

# Application of Information Technology in Medical Teaching of Secondary Vocational Schools

Suyao Zhang, Yonghong Gu\*, Dinagre Gamalidin

Xinjiang Yining Health School, Yining 835000, Xinjiang Uygur Autonomous Region, China

\*Corresponding author: Yonghong Gu, zsy2191@sina.com

**Copyright:** © 2024 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

**Abstract:** Nowadays, people have entered the “Internet +” era where information technology has been further developed and widely used. Affected by this, all walks of life began to transform and upgrade in the direction of information, intelligence, and digitalization, and the education industry is naturally among them. Currently, the integration of information technology into China’s education field has been underway for some time, with notable improvements in teaching effectiveness. However, in the context of medical education in secondary vocational schools, the full potential of information technology has yet to be realized. This paper primarily analyzes and explores the significance, current status, and strategies for applying information technology in secondary vocational medical teaching, providing insights for reference.

**Keywords:** Information technology; Secondary vocational school; Medicine; Teaching applications

**Online publication:** December 23, 2024

## 1. Introduction

The integration of information technology and education leads to the success of education in China to enter the next new stage of development. At the moment, a large number of practices have proved that advanced information-based teaching environments and teaching modes can effectively mobilize students’ learning enthusiasm and cultivate their independent learning ability. Nowadays, more schools and teachers have realized the importance of carrying out information-based teaching. Therefore, medical teachers of secondary vocational schools must keep pace with the modern times and actively explore the specific application of information technology in curriculum teaching, to provide better teaching services for students and provide more excellent medical talents for the country and society.

## **2. The application significance of information technology in medical teaching of secondary vocational schools**

The application of information technology in medical teaching in secondary vocational schools is of great significance. Firstly, it can effectively mobilize students' enthusiasm for learning. In the medical information teaching of secondary vocational schools, teachers can use multimedia equipment to provide students with pictures, videos, animations, and other vivid learning resources, which can give students a good audio-visual impact and enrich their learning experience, which is conducive to creating a good classroom atmosphere for them to learn medical curriculum knowledge and mobilize their enthusiasm for learning.

Secondly, it can effectively strengthen the students' learning effect. Different from other professional courses, medical courses have strong theory and practice, which requires students to not only master and apply medical theory knowledge, but also be able to apply what they have learned to practice. However, most of the knowledge points in medical courses are abstract, complicated, and not easy to understand, which is often difficult for secondary vocational students whose thinking and ability are not perfect <sup>[1]</sup>. Nonetheless, if teachers can apply information technology to medical course teaching, they can vividly and intuitively present the original abstract and complex knowledge points, which is conducive to reducing the difficulty of students' learning and enhancing their interest in course teaching.

Finally, it can provide help for students' review and consolidation. In traditional medical teaching in secondary vocational schools, most teachers explain basic knowledge to students in the form of "oral explanation + blackboard writing" <sup>[2]</sup>. This teaching method will not only waste a lot of unnecessary time in class but also cannot ensure the continuity of teaching content. By applying information technology to medical teaching in secondary vocational schools, teachers can use PowerPoint (PPT) presentations to help students quickly review what they learned in the last class, help students to review and consolidate the knowledge points, deepen their understanding and memory, and help to improve the problems existing in traditional teaching.

## **3. The application status of information technology in secondary vocational medical teaching**

In recent years, China has introduced a lot of educational policies, aiming to provide more guarantees for the transformation and development of education informatization and education digitization. Nevertheless, from the present point of view, the application of information technology in the medical teaching of secondary vocational schools still inevitably has some problems. Some schools, in their pursuit of expanding the school size and enrollment scale, ignore the construction of an information environment, resulting in the backward construction of hardware and software infrastructure, which makes it difficult to meet the teaching needs, and thus unable to bring good experience to teachers and students <sup>[3]</sup>. For another example, although some schools attach great importance to the construction of an information environment, they have added a lot of information equipment. Still, teachers are limited in information technology, unable to flexibly and effectively apply information technology to classroom teaching, or rely too much on information technology, and the teaching method is relatively simple and so on <sup>[4]</sup>. All in all, the existence of the above problems will affect the information-based teaching effect of secondary vocational medicine to a certain extent.

