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Exploration and Practice of Probability Theory Teaching Reform in Colleges and Universities

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Abstract: *The subject of probability theory is widely established in colleges and universities. Probability theory is a very important subject, whether it is the usual final examination or many students' postgraduate entrance examination. This has certain requirements for the teaching of probability theory, but there are many problems in the teaching of probability theory in many colleges and universities, such as backward teaching methods and low requirements for students, which have greatly affected students' learning, and require college teachers to reform the teaching of probability theory. This paper will make some suggestions on how to reform the teaching of probability theory in colleges and universities.*

Keywords: *Colleges and Universities, Teaching Reform of Probability Theory, Exploration and Practice*

1. Introduction

Probability theory plays an obvious role in colleges and universities. At the same time, probability theory is also a discipline closely related to daily life. Probability theory is a compulsory subject for many professional students. In addition, learning probability theory can make students have a deeper understanding of things in life. Probability theory also has certain difficulties in learning, so teachers need to reform the teaching method of probability theory to improve students' learning efficiency.

2. Problems in the teaching of probability theory in colleges and universities

2.1. The innovation of teaching methods is insufficient, and the attraction to students is not enough

The lack of innovation in teaching methods is a common problem in many professional teaching, and the teaching of probability theory is no exception. At present, teachers in many colleges and universities use relatively simple teaching methods in teaching. Teachers play a major role in class. Most of the time in a class, teachers are explaining new knowledge, there is less interaction between teachers and students, less opportunities for students to perform in class, and students have a poor sense of experience in class, resulting in students being in a passive state in class. College students are relatively free. If the class is not attractive enough to students, it is difficult for students to concentrate on listening to the teacher during class.[1] The lack of innovation in teaching methods makes the classroom atmosphere poor, and students have a low sense of participation in the classroom, which leads to poor learning results in the subject of probability theory. The single teaching method has brought serious negative effects to the teaching of probability theory.

2.2. Loose management of students

In colleges and universities, students can use electronic products in the school. Electronic products such as mobile phones attract students greatly, and short videos such as Tiktok attract students greatly. Therefore, many students can't help using mobile phones during class hours. When college students study, if the use of their mobile phones is not regulated, only relying on the degree of consciousness of students can not make them put down their mobile phones and listen carefully during class. Most colleges and universities have set up places for storing mobile phones in their classrooms, but their use efficiency is not high. Many teachers do not require students to store mobile phones uniformly before class. Some students "confuse the fake with the real", and store mobile phones in fixed places instead of spare phones or mobile phone shells. Even if teachers find these situations of students, they do not deal with them further, which greatly affects the performance of students in the classroom.

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3. The significance of reforming the teaching method of probability theory in colleges and universities

3.1. Improving the success rate of students' postgraduate entrance examination

Probability theory is a compulsory subject in the postgraduate entrance examination. For example, many majors such as mathematics, finance, science and engineering must also study probability theory when studying. With the further development of the times, Chinese college students encounter many difficulties in finding jobs after graduation. Many college students choose to take the postgraduate entrance examination to improve their academic qualifications in order to improve their competitiveness in finding jobs in the future. As a compulsory course for many professional students to take the postgraduate entrance examination, probability theory needs to be taken seriously by students in their usual study in order to improve the success rate of the postgraduate entrance examination. If students can master most of the knowledge completely when studying probability theory at ordinary times, they can save a lot of tuition fees and reduce the burden of postgraduate entrance examination in the future. Students' normal learning is also inseparable from teachers' guidance. Teachers' reform of the teaching method of probability theory can improve students' learning quality, and improve the success rate of students' postgraduate entrance examination in the future.

3.2. Enabling students to apply the idea of probability theory to life

Many knowledge of probability theory itself has certain connections with life. For example, probability problems in probability theory, throwing a coin, and positive and negative probability are common problems in life. Many people will flip a coin when they can't make a choice. In life, probability is almost everywhere, and many things that depend on luck can finally be explained by probability. Among people of all ages in China, many will buy lottery tickets at ordinary times. Most people think that winning the lottery is a matter of good or bad luck. There are also many people who buy regularly in the hope of getting rich overnight. In fact, through probability calculation, the probability of winning the lottery is extremely low. After studying probability theory, students can understand this truth, and then complete your work in a down-to-earth manner, giving up the idea of taking shortcuts.

4. Specific methods of reforming the teaching of probability theory in colleges and universities

4.1. Innovating teaching mode and add entertainment factors to the classroom

By innovating the teaching mode, improving the traditional teacher centered teaching mode, and adding entertainment factors to the classroom appropriately, we can increase the opportunities for students to show themselves in the classroom, which can improve the atmosphere of the classroom, and improve the teaching effect of teachers. The student attendance rate of some teachers' courses is 100%, while the student attendance rate of some teachers' courses is low. [2]The student attendance rate has a great relationship with the classroom effect of teachers. In order to catch up with the progress, many teachers dry explain the content on PPT in class. The classroom atmosphere is very boring, and the students 'participation in class is poor, resulting in the students' classroom learning effect can not reach the expected effect. This requires teachers to appropriately add entertainment elements in the classroom. Teachers can use exaggerated language to lecture in class to drive the classroom atmosphere and attract students' attention. In addition, teachers can also teach in the way of solitaire to answer questions in class, and they can also randomly select students to answer questions on the big screen. Such a way can bring a certain sense of stimulation to the classroom, and can urge students to follow the teacher's thinking seriously. For example, when learning "frequency and probability", teachers can assume some specific events in the class, so that students can have a deeper understanding of the relevant knowledge of concepts. Teachers randomly select some students to the podium, close their eyes and randomly give the chalk in their hands to the students, etc. such a simple interaction can make the classroom atmosphere happy, and students can better carry out the next study.

