The Application of Probability Theory in Life

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Abstract：Probability theory is a mathematical calculation method that has been continuously summarized and refined in real life. Compared with other subjects，probability theory is more abstract and complicated，and it is relatively difficult for learners. However，this subject is the foundation in many fields，and has obvious guidance and application value in real life. Therefore，proficiency in probability theory is particularly important，which will lay a solid foundation for students to learn statistics. In practical teaching，teachers should actively cultivate students' good probability and statistics thinking，so that students can better integrate their knowledge through the majors they have learned and apply them to daily life and work.

Keywords：Probability Theory；Life；Application

The subject of probability theory is closely related to people's lives. It is not only a scientific knowledge that specializes in analyzing and studying random problems and phenomena in the objective world，but also a tool subject to carry out analysis and inquiry for other disciplines. At the same time，with the continuous development of social modernization，knowledge related toprobability theory has also been integrated into our social practice and life，and has been widely used in many industries and fields，helping us solve many problems in our lives. For example，it is used in many disciplines such as finance and insurance，economic management，industrial production，agricultural production，meteorological and natural disaster warning，and medicine.

1. Research on the significance of the application of probability theory in real life

People often imagine all kinds of possible problems. For example，students will think that it would be great if they were able to answer a few difficult questions during the exam；It would be great if they went to find a job and competed for a post once and passed it once；If they went to buy a welfare lottery，this time it would be great to win a big prize，wait. The above "if" and "possibility" are actually probabilistic，so probability theory can be seen everywhere in people's lives，and it plays a very important analytical role. In addition，we can use the knowledge of probability theory to analyze and explain clearly the average benefit of stock purchasers and the existence of risk problems. From this we can see that there is a close relationship between life and probability. In short，probability is a critical number between 0% and 100%. It is like saying that the probability of each pregnant woman giving birth to boys and girls is 50%，and the probability of guessing right and wrong is also half；The sun always rises in the east and sets in the west，and the planets must revolve around the stars；In addition，the natural phenomenon of human being out of gravity and water flowing backwards will never happen，etc. These are common probabilities in our lives. Sexual issues. The reason why we want to analyze and study these probabilities is to use the knowledge of probability statistics in mathematics to analyze and predict the

feasibility of some behaviors, consciousness, and decision－making, so that people can always have a clear cognition in real life. The mind, rather than blindly eager for quick success, can analyze objectively and rationally when faced with choices, and avoid certain unnecessary losses and costs.

2. The specific application of probability theory in life

2.1 The application of probability theory in lottery activities

When we go shopping in the mall, we often see some interesting lottery activities. This is a marketing method adopted by merchants for promotion. The purpose is to attract customers' attention through the lottery, so as to encourage customers to reach the awareness of consumption tendency, so as to ensure that merchants can obtain more economic profits. In the lottery rules formulated by the merchants, consumers can estimate the probability of whether they can win the lottery. Usually, most consumers think that as long as they participate in the lottery, they have a chance to win prizes. If you are lucky, it is possible to win a big prize, but if you give up this opportunity, you will not get any prizes. Therefore, in the lottery. Under the fun and temptation, many people will choose to take the opportunity to participate in the lottery on the premise of consumption. Here, the merchant designs the lottery rules through the method of probability theory. In fact, it is the merchant itself that makes the most profit in the end.

For example, if a lottery is held in a shopping mall, the staff has prepared 50 lottery tickets in advance, of which 5 tickets are with lottery tickets, and the remaining 45 tickets are "Thank you for participating." Now, there are exactly two people participating in the lottery at the same time. Based on the knowledge of probability theory, we can know that the probability of the two people winning the lottery should be half of the two. Therefore, regardless of whoever draws the lottery first, who draws the lottery later, this wins the lottery. The probabilities are the same, but the merchants can fully attract the attention of customers and increase their influence by launching lottery activities.

