Journal of Social Sciences and Humanities
Vol. 7, No. 1, 2021, pp. 76-80
http://www.aiscience.org/journal/jssh
ISSN: 2381-7763 (Print); ISSN: 2381-7771 (Online)

Research on the Teaching Method Liked by Chinese College Students in Majoring in Mathematics

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Abstract

Reasonable teaching methods can fully mobilize students' enthusiasm for learning and improve students' learning effects, finally to promote students' learning and development. At the higher education stage, students already have a certain degree of self-cognition. Students' needs and preference for teaching methods can reflect students' needs for learning. To know teaching methods liked by Chinese college students majoring in mathematics and make certain suggestions for university teachers, this study intends to use the method of interview survey to conduct investigation to obtain direct relevant information. After referring to some related literature, I have a certain understanding of the concept and classification of teaching methods and compiled the corresponding interview outline. This study took Chinese college students majoring in mathematics as the overall population, selected 16 representative students majoring in mathematics at Shandong Normal University as samples, and conducted face-to-face interviews. On this basis, I sorted and analyze this interview result. Through quantitative analysis, it is concluded that the teaching methods liked by Chinese college students majoring in mathematics are the interactive teaching method and the teaching method of lecturing by both students and teachers. The reason is that these two teaching methods can better promote students to understand and grasp knowledge. Therefore, it is recommended that Chinese college teachers majoring in mathematics appropriately use the interactive teaching method and the teaching method of lecturing by both students and teachers according to the teaching arrangements and teaching content and pay more attention to promote students to understand and master knowledge.

Keywords

Mathematics Majors, College Students, Teaching Methods, Reasons

Received: December 20, 2020 / Accepted: January 7, 2021 / Published online: January 22, 2021

1. Introduction

In 2018, the Chinese education department issued relevant documents for higher education and proposed to promote the teaching revolution and request teachers should center on students' needs of development and choose teaching methods in the classroom according to the course conditions [1-2]. The teaching method is the way that teachers teach knowledge, and university classrooms are also an important place for teachers to train students [3]. However, at present, many college teachers have a single teaching method, and the interaction effect is not good. It is not uncommon for students to learn passively or even ineffectively in some universities [4]. Therefore, the reform of teaching methods is of great significance to the current teaching effects. Through the method of interview survey, we can intuitively understand which teaching method liked by Chinese college students majoring in mathematics and know the reason for liking this teaching method from the students' perspective, which can reflect the needs of students for mathematics learning. This

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can not only fully reflect that education focuses on student development but can also provide a reference for Chinese college teachers majoring in mathematics to use proper teaching methods to improve the learning effect of students. This has a certain positive significance for improving the training of talents in mathematics.

The question studied in this paper is that which teaching method is liked by Chinese college students majoring in mathematics?

Specifically, the research questions include two sides: Firstly, which teaching method is liked by Chinese college students majoring in mathematics? Secondly, what is the reason?

2. Theoretical Basis

2.1. Teaching Methods

At present, the definition of the teaching method in the education field is not clear, and different scholars have different opinions on it [5]. Some scholars believe that there are broad and narrow definitions of the teaching methods. The narrow definition of the teaching method is only the teaching process in the classroom. The broad definition of the teaching methods includes not only the teaching process in the classroom but also the formulation of teaching plans and graduation design [6]. Some scholars also believe that teaching methods are used to complete teaching tasks, which include the methods taught by teachers and the methods learned by students [7]. In the book *Dictionary of Education* wrote by Gu, the teaching method is defined as the activity details of the teaching method [8]. The book *Basics of Modern Pedagogy* puts forward that the teaching method refers to the activities method that teachers to teach and students to learn in the teaching situation [9]. I choose the statement in the book *Basics of Modern Pedagogy* and define it as the meaning of the teaching method in this study.

According to the above definition of teaching methods and consulting related literature materials. We found that the teaching methods include heuristic teaching method, lecturing teaching method, inquiry teaching method, interactive teaching method, group discussion method, combined teaching and practice method, the method of multimedia assisted teaching, flipped classroom, MOOC, etc. [10-14].

2.2. Ideas for Interview Design

Interview investigation is a common social science research method. Through interviews and investigations, we can intuitively obtain more in-depth information [15]. Therefore, this paper chooses the interview survey method as the research method of this research. The content of this interview contains two questions, one is to understand the classroom teaching method that mathematics major students like, and the other is to understand why students like this teaching method.

