Based on the big data background of college computer major innovative teaching ideas and methods

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Abstract: With the advent of the era of big data, cloud computing, blockchain and virtual simulation technology have injected new vitality into the teaching reform of computing computer in colleges and universities, which is conducive to the innovation of computer teaching methods, to meet the personalized learning needs of students, and to achieve a win-win situation between computer teaching and learning. College computer teachers should change the teaching concept, explain the big data related knowledge in depth, and improve the curriculum system; Actively carry out online and offline mixed teaching, promote the integration of teaching inside and outside the class, and improve the teaching quality of professional courses; Build a virtual simulation experiment platform to innovate the teaching methods of computer professional practical training; Using short videos and wechat public accounts to carry out computer teaching, so that students can feel the convenience brought by big data and further improve the teaching quality of computer majors.

Key words: big data; University computer major; Teaching status; Reform path

As one of the core technologies in the era of artificial intelligence, big data has the advantages of large amount of data, wide variety, high authenticity, fast processing speed and low data value density. It provides technical support for the development of computer programming, network security and digital media technologies, helps promote the development of the "Internet Plus" economy, and brings more convenience to people's life, study and life. Computer teachers in colleges and universities should actively respond to the challenges of the big data era, carry out big data subject teaching, deepen students' understanding of big data, actively carry out online and offline mixed teaching, use big data and cloud computing to carry out online live broadcasting and online testing, improve classroom teaching efficiency, let students enjoy the convenience brought by big data, and thus improve their learning ability.

1. The impact of big data on the teaching of computer majors in colleges and universities

1. Promote the sharing of high-quality educational resources

Big data has created more opportunities for the teaching of computer majors in colleges and universities. MOOC online open teaching platform, Super Star Learning APP and Blue Ink Cloud Class APP have become new teaching methods, which are conducive to integrating high-quality Internet education resources into the teaching of professional courses, updating the content of textbooks in a timely manner, and allowing students to learn about new ideas and technologies in the field of computer and Internet in advance. Thus enriching their reserves of professional knowledge. At the same time, big data promotes the exchange of computer education in colleges and universities at home and abroad, making it easy for domestic colleges and universities to learn from foreign computer teaching experience. At the same time, it promotes the exchange among domestic colleges and universities, making it easy for colleges and universities to share high-quality education cases, virtual simulation experiments and other resources online, and further improve the teaching quality of computer majors.

2. Innovate the teaching mode of computer major

In the era of big data, computer teachers in colleges and universities have changed the traditional teaching mode, and carried out teaching of professional courses by using micro-lessons, VR equipment and virtual simulation technology to dynamically demonstrate the characteristics of computer algorithms, C language and Java program design, so as to help students deeply understand computer languages, algorithms and programming skills, and further stimulate their enthusiasm for independent learning. Thus improving the teaching quality. At the same time, teachers can use Questionstar software and online teaching platform to carry out teaching evaluation, use big data to collect students' online test results, virtual simulation experiment assignments and online speeches and other data to conduct comprehensive assessment of students, timely find the problems existing in students' professional course learning and computer teaching, and actively promote teaching diagnosis and reform. So as to innovate the teaching methods of computer major in colleges and universities.

3. It changes the way students learn

With the advent of the era of big data, students can take online courses on mobile phones, tablets and other mobile terminals, interact with teachers and classmates of specialized courses online, experience online games and online tests, experience the convenience brought by big data to the study of specialized courses, and further use big data and cloud computing to collect professional knowledge such as computer programming and network security. To meet their own personalized learning needs and improve their digital learning ability. In addition, college computer teachers should correct students' attitude toward the Internet and big data, guide them to make reasonable use of the Internet, recommend high-quality computer-related wechat public accounts and Weibo accounts to them, encourage them to explore extracurricular knowledge independently, and further improve college students' independent learning ability and digital literacy.

2. Based on the current situation of college computer teaching under the background of big data

1. The teaching content of the course is not updated in time

The update of big data technology is very fast, but the update cycle of computer teaching materials in colleges and universities

is relatively long, and some teaching contents lag behind the current development of big data. It is necessary for computer teachers to independently collect new trends in the industry and integrate these new trends into the teaching of professional courses, but many teachers neglect to expand the content of textbooks. Some teachers put emphasis on the knowledge point explanation of textbooks, computer rank examination and relevant vocational skill level certificate examination, ignoring the development of school-based courses, loose leaf textbooks and industry news related to big data, failing to update the knowledge point of textbooks in time, which is not conducive to cultivating students' innovation ability.

2. The teaching effect of smart classroom is not ideal

In the era of big data, smart classroom has become a hot topic of education reform, but the teaching effect of smart classroom for computer majors in colleges and universities is not satisfactory, which does not give play to professional advantages, affects the connection between teaching inside and outside the class, and greatly compromises the teaching quality of computer majors. Although many computer major teachers in colleges and universities are also carrying out online teaching, they are not reasonable in the design of the connection between online and offline teaching, difficult to guide students to learn after class scientifically, not proficient in the operation of virtual simulation experiment system, ignoring the creation of different computer algorithms, programming and other experimental situations, which affects the effect of students' online experiment practice and is difficult to stimulate their enthusiasm for independent learning.

3. The teaching method is relatively simple

Some computer teachers in colleges and universities mainly use the teaching mode of "theory + demonstration + practical training". The connection between theory and practice is not too close, and they neglect to guide students to master professional knowledge such as computer algorithm and programming in computer practice. As a result, even if they fully master theoretical knowledge, they can not solve problems well in practice. Some teachers ignore the use of short videos to carry out teaching, simply explain the steps of computer programming orally, because the computer programming code is more complex, students are easy to miss symbols or letters, resulting in the program can not run, affecting the teaching quality of computer professional practical training courses.