## **4. The application strategy of information technology in secondary vocational medicine teaching**

### **4.1. Strengthening information infrastructure construction**

Under the background of the “Internet +” era, the primary task of secondary vocational schools is to constantly examine themselves, fully recognize the challenges brought by information technology, rationally expand the scale of education and enrollment, and constantly strengthen the information infrastructure according to the actual situation and demand, such as the construction of teachers, hardware and software infrastructure, and many more. Only in this way can we provide a more solid foundation for medical teaching<sup>[5]</sup>. Additionally, the school should strengthen the training of medical teachers’ professional skills and information literacy, and continuously improve their information teaching ability through various training activities, to improve the quality and ability of the school teaching team as a whole. Also, teachers themselves should strive to learn relevant knowledge, understand the real-time dynamics of the medical field and the development of information technology, actively participate in various training or teaching and research activities, and learn from the excellent teaching experience of other teachers, to continuously improve their comprehensive quality and comprehensive ability, to better realize their own professional value.

### **4.2. Create a good learning environment**

Under the current educational environment, secondary vocational education pays more and more attention to the cultivation of students’ independent learning ability, aiming at providing better support for students’ learning and development<sup>[6]</sup>. In the medical teaching of secondary vocational schools, the application of information technology in teaching can further expand the scope of teaching services and is conducive to providing students with a good learning environment. On the one hand, given the imbalance in the distribution of educational resources in China, the application of information technology in teaching can effectively promote the exchanges and interactions among various regions and colleges, promote the co-construction and sharing of educational resources, and provide a guarantee for the continuous improvement of medical teaching mechanism, which can be regarded as an effective way to improve the teaching quality of medical courses<sup>[7]</sup>.

On the other hand, the application of information technology in secondary vocational medical teaching can provide a good network communication platform for the online real-time interaction between teachers, students, and life, which can make students’ learning no longer limited by time and space, but also can help teachers understand students’ learning situation in time and carry out targeted teaching. Plus, teachers can upload medical teaching courseware to the network platform, so that students can watch and learn according to their own needs, and use the platform’s comments and other functions to answer their questions in time, to provide students with better information teaching services.

### **4.3. Integrate information-based learning resources**

When applying information technology to teaching, medical teachers in secondary vocational schools should collect more abundant teaching resources from the network based on textbooks and materials, and dynamically present them to students through video, audio, animation, and pictures, among others, to realize effective integration of medical teaching resources<sup>[8]</sup>. In this way, not only can it expand the students’ vision of medical knowledge, but also to a certain extent, mobilize the students’ enthusiasm for learning. Moreover, to better help students understand medical knowledge, teachers can also use information technology to try to

restore various medical phenomena, and set questions in combination with some real medical cases to drive students' thinking, increase the interaction between teachers and students, students and students and learning environment<sup>[9]</sup>. In this process, teachers can use information technology to cooperate with local hospitals to build a typical case database and apply it to daily teaching, to continuously enrich students' medical practice experience.

#### **4.4. Innovate the form of information-based teaching**

In the traditional medical teaching of secondary vocational schools, most teachers "inculcate" knowledge points to students in the form of "oral explanation + blackboard writing"<sup>[10]</sup>. For students, the amount of medical theoretical knowledge they face is huge and very boring. It is difficult to arouse interest in the study of medical courses, let alone master and apply it skillfully. To solve this problem, teachers may wish to make use of information technology to innovate teaching forms and to dynamically and concretely display the original boring, tedious, and obscure medical knowledge points. This has improved students' learning efficiency.

Furthermore, teachers can also use information technology to carry out online and offline mixed teaching, so that students' pre-class preview, learning in class, and review after class can be effectively connected to ensure the continuity of students' learning<sup>[11]</sup>. To be specific, before class, teachers can use information technology to make micro-lessons and upload them to the online platform. Students are required to watch videos of micro-lessons and complete pre-class tasks. At the same time, they are required to record the problems they encounter in the pre-class process and give feedback to team members and teachers in class. In class, teachers need to import teaching according to the content of micro-lessons, timely understand the learning problems of students, and understand the learning situation of students by analyzing the data in the background of the platform, and then carry out teaching on this basis and according to the purpose, and make targeted knowledge points for students<sup>[12]</sup>.

After class, students can use the platform to review independently and interact with teachers or other students online in real-time. This way not only ensures that students' problems are solved in time, avoids discouraging students' learning confidence, but also effectively cultivates students' independent learning ability.

#### **4.5. Establish an evaluation and feedback mechanism**

In the medical teaching of secondary vocational schools, the application of information technology can also be reflected in the establishment of evaluation and feedback mechanisms<sup>[13]</sup>. Specifically, the establishment of the evaluation system should include multiple dimensional indicators, such as students' knowledge mastery, medical skill operation level, learning attitude, and self-evaluation. In the assessment, teachers can obtain real-time feedback on students' learning status and problems through online tests, online medical simulation experiments, and other methods, to achieve a dynamic assessment of students' learning situation. The establishment of a feedback mechanism should introduce multiple feedback channels, including teacher evaluation, classmate mutual evaluation, and self-reflection<sup>[14]</sup>.