4.2. Providing students with timely after-school answers

When arranging teaching tasks in most colleges and universities, each subject is nervous in the arrangement of class hours. Probability theory has a maximum of three class hours a week in all majors, and even only one class hour is less. Teachers have to spend too much time in explaining new knowledge

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in class, and it is easy to ignore students' learning. There are many students' problems that do not have too much time to solve in class. Most of the problems students encounter in the process of learning need to be solved after class, which requires teachers to do a good job in students' question answering after class. Teachers can take a variety of channels to answer questions, such as wechat, QQ, telephone, etc. are good communication channels. When the teacher is inconvenient, students can leave a message to the teacher through social software, and the teacher will reply after seeing it. When it is convenient for teachers, students can go directly to the office or teachers' home for face-to-face communication, which is more conducive to students' learning. The review task after class is very important. When carrying out teaching reform, teachers should pay attention to the arrangement of question answering after class.

4.3. Improving teachers' and students' attention to the study of probability theory

The importance that teachers and students attach to probability theory will affect the study of probability theory. Only if we pay more attention to it can we put more energy into it and learn this subject well. However, in real learning, there are many teachers and students who do not pay attention to learning. For example, teachers do not prepare lessons in advance, and students do not listen carefully. To solve this problem, teachers and students need to further understand the subject of probability theory. When they understand the importance of probability theory, they can put more energy into the study of probability theory. Schools need to carry out regular ideological education for teachers, so that teachers can take their teaching tasks more seriously. Schools can also urge teachers to pay attention to the teaching of probability theory through the examination of teachers. Teachers need to explain the importance of probability theory to students, and strengthen the management of students' usual learning, so that students pay attention to the study of probability theory.

4.4. Strengthening the assessment of students' learning achievements

Each school will inspect the students' learning results at the end of the semester, which can not only let the school understand the students' mastery of knowledge and then formulate the next teaching plan, but also urge students to take their studies seriously. Therefore, when reforming the teaching of probability theory, we also need to further strengthen the examination of students, so as to stimulate students to take their own learning seriously. Schools should take probability theory as a compulsory course for relevant majors, and teachers should appropriately reduce the proportion of peacetime scores in the final score, and appropriately improve the difficulty of the test paper, in order to avoid the original questions on the test paper as much as possible during the final proposition. We will strengthen invigilation of the final exam and put an end to bad phenomena such as cheating in the exam. Formulate a strict examination make-up retake system to let students understand that if they don't study hard at ordinary times, they can't pass the final exam. The school can also increase the punishment of students failing to pass the final exam, which can better urge students to take their homework seriously at ordinary times.

4.5. Set up teaching and research groups, and teachers regularly cooperate to exchange teaching methods

In the process of teaching and educating people, teachers will also have some problems, some are the problems of teaching methods, some are their own knowledge reserve problems. This requires teachers to timely improve their own ability to meet the needs of teaching. Many teachers will have a variety of problems in the process of teaching, such as why I can not understand how the students say, and even question their own ability. The subject of probability theory itself has certain difficulties, which requires the appropriate application of certain teaching skills in the teaching process. The application of teaching skills can effectively reduce the difficulty of knowledge points, so as to improve students' mastery of knowledge points, and then improve the quality of teaching. The establishment of the teaching and research group can urge the teachers to carry out teaching research at a fixed time point, and communicate with the problems encountered in the teaching process. New teachers can also absorb the teaching experience and learn the teaching skills from the old teachers in time, and then apply them to the daily teaching. Teachers should try to avoid memorizing students and teach students a simple way to learn. For example, when learning bayes formula, the formula has a certain difficulty when understanding, many teachers found that students learning effect is not very good, through the research activities, teachers can sum up the best way of teaching, when teaching this section content will need teachers to teach students "reasoning" "reasoning process", this can simplify the problem, help students understand the nature of the problem.

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5. Conclusion

The knowledge of probability theory is deeply permeated in daily life. At the same time, probability theory is also a required content of many majors, which is one of the very important subjects, but many students do not realize this, which requires teachers to understand the importance of probability theory through ordinary teaching. However, the knowledge points in the subject of probability theory have certain difficulty, and students will have great difficulties in learning. Many students encounter difficulties in learning will affect their interest in learning, and then have the idea of giving up. Teachers need to change students 'resistance to probability theory, impart knowledge points to students step by step, reduce the difficulty of learning, and cultivate students' interest in learning. Students' subjective initiative has a great impact on the learning effect. If teachers cannot guide students to study actively in teaching, it will bring great inconvenience to their own teaching. At the same time, the learning efficiency of students who are always in the forced learning state will also be greatly reduced. Therefore, teachers need to mobilize students' enthusiasm for learning in teaching, which will produce twice the result with half the effort. Teachers' teaching methods will affect the learning status of students, so teachers need to innovate the teaching methods of probability theory, timely solve the difficult problems of students after class, and strengthen the assessment of students. Use the above way to reform the teaching of probability theory and lay a foundation for students' study and life.

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