Education Reform and Development, 2025, Volume 7, Issue 5
https://ojs.bbwpublisher.com/index.php/ERD
Online ISSN: 2652-5372
Print ISSN: 2652-5364

Research on Computer Teaching Reform in Vocational Undergraduate Colleges Under the Perspective of Informatization

Wenqian Wang*, Sanchao Wang

Henan Vocational University of Science and Technology, Zhoukou 466000, Henan, China

**Author to whom correspondence should be addressed.*

Abstract: With the continuous development of big data technology and the times, the current development and education direction of vocational undergraduate colleges and universities should also keep up with the progress trend of the era and carry out the corresponding teaching reform. In order to effectively improve the quality of education and provide adaptive talents for the development of the future society, computer teaching needs to start from teaching technology, teaching mode and teacher team quality, and constantly improve students' theoretical basis and practical ability, to build an information and diversified learning environment for them. This article mainly starts with the principles that should be adhered to in the reform of computer teaching from the perspective of informatization, and deeply analyzes the effective path of computer teaching reform in vocational undergraduate colleges supported by informatization, to provide new inspiration and ideas for the teaching of professional courses and ensure their close connection with the development of the times.

Keywords: Informatization; Vocational undergraduate; Computer; Teaching reform

Online publication: May 29, 2025

1. Introduction

In the era of continuous digital development, vocational undergraduate colleges, as important bases for cultivating students' comprehensive practical abilities, undertake the key task of promoting students' all-round development of their abilities. With the rapid development of information technology, computers have penetrated into all aspects of people's lives and become an important support for the current social, economic and social development. Therefore, professional undergraduate teaching reform needs to the current society and industry demand for computer talents as the main basis to adjust, to ensure that the teaching content and market demand closely docking, strengthen the practice teaching link, further enhance students' comprehensive quality to cultivate a solid theoretical foundation and strong practical ability of high-quality computer talents.

2. Background of computer teaching reform in vocational undergraduate colleges from the perspective of informatization

In the context of informatization, the research on computer teaching reform in vocational undergraduate colleges is particularly crucial. With the rapid development and widespread application of information technology, traditional teaching methods are no longer able to meet the learning needs of students in the new era. As a highly practical discipline, the teaching reform of computer science is not only the key to improving teaching effectiveness, but also an important way to cultivate students' information literacy and innovation ability. Therefore, vocational undergraduate colleges must keep up with the pace of the times, actively promote computer teaching reform, and adapt to the development needs of the information society by updating teaching content, innovating teaching models, and strengthening practical teaching to cultivate more high-quality computer professionals.

3. Problems in the reform of computer teaching in vocational undergraduate colleges in the context of informatization

3.1. The teaching method lags behind and should focus on practice

In the past teaching process, computer professional related teaching course will be more emphasis on the basic theory of knowledge, such as computer code, logical theory, etc., these content to a certain extent constitute the basis of the computer professional learning, but if only master the theoretical knowledge does not support students in the future career development in complete the task, and will also limit their development of [1]. Therefore, in the process of computer teaching reform, teachers need to change the teaching ideas, the teaching focus to practice teaching methods, including project learning, experimental courses, cooperation and other forms, combined with the corresponding theoretical knowledge of teaching, in order to continuously improve the students' practical ability and the ability to solve practical problems, fully stimulate their learning motivation.

3.2. Pay attention to cultivating students' information literacy

Under the guidance of information technology, students' information literacy has become a very important direction of cultivation. Computer teaching reform needs from the students' ability to obtain information, and on this basis constantly optimize their data processing and analysis ability, overall improve their ability to use the data, but also to let them master the use of information technology tools, enable them to keep up with the changing social environment [2]. On this basis, we also need to ensure the advancement of the teaching content. For computer courses, students' information literacy can improve easily influenced by the content, in another way, students exposed to the more advanced knowledge, their information literacy can improve from different angles, on the other hand, if they are exposed to the knowledge is already learned and repetitive content, so the whole learning process will only cause a waste of time, does not play the role of improving students' professional skills and information literacy [3]. Therefore, the reform of computer curriculum content must closely conform to the forefront of technology development, constantly update the teaching content, and ensure the consistency of students' knowledge and the talent needs of the era. This not only requires teachers to pay close attention to the new knowledge and ideas in the teaching forum in real time, but also requires them to learn more about the new technologies and tools, and constantly adjust their teaching plans based on the future development trend of the market to continuously improve students' personal competitiveness and social adaptability.

