

Research on the Application of Medical Virtual Simulation Digital Experiment Project in Morphology Integration Experimental Teaching Reform under the Background of Information Technology

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Abstract: The application of medical virtual simulation digital experiment project in morphological integrated experimental teaching reform is beneficial to the training practice mode of medical innovative talents, improves the quality of medical teaching, improves the professional practical ability of medical students, and promotes the achievement of the goal of medical personnel training under the background of information. This paper first summarizes the medical virtual simulation digital experiment project under the background of information technology, then expounds the application necessity and importance of the medical virtual simulation digital experiment project in the morphology integration experiment teaching reform under the background of information technology, and then analyzes the application status and existing problems of the medical virtual simulation digital experiment project in the morphology integration experiment teaching reform under the background of information technology. Finally, this paper tries to explore the application countermeasures of medical virtual simulation digital experiment project in morphological integration experiment teaching reform under the background of information technology.

1. Introduction

The application of information technology in various teaching fields has been greatly increased in recent years, in the information era. Zhen Lu, Xiang Li, Bao Li, Xuemei Jia (2017) pointed out that information teaching is of great significance in the teaching reform of colleges and universities. Because of its convenience and ease of use, informatization has become the mainstream trend. Virtual simulation uses modern information technology to construct a realistic experimental environment, which can enable students to simulate real experiments in an open, autonomous and interactive virtual environment. Jun Song, Jie Wang, Xiuli Lian, Ruixiang Zhou (2018) pointed out that educational informatization is the support and guidance of educational modernization. It is of great significance to actively carry out digital teaching reform, to build digital teaching platform and explore digital learning mode in medical morphology experimental teaching, not only to improve teaching quality, mobilize learning enthusiasm, but also to improve school information construction and management level. Wei Chen, Chunxiao Wang, Liwei Zhao, Yuepeng Wang, Chengyuan Xin, Yanchun Wang and Lianhai Jin (2017) pointed out that with the continuous development of information technology and the combination of educational resources networking and educational technology informatization, medical education needs both profound theoretical basis and skilled technical operation. However, medical experiments are difficult to carry out in some special environments and special social backgrounds. The emergence of virtual simulation experiment can alleviate this contradiction. The existing literature discusses that medical laboratory teaching needs to actively promote information technology and promote the reform of virtual simulation experiment teaching under the background of information technology. This paper mainly studies the application of medical virtual simulation digital experiment project in morphological integration experiment teaching reform under the background of information technology.

2. An overview of the digital experiment project of virtual simulation under the background of information technology

The digital project of medical virtual simulation is to build an experimental teaching center for medical students, including the establishment of morphology digital teaching platform, functional virtual experimental platform, medical virtual instrument platform and clinical skill simulation experimental platform under the background of information technology.

3. The application necessity and importance of the medical virtual simulation digital experiment project in the morphology integration experiment teaching reform under the background of information technology

3.1 The application necessity of the medical virtual simulation digital experiment project in the morphology integration experiment teaching reform under the background of information technology

The medical virtual simulation experiment project can realize the expansion of medical specialty teaching in new technology and new field by intersecting professional theory with information technology and merging with each other under the background of information technology. Colleges and universities construct virtual simulation experiment project and network teaching platform in medical specialty, combine the frontier exploration in medical field with the latest direction of innovative talent training closely, and realize the reform goal of medical talent training mode. medical majors in colleges and universities need to integrate digitization and information teaching methods into all links of experimental teaching, construct cross-domain and multi-level experimental teaching network platform with information literacy, and construct virtual simulation experiment teaching center for medical majors under the background of information technology, which can constantly expand the teaching space of medical experiments and enhance the depth and breadth of medical experiment teaching, to promote the informatization of medical education, deepen the reform of teaching methods, improve students' ability of independent learning and innovation, and then provide solid talent support for modern medical education.

