to the progress of the contents, which is 50%, and final exam takes 30%. After several years of teaching practice, it is proved to be effective for international students to master the content of each part. Meanwhile, significant increase in attendance, the number of students who are late, leave early, not disciplined in the class and the class order has improved in some extent.

| time          | Number of exams | Number of failing (< 60) | Number of excellent (≥ 90) | The average score | Standard deviation |
|---------------|-----------------|--------------------------|-----------------------------|-------------------|-------------------|
| No reform     | 94              | 10                       | 8                           | 64.36             | 18.21             |
| After reform  | 98              | 4                        | 14                          | 73.47             | 13.38             |
Teaching Reform and Strategy

Improve Teachers' English Teaching Level

The original English textbook, which be written by Howard Anton, Irl Bivens, Stephen Davis, and English teaching method was selected for international students because of their language and cultural differences. Generally speaking, most of students from African countries whose official language is English, even if the students whose English is not a native language have a certain level of English before entering the school. Therefore, as a teacher, you should be familiar with the pronunciation and expression habits of international students, familiar with terminology and common expressions. In addition, the teachers should also continue to enrich themselves, improve their professional knowledge, English expression ability and comprehensive quality, and learn from teaching concepts and methods of other countries. This is a good guarantee for teachers and international students to maintain good and effective communication in and out of the classroom, and then to improve the quality of international students' teaching.

Q&A Counseling after School

Due to the limited time of classroom teaching, the use of multimedia for advanced mathematics has become a common method, but some students have difficulty in keeping up with the teacher's rhythm because of weak mathematics. Wechat Group and QQ Group play an important role in the teaching of international students; Teachers can help students solve problems with the help of these two kinds of Internet products after class.

Flexible Teaching Methods

The educator Comenius believes that teaching should consider the level of knowledge and individual differences of students. In view of the uneven mathematical foundation of international students, flexible teaching methods was adopted in the process of teaching according to the characteristics of students, such as: applying the task-driven method to the introduction of basic concepts, which emphasizes introducing practical problems or tasks into the learning activities of students, and exploring problems to guide and Maintain students' interest and motivation in learning, which can make students become passive learning for active learning; applying the geometric intuitive method to the understanding and promotion of the theorem, which can be seen by image relationship of the geometric image that is thought of produces a quantitative relationship and leads the students to discover the regularity behind the phenomenon; applying the attempted teaching method to the example explanation, which advocates that under the guidance of teachers, students "first practice, teachers talk then, from simply imparting knowledge to cultivating ability while imparting knowledge".

Summary

Some experiences and achievements have been gained on advanced mathematics after a series of explorations and reform, but it is still in the stage of exploration. The teaching of advanced mathematics for international students in China is a systematic project, how to improve the teaching level, follow the rules of education and teaching, take into account the religious culture and psychological characteristics of international students in China, and better serve the construction of "OBAOR", Only in this way can we ensure the healthy and steady development of the education of international students in colleges and universities.

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