

The Design of Digital CBT Teaching System for Flight Attendants

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Abstract: With the development of the flight attendant, the contradiction between theory teaching and practice teaching is slowly emerging. In order to solve this problem as soon as possible, we introduce the educational teaching software based on virtual reality, the digital CBT of the flight attendant, through the design of the digital CBT teaching system of the flight attendant, the whole process of real work is simulated with the aid of multimedia simulation technology, and the theoretical knowledge and practical ability are combined effectively.

Keywords: Flight Attendant; Virtual Environment; CBT; Design of Teaching System

1. INTRODUCTION

Computer aided training CBT(computer based-training) is a widely used training method in the world aviation industry. CBT training uses a variety of multimedia means such as sound, image, and text, it can use modern multimedia and information network technology to simulate real job process of the civil aviation cabin. According to the content requirements of the course, teachers assign tasks to students and grant students permission to learn, students can also choose teaching modules combined with their own learning state, and learn from the vivid videos, animations and pictures in the system. The vivid demonstration interface and the interactive function of the "flight attendant CBT virtual training system" greatly improve the students' desire for the study of professional courses, and thus change the students' classroom learning methods, the system changes the students' classroom learning methods and transforms the traditional "civil aviation simulation cabin training" into the students' "three-dimensional active participation training", which strengthens the students' self-conscious and active study. This not only solves the boring teaching of professional courses, but also provides a three-dimensional practical platform for the training of air crew major.

The core course of professional skills in air crew is very practical in social practice, through the reference of "CBT virtual training system" to the training of flight attendant, a significant teaching effect has been achieved, and the system is an irreplaceable mode of teaching in the development and construction of the major, it is a good way for students to master the service and management of the CAAC and the comprehensive training of professional skills in the course of learning.

2. ADVANTAGES OF CBT TEACHING IN FLIGHT ATTENDANTS

2.1. Space limitation of traditional passenger cabin

Taking the B737/A320 passenger cabin trainer as an example, the interior design of the "Trainer" is

basically similar to the real aircraft, it has 8 business class seats and 48 economy class seats, which can meet the practice training of the core courses such as "Civil Aviation English conversation, civil aviation service etiquette, cabin service technology, cabin equipment use". However, because of the small space of the "Trainer", the professional development and the industry's equipment, data updating and other problems, all students can not meet the teaching practice training at the same time. Based on the actual job requirements, the B737/A320 flight crew only needs to be equipped with 6 crew members, so the practice training of the core courses of the cabin service technology can only be carried out by 6 students in the role playing to complete the training, while the remaining students all simulate the training and coordination of the passengers. According to the job content of each crew, it is expected that the "route service task" is expected to be 25 minutes. After the end of the task, the teacher should guide and judge the implementation of the "task". Therefore, it takes at least 35 minutes for a crew to complete all practice training.

The flight attendant CBT teaching system solves the phenomenon that the passenger cabin needs to wait in line and practice one by one because of the space limitation of the cabin, and it improves the training efficiency, saves a lot of practical training costs, and reduces the cost of teaching. And in the course of students' independent training, teachers can explain and guide the students according to their own conditions, and can even show them on the spot, thus greatly improving the teaching effect, and the most possible realization of the teaching purpose^[1].

2.2. Seamless connection between teaching and Practice

The CBT teaching system of the flight attendants is developed by the professional software developers and the staff of the various posts in the aviation industry, the teaching content of the different posts is formulated by the staff of the corresponding posts according to the job specifications, the work content, the work requirements and the long accumulated work experience. In this way, it not only ensures the practicality and usability of the software system, but also maximizes the close to the demand of the real post, thus it really realizes the seamless connection between the teaching content and the practice, so that the students can learn to use it immediately after the employment^[2].

3. SYSTEM DESIGN

In traditional teaching mode, because of backward teaching means, it is often difficult to integrate theory with practice. Most courses are practical, even difficult to realize or impossible to realize in the actual environment. In the simulation courseware, the virtual simulation technology can be used to simulate the physical characteristics and the whole process of practice. At the same time, the simulation courseware is able to display 3D's mechanical structure, mechanical operation principle, organism's internal organs, molecular structure, force interaction and so on. Therefore, it is very suitable for the teaching of auxiliary teachers.

On the other hand, with the help of simulation teaching platform, students can "revisit" teaching contents and experimental contents at any time online. In this way, we not only save money in practice, but also are not limited by time and space. Learners can not only learn the theoretical knowledge of "necessary" and "enough", but also master operation skills, so as to save time, labor and money .

3.1. Design content

"Digital CBT teaching system for flight attendants" uses modern multimedia technology and information network technology to simulate the real job process of civil aviation cabin. According to the requirements of the course content, the teacher assigns the "task" to the students, and grants the students the "authority". The students can also choose the teaching modules according to their own learning state, and learn from the vivid three-dimensional simulation, 3D animation, video, picture, flash and other data.

