Research on the Reform and Practice of Teaching Mode in Colleges and Universities under the Background of Artificial Intelligence–A Case Study of Statistical Curriculum

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Abstract. It is clearly proposed that we should carry out the construction of intelligent campus, and promote the application of artificial intelligence in teaching, management and resource construction in “The Development Planning of the New Generation of artificial Intelligence “issued by the State Council in 2017. In this context, to promote the development of teaching reform through applying artificial intelligence techniques to teaching activities has become an important topic widespread concern by all walks of life. This paper takes statistics course as an example to provide good guidance for the exploration of teaching reform under the background of artificial intelligence.

Introduction

With the development of the times and the application of various artificial intelligence technologies in the age of wisdom education, various new forms of education have been created, which effectively promote the implementation and promotion of the curriculum. Meanwhile, it also changes the mode of education supply, improves the learners' cognitive level, strengthens the students' endogenous motivation, and promotes the precise management of education.

The Present Situation of Promoting Teaching Reform through Artificial Intelligence

Artificial intelligence influences learning style

In recent years, the new information-based teaching model, such as flipped classroom and micro-class, has played an important role in improving the quality of education. Teachers can use certain technical means to guide students to watch teaching videos in extracurricular time and study all kinds of knowledge. Students are able to master their own learning situation by participating autonomously in online testing, and they can also feedback the problems they have encountered in the course of their study to the teacher through online messages. In classroom teaching, teachers have more opportunities to answer questions and to guide students to use knowledge of various disciplines are significantly increased. Teachers can grasp the learning situation of different students in a timely manner through checking up the feedback and message of the students' online test. The classroom became a place to solve difficult and tough problem of study and deepen and expand the knowledge.

Artificial intelligence improves teaching efficiency

Teachers can effectively reduce all kinds of previous repetitive work such as correcting assignment through applying certain artificial intelligence techniques. These artificial intelligence techniques can greatly lighten the workload of teachers, improve the teaching efficiency of teacher, and liberate teachers from tedious and repetitive work, thus enabling teacher to finish those more important and valuable task that are irreplaceable by machines, such as stimulating students' learning motivation, and cultivating students' innovation, creativity and problem solving ability.
Problems in the Teaching of Statistics under the Traditional Way of Education

The problem on ratio of theoretical teaching to practical teaching

The course of Statistics only emphasizes the system of theory and method under the traditional education mode, but neglects the training of students' practical application ability. In traditional classes, teachers spend too much time explaining the theoretical points of textbooks. In fact, it is of practical significance to expand the proportion of practical teaching, both from the perspective of talent needs of enterprises and from the needs of students themselves.

Statistical software teaching problem

In the context of artificial intelligence, the field of economic management involves the processing of a large number of data. We have to use computer to finish the collection, collation, analysis and storage of data. Judging from the current situation of teaching in colleges and universities. Due to the influence factors such as equipment configuration, the end-of-term theoretical examination, some students only grasp the basic statistical functions of Excel, SPSS and other statistical software, such as summation, data filtering, etc. They are not capable of applying these software skillfully in the process of dealing with practical statistical problems.

The problem on the cooperation of school and enterprise

During the process of traditional teaching of Statistics, teachers do not provide students with internship opportunities to test the results of statistical knowledge and statistical skills. The lack of school-enterprise cooperation not only affects the teaching effect of statistics, but also indirectly leads to the reduction of students' competitive power in employment.

Teaching Reform Strategies of Statistics under the Background of Artificial Intelligence

The strategy of increasing the proportion of practical teaching

Under the background of artificial intelligence, and the teaching mode of micro-teaching, and flipped classroom, Teachers can teach the traditional theoretical knowledge points after class. Students may learn the theoretical knowledge point in advance by watching micro-videos of each knowledge point, and make a doubt online for those theoretical knowledge points they don’t understand. Therefore, we can conduct the teaching reform of Statistics by reducing the theoretical class hours and increasing the practical class hours on the basis of the design of the current teaching curriculum, so as to promote students to consolidate their application of a variety of statistical knowledge, and statistical methods. For example, teachers can choose appropriate practical topics, and set up a practical statistical task such as investigating the consumption view of college students according to current realities. Students are allowed to work together to accomplish their tasks. In order to complete this task within a specified time frame, students may complete questionnaires (anonymous), analyze the validity of questionnaires (excluding unqualified questionnaires), statistics the original data, and conduct in-depth statistical analysis under the grouping mode, and confirm and identify the current consumption view of college students finally.

The strategy of strengthening the application of statistical software

Under the background of artificial intelligence, the examination of many theoretical knowledge points can be completed on the line after school. Therefore, teachers have more time in the classroom to guide the students to operating the statistical software. The teaching reform of statistics should take the application of statistical software as one of the key teaching contents and improve the level of students' application of statistical software. In order to improve students' ability to solve practical statistical problems, colleges and universities can configure relevant statistical analysis software for students according to the statistical requirements of current enterprises. They can prepare some
practical statistics software for students such as Excel, SPSS, Stata, and SAS. They can check that whether students can operate the SPSS software independently through designing a variety of statistical questions.

The strategy of improving cooperation between school and enterprises

We can provide more real raw data for statistics teaching through collecting the related raw data for statistics from the enterprise, provide students with a wealth of internship opportunities, urge students to practice the application of various statistical methods in the real enterprise environment, so as to solve relevant practical statistical problems. For example, during internships, companies may provide students with their own market competitiveness data for 2009-2019 and employee performance data during this period, and require students to use statistical methods to analyze whether there is a correlation between the two. Therefore, students have to process the original data by using statistical software, and analyze the correlation between performance data and competitiveness data through the initial integration of this data statistical results, and obtain the final analysis results based on the correlation coefficient corresponding to the degree of correlation, thus laying a data base for improving the competitiveness of the market of enterprises.

The strategy of changing statistical teaching evaluation

Under the background of artificial intelligence, the effectiveness of traditional teaching evaluation will change along with the changes of statistical teaching methods and models. In addition to the traditional theoretical assessment, we should also strengthen the assessment of students' practical ability, statistical thinking and other elements. The traditional teaching evaluation mainly focuses on the one-way evaluation of the students. Due to the lack of understanding of the students' learning conditions, the evaluation results may be biased to a certain extent. In the context of the teaching models of artificial intelligence, we give more attention to the practical teaching, statistical software operation and students' cooperation and division of labour. Teachers can use three-dimensional evaluation model to make statistical teaching evaluation. Among them, the first dimensional evaluation is the mutual evaluation between students, the second dimensional evaluation is the mutual evaluation between groups, and the third dimensional evaluation is the teacher's evaluation of the students. We set the ratio of between the first dimensional evaluation, the second dimensional evaluation and the third dimensional evaluation as 30%, 20%, and 50% respectively, count the values of the three evaluation dimensions, and determine the reliable evaluation results finally.

We can discover that it has certain practical significance to carry on the teaching reform to the statistics curriculum according to the above analysis. Based on the new requirements of statistics teaching and its influence on the statistical work of enterprises under the background of artificial intelligence, colleges and universities should rationalize and adjust the teaching objectives, teaching methods and teaching models of Statistics, provide students with more practical and practical opportunities, strengthen students' correct understanding of the statistical work of big data, improve students' ability to solve practical statistical problems constantly, and promote students' sound progress. It is believed that under the background of wisdom education, artificial intelligence technology will subvert the traditional mode of teaching and learning at a speed beyond our imagination, promote the traditional education of our country to leap from information technology to intelligence and create a new era of education finally.

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References

