Research on the Man-machine Interactive Environment VR and the Applications on Vocational Education and Training under the Perspective of Interactivity

Xiaoyi Huo

Abstract

In this paper, we conduct research on the man-machine interactive environment VR and the applications on vocational education and training under the perspective of interactivity. With the increase in the general standard of social knowledge level and competition intensifies, more and more people have a goal to build a lifelong learning system, according to their own hobbies, work and the needs of the market competition. Under this condition, the vocational education is becoming more and more essential. This paper integrates the VR and man-machine interactive concept to propose the new education paradigm that is innovative.

Keywords: Man-machine, Environment VR, Vocational Education, Perspective of Interactivity.

Introduction

The wave of global economic integration and China's industrial structure adjustment impact on social employment structure and every corner of the labor market also make the vocational training that develop, update, and the great cause of improving the quality of workers ushered in the unprecedented development opportunities and challenges since the beginning of time. To give full play to vocational training in training high-caliber laborer has irreplaceable unique functions, building and perfecting adapt to market economy in our country requires lifelong vocational training system has become the necessity. Although so far, the concept of professional training system, is uncertain, people reached a consensus on a bit, the vocational training system as an integral part of vocational education system refers to a country or a region of various types, various levels of professional training as a whole.

With the increase in the general standard of social knowledge level and competition intensifies, more and more people have a goal to build a lifelong learning system, according to their own hobbies, work and the needs of the market competition, signed up for a variety of different classes and held on social class basically has the following several types. (1) Mandatory training course. This training is based on laws, regulations, rules and the regulations to carry out the training that belong to the legal training. By the national unified management of the relevant administrative departments to formulate unified fee standards. (2) Senior management training courses. More and more companies are aware of the role of leadership, a growing number of management themselves have also been aware of the great responsibility. Realize the training should start from their own first and then the various purpose senior training classes emerge in endlessly that become nobles in the training market. (3) International certificate of general training course. After China's WTO accession, foreign some mature training consultancy, have to speed up the steps, into the world's largest one of the most potential market in China. Also some of the biggest private enterprises in our country and foreign well-known enterprises or foreign university union school, after learning to participate in the training of personnel, to pass the exam to get foreign general in the international register certificate [1-3].
According to the result of theoretical study, we performed the interaction of education and the relationship between the individual self-development processes of the practice research. First of all, from to determine whether the teachers and the student subjective consciousness to the interaction between teachers and students can affect individual self-development between teachers and students. To this end, we use a barrier method of determine the education activity, and based on this method of our research methods to reveal the factors influencing students’ self-development. The end of the 20th century, according to Moore, the interactive pedagogy in the interactive object is divided into three categories: the interaction between the learners and the teachers, the interaction between learners and learning content, and the interaction between learners and learners. The combination of the education and interaction will be discussed in the later sections. We firstly show the systematic sescription of the vocational education and training in the figure one [4].

![Diagram](image)

Figure 1. The Systematic Description of the Vocational Education and Training.

In this paper, we conduct research on man-machine interactive environment VR and applications on the vocational education and training under the perspective of the interactivity. In the following sub-sections, we will discuss the corresponding issues theoretically.

**Our Proposed Methodology**

**The Vocational Education and Training System.** People use the perspective of general education theory to discuss the relationship between vocational education and social factors, and example of the stipulation of vocational education. This line of thinking has its rationality, but also caused people to question of vocational pedagogy as an independent discipline rationality and necessity. Through to our country vocational education development history and present situation of research and analysis, the draw experiences and lessons from developed countries for reference, on the basis of the modern vocational education system in our country should have the following several characteristics.

- Multifunctional system. Education function refers to the education activity and the education system of the impact of the individual development and social development and function. Therefore, the function of the modern vocational education system mainly displays in the educatees and social aspects [5-6].
- Perfect laws and the regulations system. Vocational education as a social practice, by state laws and regulations and the constraint of social moral standards. Perfect laws and regulations system is the guarantee of healthy and rapid development of vocational education is the main characteristic of modern vocational education system.

- Open system. Vocational education and other education communication, organic link to each other. In the schooling system, qualification system, curriculum system, management system, many aspects, such as the cooperation and communication with other education.

In Chinese vocational education in order to ensure the healthy, stable and sustainable development, while vigorously develop vocational education of all types and at all levels, we must carefully study about what exactly is the purpose of vocational education. This requests us to modern vocational education under the background of globalization and lifelong education view, based on the practice of the existence of the vocational education, to draw the logical definition of the concept of modern vocational education dialectically analysis and evolution history of vocational education purpose, combined with the goal of building a harmonious socialist society in our country, and it is concluded that the basic connotation of modern vocational education purpose.