After the class, teachers can use online questionnaires or feedback platforms to collect students' opinions on the course content, application of information technology, and teaching methods to ensure that the feedback is true and effective. On this basis, teachers should hold regular teaching and research meetings

and adjust teaching strategies in a timely and reasonable manner according to this feedback to enhance the adaptability of teaching<sup>[15]</sup>. For example, teachers can conduct a comprehensive review at the end of each semester, form a data analysis feedback report with the help of big data analysis technology to clarify the achievement of various indicators, and then formulate or continuously improve teaching plans based on this, to achieve the purpose of improving the informatization level of secondary vocational medical teaching.

## 5. Conclusion

In short, under the background of education informatization and education digital transformation and development, the combination of information technology and secondary vocational medical teaching conforms to the requirements of the development of the modern era and is also one of the effective ways to promote the reform and development of secondary vocational education. In practice, on the one hand, schools should strengthen the information infrastructure construction to provide a guarantee for teachers to carry out information teaching. On the other hand, teachers need to create a good learning environment, integrate information learning resources, innovate information teaching forms, and establish evaluation and feedback mechanisms to promote the organic integration of medical teaching and information technology, to provide students with better teaching services.

## Disclosure statement

The authors declare no conflict of interest.

## References

- [1] Tan H, 2024, Research on Teaching Model of Medical Professional Courses Based on OBE Concept—A Case Study of Pediatric Nursing Courses. *Educational Observation*, 13(16): 78–80 + 85.
- [2] Dou D, 2024, Study on the Construction of Student-Centered Basic Classroom Teaching Model of Pathology in Secondary Vocational Schools. *Science Weekly*, 2024(14): 31–33.
- [3] Xu Z, Zhu P, Long H, 2024, Application of Artificial Intelligence in Medical Information Technology under the Background of New Medicine. *Industrial Control Computer*, 37(01): 145–146 + 149.
- [4] Su D, 2023, Research on Blended Teaching Design and Practice of Biochemistry for Secondary Vocational Nursing Major with Five-Star Teaching Method, thesis, Yunnan Normal University.
- [5] Wang L, Zhao YF, 2023, Research on Preventive Medicine Education of Secondary Vocational Medicine Specialty. *New Curriculum Teaching (Electronic Edition)*, 2023(12): 183–184.
- [6] Fan X, 2023, Application of Intelligent Network Learning Media in Optimizing the Teaching of Basic Course of Secondary Vocational Medicine—A Case Study of Basic Course of Pathology. *Chinese Journal of Multimedia and Network Teaching*, 2023(04): 42–45.
- [7] Zeng C, 2023, Reform and Practice of Mixed Teaching of Basic Course of Information Technology in Secondary Vocational Schools Based on Nursing Information Ability Training. *Health Vocational Education*, 41(08): 43–46.
- [8] Liu J, Zhang D, 2022, Research on the Application of Information Technology in the Practical Teaching of Rehabilitation Technology in Secondary Vocational Schools. *Guangdong Vocational and Technical Education and Research*, 2022(05): 149–152.

- [9] Lin W, 2022, Application Analysis of MOOCs and Micro-Courses Combined Teaching in Preventive Medicine Teaching Reform of Secondary Vocational Schools. *Knowledge Library*, 2022(19): 76–78.
- [10] Zhang Y, 2022, Practice of Micro-Course Teaching Mode in Physiology Teaching in Vocational Health Schools. *China New Communication*, 24(11): 239–241.
- [11] Wang K, 2022, A Practical Study on the Effective Connection between Public Basic Courses and Specialized Courses in Secondary Vocational Schools—Taking Animal Medicine Major as an Example. *Educational Observation*, 11(11): 82–84 + 93.
- [12] Zhang H, 2021, Discussion on the Cultivation of Students' Learning Interest in Medical Teaching in Secondary Vocational Schools. *Occupation*, 2021(13): 72–73.
- [13] Liu Q, 2021, Application of Case Discussion Flipped Classroom Teaching Model in Preventive Medicine Teaching in Secondary Vocational Schools. *Road to Success*, 2021(18): 140–142.
- [14] Liu Z, 2021, Theoretical Knowledge of Emergency Medicine Course in Secondary Vocational School—Online and Offline Mixed Teaching Design and Practice. *Intelligence*, 2021(08): 74–76.
- [15] Liang M, 2019, Application Status and Countermeasures of Information-Based Teaching in Preventive Medicine Teaching in Secondary Vocational Schools. *Education and Teaching Forum*, 2019(44): 269–270.

**Publisher's note**

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.