3. Methods

3.1. Samples

This survey is based on Chinese college students majoring in mathematics, we selected 16 representative college students from Shandong Normal University as the sample for this interview, and all 16 students majored in mathematics.

3.2. Instrument

This survey uses the interview survey method. I conducted face-to-face individual interviews with 16 students. This interview mainly involves two questions that which teaching method is liked by Chinese college students majoring in mathematics and the reasons why they like it. Through this interview and investigation, we can directly understand the teaching methods liked by Chinese college students majoring in mathematics and the reasons, to provide references for college teachers majoring in mathematics and ultimately aim to promote the learning effects of students.

3.3. Data Processing

A total of 16 students were interviewed in this interview. The content and information of the interviews are true and reliable, and these interviews are all valid. And then, I sorted the 16 interview records and analyzed those data. First of all, I made preliminary statistics and sorted out the two aspects of the teaching method liked by Chinese 16 college students majoring in mathematics and the reasons why they like it. Then, I classified and integrated the related teaching methods and the reasons, and calculated the percentage of each aspect to the total frequency. After categorizing and integrating those data, we can intuitively judge which teaching method liked by Chinese college students majoring in mathematics and why they like this teaching method through those data.

4. Results

A total of 16 students were interviewed in this study. The content and information of this interview were true and reliable and all interviews are valid interviews. By referring the definition of the teaching method and combining the interview results, we now conduct a detailed statistical analysis of the survey results.

4.1. Teaching Method Liked by Students Majoring in Mathematics

According to the types of teaching methods and the related definitions, we classify the teaching methods in the interview

results. According to the preliminary definition in this paper, 16 students mentioned a total of 10 favorite teaching methods, namely interactive teaching method, group discussion, the teaching method of lecturing by both students and teachers, the teaching method of teacher lecture, heuristic teaching method, the teaching method of questions and answers, the teaching method of "flexible using of multimedia", the teaching method of ''multimedia types are richer", inquiring teaching method, the teaching method of combine lecture and practice.

For these 10 teaching methods, we can further organize and summarize them. Among them, the teaching method of lecturing by both students and teachers and the teaching method of teacher lecture can be classified as lecturing teaching method; the teaching method of the"flexible using of multimedia" and the teaching method of "multimedia types are richer" classified as the teaching method of ''multimedia teaching is more flexible and diverse''. Therefore, after categorizing the 10 teaching methods, we can classify them into 8 teaching methods. These 8 teaching methods are interactive teaching method, lecturing teaching method, group discussion, heuristic teaching method, the teaching method of questions and answers, the teaching method of "multimedia teaching are more flexible and diverse, inquiring teaching method, the teaching method of combine lecture and practice. Then we calculated the percentage of the frequency of these eight teaching methods to the total frequency. By calculating the percentage, it is possible to directly analyze which teaching method is favorite for students.

After sorting and categorizing, we found that the interactive method accounted for 23.53%; the group discussion method accounted for 14.71%; the lecturing method accounted for 23.53%, but the lecturing method also contained two points that the teaching method of lecturing by both students and teacher (14.71%) and the method of teacher lecture (8.82%); heuristics method accounted for 8.82%; inquiring method accounted for 8.82%; the teaching method of "multimedia teaching is more flexible and diverse" accounted for 11.77%, which contains two views that are "flexible using of multimedia "(2.94%) and "multimedia types are richer" (8.83%); the proportion of inquiry method is 5.88%; the proportion of the method of combined lectures and exercises is 2.94%. The detailed statistical results are as follows:

Table 1. Statistics of the Teaching Methods Liked by Students Majoring in Mathematics.

Teaching Method	A	B	C	D	E	F	G	H
Percentage	23.53	14.71	23.53	8.82	8.82	11.77	5.88	2.94

Note 1: A represents interactive teaching method; B represents group discussion; C represents lecture teaching method; D represents heuristic teaching method; E represents the teaching method of question and answer; F represents the teaching method of "multimedia teaching is more flexible and diverse"; G represents r inquiry teaching method; H represents the teaching method of combine lecture and practice.