3. Based on the background of big data, college computer teaching innovation path

1. Improve big data-related courses and professional curriculum system

In the era of big data, many college computer majors have set up courses related to big data, which is conducive to in-depth explanation of big data technology, so as to enrich the teaching content of computer majors and improve students' information literacy. First of all, schools should actively set up courses such as "Big Data Analysis and Statistical Basis", "Big Data Distributed Computing", "Big Data Mining and Machine Learning" and "Big Data Processing", and link these courses with professional courses such as computer algorithm and programming, so as to show the characteristics of big data technology in a more comprehensive way and stimulate students' interest in learning. For example, computer teachers can explain the application of big data in the fields of intelligent robots, computer network security, game design and online teaching platform, explain the professional knowledge of big data analysis and management in combination with specific cases, guide students to deeply explore the relevant knowledge of big data, and let them feel the close connection between big data, the Internet and artificial intelligence. In order to promote and stimulate their interest in learning big data. Secondly, the school should increase the investment in the training base of computer majors, introduce VR equipment, 3D printing equipment, virtual simulation experiment system, etc., improve the training course system of computer majors, and lay a good foundation for big data training teaching. For example, computer teachers can demonstrate the VR game design and operation process in the training base, explain the application of big data in game character modeling, scene design and action design, connect big data with game design and computer programming, stimulate students' enthusiasm for independent practice, so as to improve their practical ability.

2. Carry out mixed online and offline teaching to improve teaching quality

College computer teachers should actively carry out online and offline mixed teaching, use big data to build a network teaching cloud platform, integrate Internet resources into professional course teaching, monitor students' online learning data throughout the process, and reasonably formulate offline teaching plans, so as to improve the teaching quality of computer majors. First, teachers can use the Super Star Learning APP to carry out mixed teaching, introduce online teaching micro-lessons and online test questions in advance, and send the course QR code to students, carry out online live teaching, and build a new human-computer interactive teaching model. Teachers can use big data to design online mini games, such as the characteristics of different Java programming languages, Java mini program design and other games, to encourage students to write online mini programs and stimulate their enthusiasm for independent learning. Second, teachers can also organize online tests, import test questions and answers in advance, set the answer time, automatically mark papers through the APP of Hyperstar Learning Pass, analyze and summarize online test data using big data, quickly calculate the problems with more errors, student scores, class draw scores and other data, and accurately grasp the online teaching status of students. Provide scientific data for the follow-up offline teaching. At the same time, students can log in to the teaching platform independently after class, review online teaching videos, review online tests, and discuss with classmates and teachers to further feel the convenience brought by big data to independent learning, so as to improve the efficiency and quality of independent learning.

3. Build a virtual simulation training platform to improve the quality of practical teaching

College computer professional training is different from other majors, the requirements of computer configuration, network and so on are relatively high. In order to improve the teaching level of computer major and facilitate students to practice independently after class, schools can introduce virtual simulation training system to meet the teaching needs of computer major website and web design,

Java program design, game development and big data management, and further improve students' computer practical operation ability and innovation ability. For example, teachers of computer majors can arrange virtual simulation training tasks according to the teaching content of big data, create different situations on the system, assign practical training tasks such as computer programming, website design, database management and network integrity, and guide students to carry out online exercises to improve the quality of practical training teaching. The virtual simulation training platform can record students' operation data throughout the whole process, automatically save the operation video, and score students' online operation, support repeated online practice, support online 24-hour service, break the time and space restrictions, convenient for college computer students to practice computer operation anytime and anywhere, and further improve their computer operation ability. At the same time, teachers can invite big data managers, computer programmers and game designers to participate in teaching, let them assign practical training tasks online, and operate on the same virtual simulation training system with students, so as to facilitate them to guide students' operation, promote the connection between job skills and computer teaching, so as to improve the teaching level of computer majors.

4. Make clever use of new media to broaden the teaching channels of computer major

In the era of big data, new media such as Tiktok, wechat and Weibo have become important carriers for post-00s college students to acquire information and socialize. College computer teachers should base on the characteristics of new media, integrate it into the teaching of professional courses, use students' favorite short videos to carry out teaching, further innovate classroom teaching plans, and stimulate students' interest in learning. First of all, teachers can use Douyin to film the development and operation process of C language and Java program, add text explanations to the difficulties of operation, and send short-sightedness to students frequently, so that they can learn about computer programming knowledge through short videos and further improve their learning ability. For example, when teachers explain C language related knowledge, they can shoot the different meanings represented by different symbols, letters and numbers in C language, and use websites, web pages and other cases to explain, and post the videos on platforms such as Douyin, Weibo or wechat public account, so that students can download them independently. Secondly, teachers can go deep into Internet enterprises to learn, film videos of web front-end development, network security, big data management, game development and other different positions, and share the videos with students, so that they can understand the daily work of "code farmers", help them plan their career, and further cultivate their good professional ethics of dedication, innovation and innovation. Laying a good foundation for their employment.

4. Conclusion

Colleges and universities should actively respond to the challenges of the era of big data, optimize the teaching mode, curriculum system and talent training mode of computer majors, and actively develop courses related to big data, so as to facilitate students to fully understand big data, build virtual simulation training platforms, optimize the teaching atmosphere of computer majors, stimulate students' enthusiasm for independent learning, and comprehensively improve the teaching quality of computer majors. At the same time, college computer teachers should actively carry out mixed teaching, use big data to analyze students' online test scores and teaching satisfaction, carry out offline precision teaching, and comprehensively improve the teaching quality of computer majors.

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