INTRODUCTION OF TACTILE SIMULATOR VIRTEASY DENTAL TO TEACH THE STUDENTS OF DENTAL FACULTY AT RUSSIAN PEOPLES FRIENDSHIP UNIVERSITY

A.Y. Abramov*, F.U. Daurova, S.V. Weitz, T.V. Weitz
Russian Peoples' Friendship University, Moscow, Mikloukho-Macklaya str., 6.

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Abstract:
Modern rules applicable to educational process, require the introduction of innovative technologies into learning process from higher education institutions. During the last few years the teaching in the countries of Europe and America takes place with the introduction of new technologies for e-learning, the introduction of virtual technologies in educational process.

The appearance of clinical situation virtual modeling simulators allowed to introduce the modern opportunities for student learning into the educational process.

Keywords: Virtual reality, Education, Educational technologies.

1. Introduction

Today computer virtual learning is implemented into the studying process everywhere. The immersion in a virtual space allows to work out all stages in order to get a good result.

The department of therapeutic dentistry training at RPFU teaches students, interns and medical residents with the introduction of virtual reality in educational process. It became possible due to the cooperation with the French company HRV-Simulation with its product «VirTeaSy Dental».

This simulator allows to improve the vocational training of students with the simultaneous assessment of their skills. «VirTeaSy Dental» provides an innovative approach to teaching and a proven and patented technology «VirTeaSy Dental», in its turn, provides the simulation of a clinical situation with a very high accuracy and reliability [1].

2. Purpose of the Study

The purpose of this study is the development of a special program to improve the training quality among dental profile students, providing a good quality of patient care at a dental visit. This study is the part of innovative technology implementation in the educational process at RPFU dental faculty.
3. Research Methods and Materials

In order to achieve this goal on the basis of Russian Peoples' Friendship University, the dental simulators «VirTeaSy Dental» of the French company HRV-Simulation were purchased.

«VirTeaSy Dental» simulator of virtual reality makes it easier to move to the clinical training stage. For example, many European dental schools have switched to this system of education after the replacement of the outdated phantom classes. Teachers and students who use this system of education confirm their greater efficacy today [4].

The workplace of «VirTeaSy Dental» is a fitness unit, which includes the device and software. The position of the simulator can be controlled by pneumatic operation.

«VirTeaSy Dental» is a modern interactive system designed for education and practical training of students at the Faculty of Dentistry. The computerized virtual environment combines a patient model with an unlimited data bank on dental procedures. Prior to a class start a student shall be authorized in the system. This makes possible an independent practice and the performance of various exercises, tasks, provided by a curriculum. «VirTeaSy Dental» retains all classes which you can observe in the future. It also enables the evaluation of all errors, to make a student correct them in the future.

The work on this simulator will be useful, because there is the possibility of any work performance on the formation of any cavities and the simultaneous assessment of performed manipulations, which in its turn, allow you to develop the quality of manual skills during a shorter time period. A student may tactilely feel a working tool, a tip and a mirror [2], [3].

4. Research Results

During the work students perform the task using a virtual jaw with a true sense of touch to a tooth, and a teacher just plans the progress and evaluates the quality of performed clinical task. It is possible to assess the heating of prepared tooth tissues, hard tissue excision volumes. Different parts of a tooth have different color: gray enamel, yellow dentin, green carious cavity. At that the physical presence of a teacher is not required, as the program assesses and records everything performed by a student.

«VirTeaSy Dental» is characterized by the lack of repeatability, an unlimited range of clinical cases, the training on real clinical situations, from the most common to the most rare and complex ones, the ability to work out each individual case as much as you need to get a desired result, the absence of need to purchase expensive consumables and the cleanliness of a room, as the entire clinical work takes place in a virtual environment.
«VirTeaSy Dental» virtual environment for the training of dental faculty students combines the latest achievements in the transfer of images and simulation which, in its turn, provides the best and the most convenient training. This methodology of a virtual training allows you to get complete information on the case history of an intended patient, allows to perform video surveillance procedure on a screen, and perform a simultaneous assessment. This program has the ability to store the entire information on all classes.

5. Conclusions
Based on the abovestated facts one may conclude that the teaching with «VirTeaSy Dental» is not necessary to work with real patients, which in its turn allows you to get rid of a number of shortcomings, namely a human factor in the evaluation and the issues related to health law. The advantage of this technology is that it does not have to update classes for it. It can be easily integrated into existing classes. «VirTeaSy Dental» has a computerized assessment system, it is a reliable and an objective one, all this may help dental faculty employees to standardize a solution making. Nowadays this simulator allows to train the experts of endodontics, prosthetics and surgery, namely implant placement experts. Also, this system can also be used for the evaluation of final examinations.

6. Summary
Thus «VirTeaSy Dental» provides an innovative approach that allows to create a realistic tactile sensations, the feeling of presence rather precisely. This virtual environment provides students with all the benefits of clinical experience. Besides, it is possible to obtain an objective assessment of an action and review them at any time during the process of preparation. It is also possible to save the information for the subsequent review and assessment. «VirTeaSy Dental» data base may be replenished if necessary. It is combined with many foreign medical universities such as the University of Sheffield, Harvard, the University of Lorraine, Bordeaux University, Paris Diderot University, Dammam University, which enable the data exchange between universities.

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References


**Corresponding Author:**

A.Y. Abramov,*