According to the statistical data in Table 1 above, we can find that the interactive teaching method and the lecture teaching method both accounted for 23.53%, and they are the highest percentage of the eight teaching methods. This shows that the interactive teaching method and the lecture teaching methods are currently the most popular teaching methods in the classroom with Chinese college students majoring in mathematics. It should be noted that, about the lecture teaching method, the teaching method of teacher lectures accounted for 8.82%, and the teaching method of lecturing by both students and teachers accounted for 14.71%. This shows that students prefer the teaching method of lecturing by both students and teachers.

4.2. The Reasons

After understanding the teaching method liked by Chinese college students majoring in mathematics, we will interview the reasons why students like this teaching method. After sorting out the interview results, we found that the reasons can be roughly divided into six categories. Those reasons contain that this teaching method can promote the understanding of knowledge and better master knowledge; it can cultivate one's problem-solving ability; it can improve one's learning ability; it can improve one's ability to analyze problems; it can improve one's skills; It can broaden one's vision.

For the above six types of reasons, we can further classify them. The three reasons that the teaching method can cultivate one's ability to solve problems, and improve one's learning ability and one's ability to analyze problems, which can be summed up that this teaching method can improve one's ability. After generalization and integration, we can divide the reasons into four categories, including that this teaching method can promote knowledge understanding and better master knowledge; it can improve one's ability; it can improve one's skills; it can open up one's vision and thinking. Finally, we calculate the frequency percentage of each reason, so that we can use the data to intuitively analyze the most important reason why students like a certain teaching method.

Through statistics and calculations, we found that the reasons that the favorite teaching method can promote them to understand knowledge accounted for 40.74%, the reasons that the favorite teaching method can improve their ability accounted for 37.03%. The reason that the favorite teaching method can improve their skills accounted for 7.41%; the reason that the favorite teaching method can expand their

thinking and vision accounted for 14.82%. The detailed statistical results are shown in Table 2:

Table 2. Statistics on the Reasons.

Reason	K	L	M	N
Percentage	40.74	37.03	7.41	14.82

Note 2: K means that this teaching method can promote the understanding of knowledge and better master knowledge; L means that this teaching method can improve one's ability; M: means that this teaching method can improve one's skills; N means that this teaching method can broaden their horizons and thinking.

According to Table 2, we can see that reasons that the teaching method can promote the understanding of knowledge and better master knowledge accounted for 40.74%. It is the highest proportion of the four types of reasons, which shows that most students expect teachers to use their favorite teaching methods to promote their understanding of knowledge and better master knowledge. Besides, in Table 2, the reason that a certain teaching method can improve ability accounted for 37.03%, which shows that students also expect to improve their abilities.

5. Discussion

According to the above statistics, it is found that the percentages of interactive and lecture teaching methods are the highest among the eight teaching methods, which shows that these two teaching methods are currently the most popular in the classroom. It should be noted that, about the lecture teaching method, the teaching method of "teacher lecture" accounted for 8.82% and the teaching method of "teacher lecture and students lecture" accounted for 14.71%, which shows that students prefer the teaching method of "students and teachers lecture". In the previous research conducted by scholars Chen L and Chen C. D, both students and teachers believe that more interactive teaching methods should be adopted by teachers in the classroom, which will make classroom teaching more effective and students have good learning effects [10]. This shows that the results of this study are consistent with previous studies.

Regarding the reasons why they like it, the percentage of reasons that the teaching method can better master knowledge is the highest. This shows that most students expect teachers to adopt certain teaching methods to promote their understanding of knowledge and to better master knowledge.

6. Conclusion

Through interview surveys and data analysis, we have concluded that most Chinese college students majoring in mathematics like the two teaching methods, which are the interactive teaching method and the teaching method of lecturing by both students and teachers. The reason is that those teaching methods can promote them to understand and master knowledge. Therefore, we can conclude that the teaching method liked by Chinese college students majoring in mathematics are interactive teaching methods and the teaching method of lecturing by both students and teachers. The reason is that these two teaching methods can help students to understand and master the knowledge.

Based on the above conclusions, some suggestions are made to Chinese college teachers majoring in mathematics. It is recommended that Chinese college teachers majoring in mathematics can appropriately adopt the interactive teaching method and the teaching method of lecturing by both students and teachers according to the teaching arrangements and teaching content and to pay more attention to promote students to understand and master knowledge.

Acknowledgements

This research was financially supported by the Shandong provincial education department (Grant NO. SDYY17127) and the Shandong normal university (Grant NO. 2016JG29).

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