3.3. Teachers' abilities vary greatly

Compared with the teaching methods of other subjects, computer education has an excellent performance in breaking the learning restrictions in the traditional teaching mode. Additionally, the highly digital teaching content can be successfully introduced into the hardware and software systems needed to build a mobile classroom, and the relevant equipment required by these systems is easier to obtain than other disciplines. On the other hand, from the perspective of the practicality and learning channels of the teaching content of students, informationized computer teaching can seamlessly connect students' teaching content and extracurricular teaching content and teaching modes, providing teachers and students with more convenient teaching methods that meet the needs of students. Therefore, from the perspective of information, the computer teaching reform should make full use of this advantage, further break the space-time limit of teaching methods, and promote educational innovation [4].

4. The effective path of computer teaching reform in vocational undergraduate colleges in the context of informatization

4.1. Introduce advanced teaching technology and cooperate with teaching on various experimental platforms

Under the background of the rapid development of social and economic structure, the computer teaching reform in vocational undergraduate colleges is facing new teaching challenges. In the current teaching process, vocational undergraduate colleges and universities students still lack of practical ability. At the same time, experimental equipment introduced under traditional teaching models is outdated; it is easy teachers to in the process of the course of frequent failures, which eventually affects the overall teaching rhythm and teaching plan [5]. Therefore, in view of these problems, vocational undergraduate colleges and universities need to actively explore and introduce advanced teaching technology and experimental platforms, improve the information level of the teaching process, and constantly optimize the corresponding teaching equipment, so as to ensure the overall teaching effect. Specifically, colleges and universities can take the existing experimental platform as the basis of teaching, and build more simulation experimental platforms with other functions to enrich the new technical equipment that students are exposed to. The hardware experiment platform has a high degree of authenticity and can intuitively show the knowledge content that students want to learn, providing them with more opportunities to interact with the network equipment. In this way, students can operate by themselves, combined with their theoretical knowledge to understand the wiring methods and working principles of related equipment in real life, so as to continuously improve their hands-on ability [6]. At the same time, the simulation experiment platform can rely on its powerful function and efficient processing system for students to create an experiment as the main body of the learning environment, students in this environment don't have to worry about because of old equipment and various sudden problems, to put their entire energy into the experimental design and verification of learning process, to the greatest extent improve learning efficiency. In addition, the introduction of software simulation experiment platform can also solve the problem of limited teaching equipment in colleges and universities. Related platform can simulate a kinds of network environment to let students explore in different learning background, which to a certain extent, can reduce the related equipment requirements, and improve the efficiency of simulation experiment platform, can effectively reduce the economic cost of colleges and universities in this aspect, to support other aspects of the reform to lay the economic foundation of [7].

4.2. Innovate the current teaching mode, and constantly stimulate students' interest in learning

In the traditional computer teaching classroom, teachers are usually adopt relatively single teaching methods, such as "full," "teachers, students learn" these patterns, the teaching mode will generally be more to the teacher as the main body, although can ensure the smooth progress of knowledge, but it is easy to let teachers ignore the students' subjective initiative, but also will hit the students' learning enthusiasm, eventually affect their overall learning situation. In the context of information, teachers can flexibly use some teaching methods supported by new technologies, such as micro-lecture, flipped classroom, virtual simulation teaching, etc., which can be applied to the subsequent teaching process to constantly innovate and enrich the teaching mode of computer classroom [8]. Additionally, the micro class this new type of teaching methods in the process of education teaching utilization has become more and more high, it can be based on the students' cognitive law, the teaching material content of some complicated difficult knowledge through the way of video interpretation, teachers can be uploaded to the corresponding teaching platform, let the students according to their learning progress to autonomous learning [9]. Most of these videos are controlled within 5 to 10 minutes. Generally, the learning content is intuitively presented through concise and intuitive language and teaching steps displayed, which can not only improve students' learning efficiency but also stimulate students' interest in learning in this popular way. At the same time, this relatively free learning mode can also subtly improve students' independent learning ability and improve their learning efficiency on the whole [10]. On the other hand, some teachers are prone to fall into the traditional teaching mode in the teaching process and ignore the main position of students. Therefore, teachers can use the flipped classroom teaching method, improve the proportion of students in the teaching classroom, attaches great importance to their principal position, and the teachers to guide position, provide teaching resources before class, such as teaching video, reading materials, etc., let the students in extracurricular time autonomous learning, while mainly discussed in class, answering questions and practice activities [11]. This teaching mode can greatly improve students' participation in class, transforming them from passive acceptance of knowledge to active exploration of knowledge. When using a flipped classroom for teaching, teachers can also enrich the teaching content through group discussion, case analysis, practical operation, and other forms according to the classroom situation, and stimulate students' desire to explore [12].