![Figure 2. The Vocational Education and Training Architecture.](image)

**The Interactive Education.** Interactive teacher education is the independent participation problems centered a way of training. Under the guidance of our teachers in curriculum concept, with their own confusion and problems to different classes, by listening to lectures, see class and the managers, teachers, students and parent direct exchanges, dialogue and found the problem by themselves, thinking research and diagnose problems, solve problems creatively. Interactive for both collaboration and communication among teachers also refers to the group dialogue and exchanges between schools and training students, it is task driven, subject combination, site diagnosis, case teaching, participation and share for the integration of teacher education. Interactive model of the teaching in the information technology environment, mainly divided into the following several kinds of the mode. (1) Students to interact with the media interface, on the basis of informatization of the education, many remote education activities are done by some of the electronic media, as a result, students to interact with the media interface will happen that is able to observe the results of this interaction. (2) The interaction between teachers and students, specific performance for teachers to provide students with tasks, according to the task of learning, and according to the task to change their learning behavior is the adaptability of interaction between teachers and students, the interaction of the results can be observed. (3) On the concept of interaction between teachers and students, primarily through dialogue and interactive way in the process, the teacher according to the teaching purpose of concept explanation, and spread to the students, for students to bring a new concept that is a kind of virtual interactive activities and the result is not observable [7].
The Virtual Reality. Virtual reality is a hot spot of technology at home and abroad in recent years, its development is rapid, its purpose is to make information system as much as possible to meet the needs of the people, more humanized human-computer interaction, the user can more directly interact with the data. Virtual reality technology is an emerging science and technology, which integrated the technologies of computer graphics (CG) and computer simulation technology, artificial intelligence, sensor technology, display technology, the network parallel processing technology such as the latest development of results, is a kind of technology aided by computer generated simulation system of the high and new technology. Overall, throughout the years of rapid development, the future of the VR technology research will still follow the principle of "low cost, high performance", from the software, hardware, and will be in the following main direction. (1) Virtual reality to realize people are able to freely interact with objects in the virtual world, is, as it were, with the help of the input and output devices are mainly data display, data gloves, clothing, the three dimensional position sensor and the three dimensional sound generator, etc. (2) Virtual reality modeling is a more complicated process, need a lot of time and energy and if the VR technology and intelligent technology, voice recognition technology, is a good way to solve this problem. (3) The establishment of the virtual environment is the core content of the VR technology, dynamic environment modeling technology is to obtain the purpose of the actual environment of 3D data, and according to the need to establish a corresponding model of the virtual environment.

It is a virtual environment created by manipulation of the three kinds of hardware: (1) the head positioning sensors, for example, used to measure the operator body movements; (2) control devices, the feeling of the stereoscopic display, for example, to stimulate the operator; (3) some special hardware connected sensors and control devices. These devices make the operator feel like in a real environment. In a virtual environment to simulate the computer connection role, for the remote monitoring of helmet display device, the connection must be through the robot remote control device, control system, sensors, cameras and other devices to complete practical work site.

The Human-Computer Interaction. In the human and computer interaction, visual usually as a person the feeling of receiving information channels and for example, when a user use the mouse to select the interested target on the screen, the line of sight with attention focused on the goal, then check the cursor with the objective space gap, to feedback to the brain and the brain direct hand to move the mouse, visual judgment until the cursor is located in the target to make the buttons. The development of human-computer interaction system is usually needed to establish a model. Before building the model, we must clearly understand what model to include, and the extraction of user requirements. Requirements elicitation and methods there are many kinds of specifications, including scenarios, use cases, task analysis, unstructured information they provide [8].

As for the vocational education scenarios, we should design the interaction pattern as the follows. (1) From a user perspective, interaction design is a kind of how to make the product easy to use, effective and enjoyable technology, it aims to understand the target users and their expectations, to understand each other's behavior when users interact with the product, understand the psychological and behavior characteristics of the people themselves. At the same time, also includes information on the full range of effective interaction, and to strengthen and expand them. (2) In the satisfied product fully functional and convenient and easy to use, the user need more experience unexpected surprise, this research will be needed and concern. Designers need to understand how will the people like to communicate with the product, and the study of how the product user interface conforms to the user "system of value and significance", reminds the user's "emotions and memories". (3) Man-machine interface problem is always the focus of the humanized design. Computer hardware interface refers to the human-computer interaction equipment such as mouse, keyboard, monitor and chair, table, etc. At present, for most of the humanized design of hard interface just make change on modelling, rarely to consider from the aspects of ergonomics and human environment.
The Vocational Training Suggestions. Vocational training purpose is to meet with the job requirements, the ability to meet the requirements of qualified for the profession level and the content of the vocational training is a particular profession in the field of the knowledge, skills, skills and professional attitudes, professional ethics, etc. The concept of professional training, therefore, can be defined like this: vocational training refers to the basis of education, in view of the current social and economic development requirements, to practitioners, employment requirements and willingness of unemployed personnel, by imparting professional knowledge, skills, skills and professional attitude, professional ethics, such as content to make its employment capability and meet the job requirements of the vocational education activities. Above from different aspects such as connotation, content, characteristics analysis of the vocational training basic concept shows that vocational training is essentially imparting professional knowledge to give priority to, focusing on cultivating professional quality of laborer, in a practical professional activities, and its emphasis on the practicability and the adaptability. Concept and characteristics of it is not derived from other theory that also is not static, immutable, but based on practice, the dynamic of vocational training as a reflection of the existence. Under this condition, the integration with VR will help the development of the training.

Conclusion

In this paper, we conduct research on man-machine interactive environment VR and applications on vocational education and training under the perspective of interactivity. The construction of modern vocational education system must be based on the nature of vocational education on the basis of the in-depth study. Only when have crossover the research vision, and just may to ask for innovation breakthrough. In the modern society, such demand, mostly require different forms of vocational education to meet. Society should provide social members with a variety of the career in the various vocational educations or training must accept by choice, and to embody the people-oriented education purpose. With this basis, this paper proposes the new perspective on the man-machine interactive environment VR based vocational education and training that will promote the development of the related subjects and research.

References