2.2 The application of probability theory in the finance and insurance industry

Knowledge of probability theory is widely used in insurance finance and investment and financial management industries. The pursuit of profit maximization is the ultimate goal of all enterprises and industries. With the increasingly fierce competition in various industries in society, every enterprise pays more attention to the issue of interests. In our daily life, there are many investment wealth management products, such as funds, stocks, bank wealth management products, wealth management insurance, etc. These all have certain risks, and it is particularly important for people to correctly control risks when conducting financial management. Affected by many factors, in this case, we need to use the knowledge of probability theory and statistical methods to quantitatively predict the risks that may be faced, in order to assess the magnitude of the risk, and then make the next decision. The expected value of investment, standard deviation, and standard deviation rate are obtained by calculating the probability distribution, and after thecomprehensive analysis and application of these values, the risk degree of the investment product and the expected return is evaluated. After scientific risk assessment, the most suitable investment and financial products are selected based on the results of the assessment, and financial products are diversified, so as to reduce investment risks and increase investment benefits.

Let's analyze a case from the standpoint of an insurance company. If an insurance company launches an auto insurance business, the insured person needs to pay an auto insurance premium of 1,200 yuan, and a third－party liability insurance with an insurance limit of 200,000 yuan. I bought this insurance for my car, and the estimated profit is around 400,000 yuan. If the insurance company is at a loss, what is the probability? For example, when an insured vehicle has a traffic accident, the insurance company claims an average of about 50,000 yuan. Under the prerequisite of making a profit of more than 400,000 yuan, the number of possible accidents of the insured vehicle cannot exceed 16 times. Generally, the probability of a vehicle accident is about five in 1,000, which shows that the profitability of an insurance company is much higher than that of a loss.

2.3 Application of probability theory in enterprise processing

The purpose of learning probability theory is to improve the quality of our lives and work. Through digital models, we can objectively reflect the probability of occurrence of a certain event, problem, and the pass rate of

a certain product. Therefore, knowledge of probability theory is used in many professional fields. It is widely used. Therefore, teachers should actively interact with students' real life when teaching probability theory, so that students can apply what they learn in future work. For example, in a certain enterprise factory, we need to produce and process a batch of glass cups. The glass cups are processed in four steps. Based on the production status of the processing plant, there will be defective products in each step of the processing process. The probability that different processing procedures may produce defective products can be formed through previous production experience to form a rough statistics, which can be used as a production reference basis to calculate the approximate pass rate of this batch of glass cups.

2.4 Application of probability theory in decision－making

Mathematical probability theory not only has an effective guiding role in enterprise production and social life, but also has a strong guiding and decision－making ability in our daily life. In real life, we often encounter problems that are difficult to make choices. Then, using the knowledge of probability theory, we can make a correct and reasonable choice based on our own needs and circumstances, so that the final choice can meet the greatest needs of our own interests. In the face of decision－making, it is recommended that everyone use more probability knowledge to analyze the problem, so as to optimize the probability and maximize the benefits.

2.5 Application of probability theory in games

People also encounter problems of probability theory in the process of leisure and entertainment, such as playing loops in parks and catching dolls in video games. Such games have corresponding rules and requirements set by humans or machines. Participants must operate according to these rules. It is like a lap game. Players must throw laps at the prescribed red line to win prizes. However, in fact, the diameter of the circle, the distance of the circle and the number of times are all factors that affect the success of the game. By calculating these data, the probability of winning the circle can also be estimated.

3. Conclusion

The study of probability theory in mathematics is extremely important. It is closely related to our daily life. As a kind of mathematical theoretical knowledge with high practical value, probability theory has been widely used in society. It can help us correctly guide and analyze the problems encountered in life and work, and use probability calculation methods to obtain more scientific and reasonable answers and decisions. Therefore, teachers should let students understand the importance of probability theory in mathematics learning, and master solid theoretical knowledge, so that they can integrate the knowledge of probability theory in daily life and future work, and help them improve their skills and literacy.

References

1. Zhang X. The application of probability theory in daily life. Papermaking Equipment and Materials 2020; 49 (1): 256.
2. Chen R. The application and expansion of probability theory in real life. Science and Technology Innovation 2020; (3): 21－23.
3. Tang C, Jia L. The application of probability theory in real life. Curriculum Education Research (New Teacher Teaching) 2016; (14): 294.