4.3. Develop teachers 'team ability and improve teachers' comprehensive information literacy

In the process of promoting the development of computer teaching classrooms in vocational undergraduate colleges towards the direction of information technology, teachers' information literacy is an important factor to ensure the overall learning effect of students. As the main knowledge imitators in the process of students' learning, computer professional teachers need to receive multi-angle information technology training to improve their overall information literacy [13]. Such as vocational undergraduate course colleges and universities can regularly organize teachers to carry out computer information professional technology training, including big data analysis, cloud computing, virtual information technology, etc., and arrange the corresponding workshop, let teachers in the process of training timely practice, help them master the latest education technology tools and computer applications, so that they can make in the process of teaching is more flexible and accurate course interpretation and guide, help students to learn better knowledge content. From another point of view, the online curriculum design and certification program in the information age can further improve teachers' teaching technology, and to some extent, it can stimulate their initiative to constantly practice new teaching methods [14].

In addition, can also create the corresponding communication platform to cooperate the whole training process, let teachers on the platform to share their new methods, at the same time also can send their problems to the platform, promote communication and communication between teachers, help them to absorb more excellent methods, to continuously improve their teaching ability [15]. The corresponding feedback mechanism for teacher development also needs to be established. Furthermore, the training results of their training; on the other hand, teachers should get more effective support, including teaching resources and various teaching methods, to help teachers fully cope with the more diversified learning needs of students under the new situation, to continuously improve the overall level of computer teaching and ensure the future development of students.

5. Conclusion

With the advent of the information age, the computer teaching of vocational undergraduate colleges and universities needs to keep up with the pace of the times and start with the improvement of students' computer informatization level for teaching reform. Teachers can use advanced teaching techniques to optimize teaching methods and integrate various experimental platforms to help students carry out practical teaching. Meanwhile, innovative teaching modes can be them to further stimulate students‘ learning enthusiasm. Finally, they should pay attention to improving the information teaching level of computer teachers and promoting the overall progress of the course teaching level.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Zhou W, Lin Y, 2024, Research on the Reform Program of Basic Computer Application. Shanxi Youth, 2024(24): 135–137.

[2] Lu H, Zhang L, Fang C, 2024, Research on the Teaching Reform of Computer Audit in the Era of Digital Intelligence. Computer Knowledge and Technology, 20(35): 147–149 + 173.

[3] Wang N, Jia J, Lu B, 2024, Teaching Reform and Exploration of Computer Practice Courses. Fujian Computer, 40(12): 103–106.

[4] Wu X, 2024, Teaching Reform and Innovation Path of Computer Application Technology Major in Higher Vocational Colleges Under the Background of Educational Digitization. Shanxi Youth, 2024(22): 120–122.

[5] Wu H, 2024, Teaching Reform Practice of Computer Graphic Design Based on Digital Collaboration Platform. Information and Computer (Theoretical Edition), 36(21): 245–247.

[6] Sudan T, 2024, Analysis of the Reform and Innovation of Computer Teaching in Secondary Vocational Schools Based on the School–Enterprise Cooperation Talent Training Mode. China New Communications, 26(21): 99–101.

[7] Liu J, Bian C, 2024, Teaching Reform and Practical Exploration of Applied Undergraduate Computer Network Course. Journal of Higher Education, 10(32): 148–151.

[8] Zhu H, 2024, Research on IT Application and Teaching Reform in Higher Vocational Computer Education. Journal of Jiamusi Vocational College, 40(10): 223–225.

[9] Xiao L, Qian Z, Yan W, et al., 2024, "Computational Thinking + Artificial Intelligence" Enables the Teaching

Reform and Innovation of University Computer Courses. Computer Knowledge and Technology, 20(30): 151–153.

[10] Jiang Z, 2024, Analysis on the Teaching Reform of Computer Public Course in Universities in the Information Age. Toy World, 2024(10): 215–217.

[11] Wang Y, 2024, Research on the Reform Strategy of Computer Teaching in Colleges and Universities in the Context of Informatization. Hebei Economic Daily, 2024-October-23(009).

[12] Zhang Y, Zhang X, 2024, Research on Teaching Reform of Computer Control Technology Based on CDIO Concept Under New Engineering Background. Equipment Manufacturing Technology, 2024(10): 84–86.

[13] Yao H, Zuo H, 2024, Exploration and Practice of Computer Basic Teaching Reform in Vocational Undergraduate Colleges and Universities. Information and Computer (Theoretical Edition), 36(15): 72–74.

[14] Wang L, 2024, A Preliminary Study on the Teaching Reform of Discrete Mathematics in Professional Computer Major. University Math, 40(2): 53–57.

[15] Yao H, Zuo H, 2023, Exploration and Practice of Ways to Improve Teachers' Teaching Ability in Vocational Undergraduate Colleges — Take Computer Course Teaching as an Example. University, 2023(25): 143–146.