The air crew digital CBT teaching system is based on the core curriculum contents of flight attendants, and focuses on several major teaching tasks^[3].

- (1) Virtual simulation interactive teaching practical training platform
- (2) Scene interactive three-dimensional simulation micro class system
- (3) Pure 3D simulation scene simulation training task system
- (4) Curriculum resources content:

Virtual teaching resource platform for cabin equipment

Virtual teaching resource platform for passenger cabin safety and emergency

Virtual teaching resource platform for cabin service

Virtual teaching resource platform for ground service

Introduction to civil aviation and virtual teaching resource platform of basic knowledge

Situational simulation virtual teaching resource platform for flight attendant English

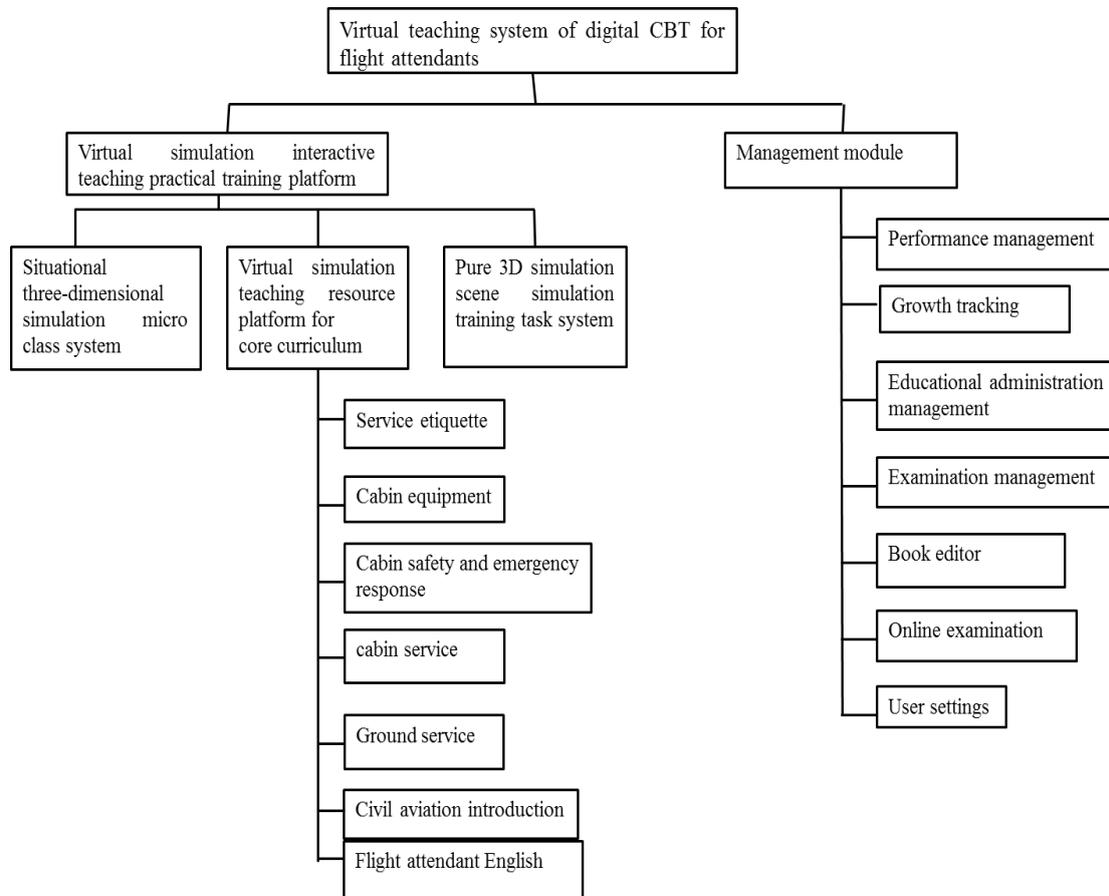


Fig.1 CBT System Function Module Diagram

3.2. Design scheme

The digital CBT virtual teaching training system of the flight attendants is composed of virtual simulation interactive teaching training platform, scene interactive three-dimensional simulation micro course system and pure three-dimensional simulation scene simulation training task system, and the result of the system function module diagram is shown as in Fig.1.