3.2 The application importance of the medical virtual simulation digital experiment project in the morphology integration experiment teaching reform under the background of information technology

The new era has changed the demand of medical personnel under the background of information technology. The medical profession needs to strengthen the medical experiment teaching, but the medical related experimental equipment and material cost are high, so that some basic experimental projects are difficult to carry out, through the application of the digital experimental project of building medical virtual simulation in the reform of the morphological rectification experiment teaching, the advantages of the virtual simulation technology can be exerted, and the expensive experimental scene and the experimental equipment can be simulated by real simulation, through the man-machine interaction mode, the medical students can carry out experiments in the virtual experiment scene, provide the experiment similar to the actual operation, not only can save the medical education resources, enrich the medical teaching means, and improve the actual effect of the medical experiment teaching.

4. The application status and existing problems of the medical virtual simulation digital experiment project in the morphology integration experiment teaching reform under the background of information technology

The application of medical virtual simulation digital experiment project in morphological integration experiment teaching reform is increased because of its advantages and characteristics Under the background of information technology,, but there are some problems in the application of

medical virtual simulation digital experiment in morphology integration experiment teaching reform: virtual simulation experiment cannot completely replace the real experiment, and the requirements for medical teachers are improved. It is difficult to simulate innovative independent experimental design.

4.1 The level of experimental teachers in medical specialty needs to be improved

The parameter test of medical simulation experiment equipment is different from the physical test, and the simulated medical experiment cannot completely replace the physical medical experiment. Virtual reality technology is a kind of new computer technology, which requires medical teachers to have more professional computer skills, while medical teachers mainly focus on the cultivation of teaching ability and the exploration of teaching methods, sometimes the two cannot be unified. How to realize the organic combination of the two abilities and give full play to the advantages of professional skills is an urgent problem to be solved at present.

4.2 It is difficult to simulate innovative autonomous experimental design.

The traditional medical experiment teaching is that under the guidance of medical teachers, students are divided into groups to carry out experiments, to find problems in practical operation and solve them through cooperation. For the complex independent design experiment, students are required to integrate the textbook knowledge and improve the practical ability and innovation ability, and many students are required to unite and cooperate and make a clear division of labor. However, the application of virtual simulation experiment in morphological integration experiment teaching is the three-dimensional reproduction of the existing experiment, which only includes the experimental teaching course that has been modeled and outputted, so it is difficult to simulate the innovative autonomous experimental design.

5. The application countermeasures of medical virtual simulation digital experiment project in morphological integration experiment teaching reform under the background of information technology

The digital experiment project of medical virtual simulation is closely combined with the reform of experimental teaching in morphology integration, scientific planning, processing and integration of existing resources, constantly improving the overall level of experimental teaching platform of medical specialty, and improving the level of experimental teachers of medical specialty under the background of information technology.

5.1 Scientific planning and integration of resources

We should seize the current favorable opportunity, actively integrate the information and network resources, scientifically and reasonably plan the new mode of hospital talent training and development, clarify the development direction of medical specialty, make scientific and rational use of resources, integrate medical equipment and resources, and give full play to the synergy effect Under the background of information technology, so that the overall benefit can maximize the potential resource advantages into great competitiveness.

5.2 Strengthening the construction of various medical experimental platforms and information exchange centers

The advanced virtual simulation experiment teaching network sharing platform and information management system are constructed, the morphology digital teaching platform, the functional virtual experiment platform, the medical virtual instrument platform and the clinical skill simulation experiment platform are established, and the information interaction center is constructed. Develop a new virtual simulation experiment project to enrich the teaching resources of virtual simulation experiment. Paying attention to the cooperation between school and enterprise and developing mobile smart terminal application platform will enable medical students to carry out virtual simulation medical experiment training through mobile phone.

