Research on the Animation and Virtual Simulation Technology and the Applications on Medical Popular Science Education and Medical Technical Training

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Abstract

In this paper, we conduct research on the animation and virtual simulation technology and applications on medical popular science education and medical technical training. Health education workers should have medical science, as the basic medical and the health knowledge, spread to the masses, to improve the level of the people's health knowledge, carry out self-health care, prevention and treatment of disease, everyone involved in health care, to achieve the goal of everyone's health. So the medical popular science education in the position and role of the social life, and to explore its role in the rule and developing trend, to understand how it works, and so on, will be on people's healthy development, the improvement of the material and spiritual civilization in human society is of great significance. Our research proposes the new idea that is instructive.

Keywords: Virtual Simulation, Animation, Medical Popular Science, Medical Technical.

Introduction

Medical popular science education, just as its name implies is to medical science knowledge in the form of concise, vivid, easy to understand, please transfer to the public, let people accept understand these knowledge and consciously adapt to the healthy, civilized and scientific way of life. Thus the medical popular science education not only has the value of science, but also has a wide range of the social value. The medical popular science education belongs to the category of scientific knowledge, it has to promote the power of social advancement, which can directly or indirectly into productivity, and at the same time it is expanding on the application of the medical professional knowledge and the supplement. Scientific cultural quality is an important component of national quality, improve the scientific and cultural qualities of whole nation is implementation and the sustainable development strategy of relying on science and education is an important basic work [1-3].

Based on the literature survey, the challenges for modern medical popular science education can be summarized as follows. (1) Science popularization is the "national", there is no difference. Science is a national, but according to the different ages, different people, there should be different standard and way, popular science propaganda should be divided into "level" and "status", classify, target-oriented. (2) Medical science directly purpose is to make the public understand medicine, alternative medicine and medical technology development in the direction of the beneficial to all mankind. (3) Colleges and universities "shall organize and support scientific and technical workers and teachers in popular science activities, encourage the combination of the job to popular science propaganda". There is no doubt that as a medical colleges and universities.

It can be seen from these examples that must through the science to the benefit of science and technology. Also, medical science and technology must through the science to be people know and accept, thus to play the prevention and treatment of diseases, the ultimate goal of protecting health. In medical institutions, the outstanding staff is often the most powerful competition farman as want to

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medical staff as our core competitiveness to win the trust of patients and raising the level of human resource management in medical institutions to complete the demand for social competitiveness is the key. Medical institutions through the corresponding training methods that let the medical staff in the knowledge, professional skills, attitude, consciousness, behavior habit and sense of the mission six aspects a workout, and meet the relevant specification and medical institutions training methods are various, the traditional classroom teaching, also have the latest clinical practice as well as department rotation system. In recent years the rise of the interdisciplinary also provides a new method for the training of medical institutions. With the progress of day generation and development of training technique is more and more diversified, and can do starting from the actual needs of the medical institutions, but also make different training plan according to different training direction. So the trainer should grasp this, pay more attention when implement training, according to the specific as circumstances of different ways to choose the appropriate training to efficient to complete the training purpose. For instance, the figure one shows the popular science education paradigm [4].

![Domains of Science](image)

Figure 1. The Popular Science Education Paradigm.

In this paper, we conduct research on the animation and the virtual simulation technology and the applications on medical popular science education and medical technical training. Thus, explore the worker of the innovative ways of the medical ethics training has become the urgent task for the management of staff, in this paper, from the doctor medical ethics training method, comprehensive analysis of the meaning of innovation methods and specific innovation. In the following sub-sections, we will analyze and discuss the issues in detail.

**The Proposed Methodology**

**The Medical Technical Training.** All of good quality is to rely on the basis of that effective file management system and appropriate training for all personnel in the system. Many consistent, high quality of medical service provided but also for medical personnel to accept the proper training, many medical accidents are caused by training or no training or invalid. State-owned hospital doctors and individual differences in the concept of change such as the profound change of the social situation and international situation and domestic all restrict the play of the role of medical ethics training methods, we can only adhere to correct principles in the innovation, as medical ethics training methods to the worker to innovate, to the medical professional ethics training to the worker's role properly. For the related issues, the technical training steps should be considered with the listed aspects.

- Applied to work in the process of training methods, including lectures, multimedia teaching, self-study, on-site interaction or the video demonstration, practice, practice results under the supervision of self-evaluation and testing, etc., but not limited to this.
• Including all the items used in the training process, documents, manuals, manufacturer instructions manual, work process documents, lectures, self-study program, video tapes, practical information, etc.

• Training goal is to expect of the training results of different training objects should set specific goals. Focus on basic training for new personnel as for professional and technical backbone, with the ability to work focused on expanded vision and ability to improve [5].

Medical technology clinical application of standardized management, promoting the development and progress of the medicine that is conducive to the improvement of people's health. To establish the relevant medical management system and safeguard system, improve and that perfect the medical technical files and dynamic management and informatization, updated in real time, regular audit. At same time, to strengthen management of surgical grading, within the prescribed scope of operation level, establish the physician operation level and scope of authority, in a professional capacity as a standard of that operation permission to audit, regular updates and publish operation library, expert database. People make a diagnosis and that gives treatment of disease knowledge, experience, skills, techniques is reflected by medical and material technology. Also, medical material technology needs by the medical staff of knowledge, experience, skills and techniques in diagnosis and treatment.