(1) System architecture

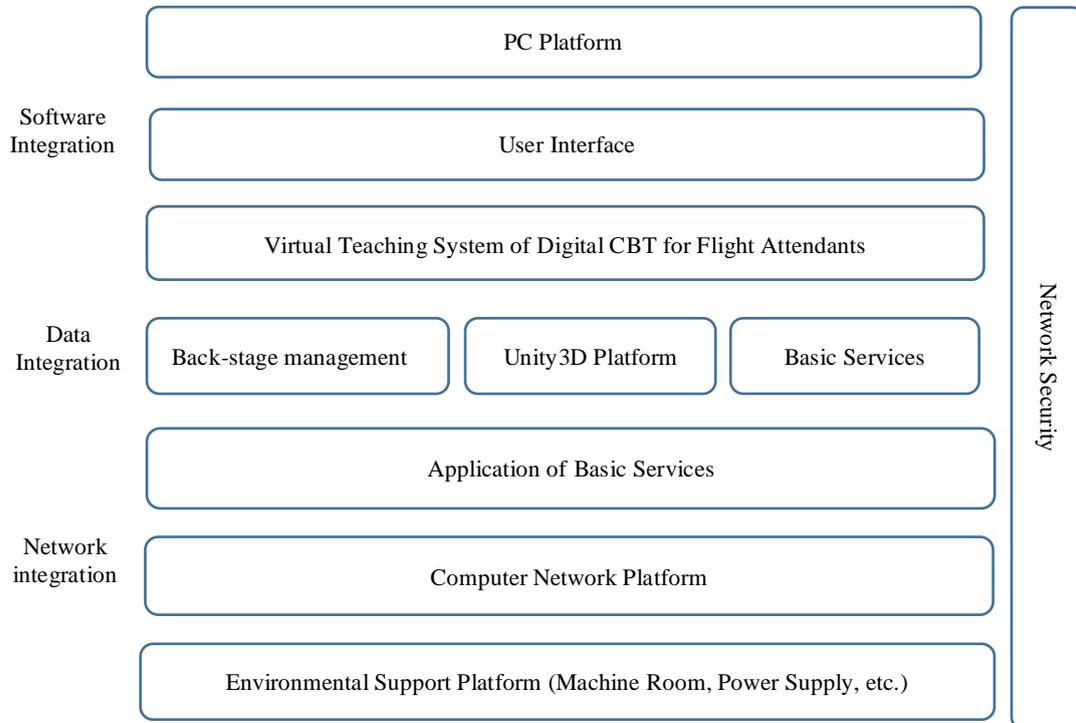
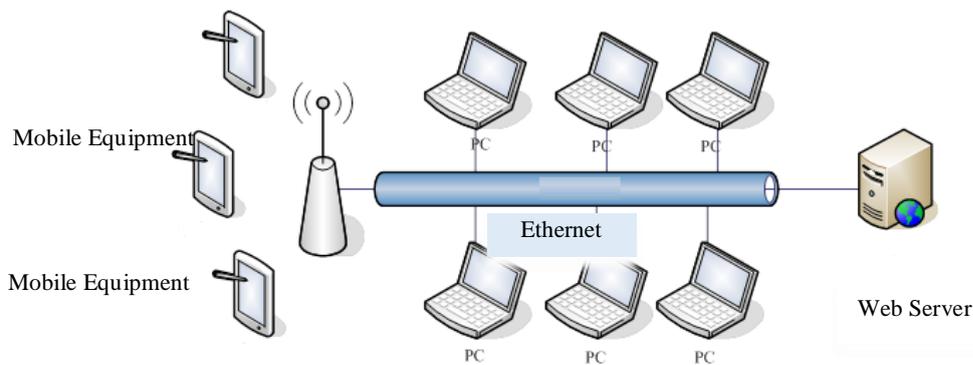


Fig.2 CBT System Architecture

The system architecture is shown in the Fig.2, the environment support platform includes computer room and power supply, and the environment support platform is also called infrastructure. The computer network platform includes network transmission infrastructure, network communication equipment, network server and operating system, network protocol, external information infrastructure and so on, so as to ensure the interconnection and intercommunication of the network. Application platform includes database platform, Internet/Intranet basic service, network management platform and development tools [4].

(2) Hardware architecture



Mobile Equipment Fig.3 CBT System Network Architecture

The hardware carrier of flight attendants digitalized CBT virtual teaching training system is composed

of computer network, which can be deployed on the Web server by C/S architecture. As shown in the graph Fig.3, all machines are connected to the Web server through Ethernet and mobile devices access the Web server through wireless connections^[5].

(3) Software technology architecture

The functions of the system can be divided into three modules according to the function of the system. They are data layer, interactive operation module and background management module.

The data layer mainly stores all kinds of data used in the system, and the data content mainly includes three dimensional model, user information and experimental data information.

The interactive operation module includes the main interactive functions of the system, including equipment operation, process control, camera control, model selection, scene animation and other experiments related interaction. The module is developed based on Unity3d, which is responsible for completing the reading and writing of bottom data, data parsing, 3D scene rendering, and interactive operation.

The background management module records the user's operation data, and can make statistical analysis of the data^[6].

4. CONCLUDING REMARKS

In the face of the rapid development of education, it is an important task to study, explore and practice the effective teaching mechanism of training in the IT environment. In the rapid development of the network, we should fully develop the functions of the students in the field of information technology to make the students learn professional courses, so that the realization of theory and practice teaching is more reasonable and efficient.

However, we should soberly realize that any teaching system and teaching facilities are just a way and means of teaching. From the requirements of teaching rules and talents training, we should further deepen the reform of teaching and strengthen the research of teaching. At the same time, we should pay more attention to the training of practical training and the construction of the system.

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