5.3 Paying attention to the management system and system construction of virtual simulation digital experiment project in the process of experiment teaching

The management system and system construction of virtual simulation digital experiment project in the process of experimental teaching, perfect the relevant organizational structure design and personnel arrangement, carry out the management system of setting up, setting posts, competing for posts and regular assessment of experimental teachers. The experimental teaching and technical personnel are treated equally with the teachers in order to arouse the enthusiasm of the work and promote the stability of the experimental team, clarify the post responsibilities of the experimental personnel at all levels, perfect the rules and regulations of the experimental management, and make full use of the management work of the computer standardization center to realize the institutionalization, procedure and informatization of the medical experiment management, to perfect the open laboratory operation mode, carry out the omni-directional laboratory opening, and let the student choose the experiment to carry on the study, the operation. Improve the virtual experiment center open rules and regulations; improve the virtual experiment center funds use system.

5.4 Improving the level of experimental teachers in medical specialty

The quality of teaching staff is the guarantee of building a high level demonstration experiment center, and the cultivation of talents is an important way to improve the quality of teaching staff. The key to talents is the improvement of the quality and level of teachers themselves. Colleges and universities need to build high-quality medical experimental teaching team, strengthen the management of medical experimental teaching and the construction of project R & D talents, and improve the level of medical experimental teachers under the background of information technology. Young teachers and experimental technicians are encouraged to study for masters and doctorates, gradually improve the level of teachers and adjust the structure of degrees. At the same time, they are encouraged to participate in teaching and scientific research work, and to constantly improve the level of experimental technology and scientific research ability. Give full play to the role of senior professors. As the task of teacher training, teachers with high professional titles in various disciplines are required to take the lead in participating in experimental teaching in order to strengthen the cultivation and improvement of the experimental teaching level of young and middle-aged teachers. Employ well-known university experts at home and abroad to guide and lecture in the school medical laboratory. At the same time, the introduction of high academic qualifications, high professional titles of young and middle-aged teachers. Pay attention to the technical training of laboratory personnel, and so on.

6. Conclusion

In summary, the application of the digital experiment project of medical virtual simulation in the reform of morphological integration experiment teaching under the background of information technology reflects the deep integration of medical specialty and information technology. It is the key direction of medical experiment teaching, shares more high-quality medical teaching resources, improves the level of medical experiment teacher, improves the level of medical experiment teaching, which is helpful to improve the professional practice ability of medical major and realize the goal of medical personnel training.

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References

- [1] Zhen Lu, Xiang Li, Bao Li, Xuemei Jia. Application of virtual simulation technology in morphology experiment teaching [J]. Advances in Anatomy, 2017 (2): 113-114.
- [2] Jun Song, Jie Wang, Xiuli Lian, Ruixiang Zhou. Discussion on Digital Teaching Reform in Medical Morphology Laboratory [J]. Chinese Journal of Histochemical and Cytochemistry, 2018, 27 (04): 91-94.
- [3] Wei Chen, Chunxiao Wang, Liwei Zhao, et al. Thinking on the Similarities and Differences between the Medical Virtual Simulation Experiment Project and the online Open course under the Background of Internet [J]. China New Communications, 2017 (23): 159- 160.
- [4] Qinghua Yu, Lixia Yuan. Application of Virtual Simulation and Digital Microscopic Network Interaction System in Organizational Morphology Experiment Teaching [J]. Experimental Science and Technology, 2018, 16 (3): 58-60.
- [5] Yaohui Wang, Wanjin Zhou, Xinsheng Yao, Junwei Yang, Zhiquan Zhao, Zhenglong Ge. Construction and Exploration of medical virtual simulation experiment teaching center [J]. Basic Medical Education, 2018, 20 (12): 94-97.
- [6] Xuxia Li, Qingyu Meng, Wen Sui. Exploration on the Construction Mode of Virtual Simulation Experiment Teaching Platform for Medical Laboratory [J]. Guide to Science and Education (mid-term), 2018, No.344 (07): 67-68.
- [7] Longjiang Yu. Exploration on the Construction Concept and Development Mode of Virtual Simulation Experiment Teaching Center [J]. Experimental Technology and Management (04): 108-110