**The Medical Popular Science Education.** In science and technology progress and economic prosperity and social development at the same time, efforts to improve the ideological and moral and ethical, scientific and cultural quality, and realization of the modernization in China, medical popular science education can not only increase college students' medical science knowledge, the explanation of some medical problem in life, but also to improve the modern college students' comprehensive quality and creative ability, also is the indispensable important to foster a comprehensive high-quality talent, for the construction of modernization in our country. Based on the literature review, we should consider the following aspects for the medical popular science education.

• Written materials. Textbook content with function of human body structure as the forerunner, the occurrence of common diseases, propagation and preventive care knowledge as the main body, supplemented by first aid and sexual knowledge as a whole, its content should focus on practical and interesting, contact the actual life.

• A bright prospect in medical science education. As long as we mobilize the forces of the whole society, especially the education administrative departments at all levels and all kinds of the schools, medical popular science education will get very good implementation, the prospects are very broad [6].

• Fully recognize the necessity and urgency of medical popular science education. In medical college students to carry out the medical popular science education is a very necessary and the urgent task. It should be incorporated into the literacy education planning, mobilize the forces of the whole society, including education, health and association for science and technology culture departments, jointly advocate science, good social atmosphere against superstition.

• Teaching form should focus on diversity. In writing, on the basis of developing the electronic materials, do illustrated, easy to understand.

Give full play to all aspects of power to do a good job for non-medical student medical popular science education, to gradually establish the medical popular science education departments and mass organizations of medical science network medical science network system with the combination of the colleges and universities. College students are not only the knowledge of the recipient, as well as innovators and disseminator of knowledge, for their education, especially for high class students with such education, will produce a profound social impact. For the improvement of quality of the whole nation, enhanced overall national strength, there is an immeasurable role.

**The Animation Technology.** Along with the advance of science and technology and the diversity of mass culture entertainment, animation culture attracted new culture and landscape, are booming,
successively, in turn, the three dimensional animation holographic animation, FLASH animation and other new forms of animation. Represented by cartoon, cartoon, animation, game animation industry increasingly improve the status in the global economic growth, following the software development industry and a pillar industry.

For domestic, domestic market prospect is very good, gradually formed some animation industry base, the stronghold for the base form of domestic animation industry agglomeration area competition is intensifying. A complete video class 3D animation production can be roughly divided into the following three parts. (1) Pre-production. Mainly in the computer before creating images of planning and design work, which mainly contains the following aspects: the content of the script, the script production, especially role model design, and scene design, etc. Script is the basis of our creation, is the animation effect of the visual language to describe in words that allow people to feel the picture through the text. The contents of a text, a shooting script production are through simple the shooting pictures, the visual text. (2) Animation production period. Building model generally made in the 3D software, can be made according to the previous settings. Of course modeling needs a good idea and the higher art strength. Strong artistic model can reflect the characteristics of the three dimensional animation more. Texture mapping requires the material of characters or situations demand analysis and texture of each model and scene, in accordance with the requirements for different material of different texture. (3) Synthesis in the late stage. The use of computers for special-effects provides more and better method, also make a lot of the past must be used to model and photography means complete special effects can be completed by computer, so more special effects become the work.

**The Virtual Simulation Technology and Medical Applications.** Virtual reality technology is a kind of immersive interactive system based on computer information technology. It is to use computer technology as the core of the modern high-tech to generate lifelike combines visual, hearing, touch, which integrates the particular range of virtual environment, a user with the necessary equipment in a natural way and the objects in the virtual environment interaction, mutual influence, resulting in a performance in real environment would be feeling and experience. Virtual reality using the interactive tool to simulate the real operation of that specific hardware and software environment, users have immersive feeling in the process of operation, can be widely used in surgery training, preview, clinical diagnosis, remote intervention, medical teaching and so on each link as follows [7-8].

- **Remote intervention.** Virtual surgery and remote intervention will be able to surgeons in the operating room can get remote real-time interactive consultation experts. Interactive tools can make consultant to help guide the work target projection in patients with surgical operation.
- **Surgery rehearse.** The whole process of the virtual surgery system can preview so as to find problems in the operation in advance. Virtual surgery system can make the doctor can rely on preoperative medical image information that establish a three-dimensional model, the virtual environment design in computer operation, improve the success rate of surgery.
- **Clinical diagnosis.** Pure software developed by using 3D reconstruction technology medical virtual reality have developed many software, virtual endoscopy can make the line of sight of the doctor in the patient's body or even freedom of navigation in the capillaries. This dynamic reality shows have inestimable value for clinical diagnosis.
As shown in the figure 2, we demonstrate the animation and virtual simulation technology. Virtual human body packet contains rich image information, can provide for interventional diagnosis and treatment of the virtual reality technology application environment. This technique has been widely applied to such as colon, ear, esophagus, bronchial surgery and other various operations. In a word, virtual human is an interdisciplinary, cross new high-tech fields that can provide image for medical research, teaching and clinical and the real model, for the disease diagnosis, new drug and provide reference for the development of new medical treatments. Therefore has wide application prospect.

**Conclusion**

In this paper, we conduct research on the animation and the virtual simulation technology and the applications on medical popular science education and medical technical training. With development of the modern medicine, the medical model is no longer a simple biological factor but gradually to biological, psychological, social, and environmental medicine constitute of all-round development. Medical popular science education in the human society has an important position and role in the life. Make full use of and function of expanding medical popular science education, shall be used as one of the focuses of human health care work and has been widely promoted by the social from all walks of life. This paper proposes the new perspective of the virtual simulation technology and the applications on medical popular science education and medical technical training that is innovative.

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