A SOFTWARE TOOL FOR STUDENTS' EVALUATION

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Abstract
The paper presents a software application for students' evaluation. - The basic idea was to create a tool for evaluation and self-evaluation, with a friendly IT interface, easy to be used and modify by the professor from a medical speciality, who may not have a high level of computer literacy. The application has been tested for the evaluation of the knowledge acquired by students of the faculty of medicine at the course in histology. The results were very good, both students and teachers being satisfied with the software.

Keywords: computer based assessment, software tool, evaluation, self-evaluation, histology

1. INTRODUCTION

Today we are witnessing an increasing use of computer based assessment because of the desire to assure an objective examining and also due to distance learning courses.

That's why, developing didactic/ educational software that supports an extended range of electronic materials (digital, multimedia) represents a permanent preoccupation in our university, as well as in almost all high education institutions [1, 6].

The traditional academic education seems even today a little reserved in this respect, due to former experience. This is true for fields as medicine, art, literature. [5]

Recent researches revealed that computer simulation and virtual worlds have a huge impact when the student is applying in practice the acquired theoretical knowledge. Even in medicine, this helps her/him to better understand physical phenomena. Of course, the real medical laboratory must not be replaced by the virtual one; the virtual experience has to be done prior to the real one.

The facilities offered by Information Technology (IT) can assure a student-centred education, with personalized learning and assessment programs. This is more evident for the medical education, visualization techniques being extremely useful in the understanding of diseases' mechanisms, and not only [7].

One of the important problems of education is represented by the incapacity of managing appropriately the time assigned for assessment, especially when you have a great number of students. It is more and more necessary to develop facilities of online and/or computer-based assessments as well as to increase the objectivity of the evaluation [9, 10].

In medicine, visual-perceptual learning is essential. Perceptual learning can be defined as practice-induced improvement in the ability to perform specific perceptual tasks. Here good computer based systems of self-assessment can be rewarding [4].

In the experiences of teaching-learning, the visual communication strategies should adapt to the logic of the situation in which they are applied, and the psycho-pedagogic aspects must have the primary role [8]. Dissemination and the acquisition– as much as possible at the same time - of the content by combination of verbal, non-verbal and imaginative structures, the use of linear iconic sequential with the non-linear one, seems to be more efficient than the separated approaching.

2. COMPUTER ASSISTED EXAMINATION

Computer based examination enable an increased number of students to be evaluated per time unit as well as the possibility of a greater number of questions, so a wider area of knowledge can be assessed.

In the classic examination system the time spent by a candidate in an exam session consists of the time used for thinking, the time used for communicating the answers, and the examiners time for checking and marking the response [3]. The last two stages are directly influenced by the psycho-emotional state, fatigue or concentration ability of the examiner, reducing the objectivity of the assessment. Moreover, we can have a simultaneous communication only between two people, a professor and a student, and that may be the cause of raising the degree of fatigue of the examiner, especially when there are many students. That is where computer-based examination offers an advantage. At the same time, eliminating human to human communication can be also viewed as a disadvantage [10].

The possibility of designing many different tests, starting from a Q&A repository, to randomly select the order of the questions, to modify the scores assigned to questions based on statistics of the results, to store the answers of a great number of students, enabling the follow up of performances correlated with the acquired knowledge, all are among the main advantages of computer-based examination. [12]

In the below figures we have illustrated the advantages and the disadvantages of computer-based assessment.

Here are the advantages:

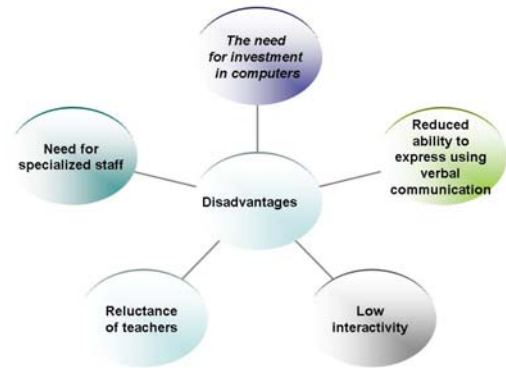*Fig.no.1.*

And the disadvantages:

Fig.no.2.

What must be remembered is that from a pedagogical point of view, it is recommended to combine computer-based examination with student-professor evaluation sessions, in order to ensure a higher quality to the assessment process. [11, 13]

3. MATERIAL AND METHOD

The computer-based examination application was developed in C++ and makes use of the resources of Microsoft Office 2003.

In the pilot study, the program was loaded with data from the field of histology.

The program was developed so that to allow the modification, the development of questions in real-time by adding answers for multiple choices. The order of questions in a test and of answers in a question is randomly selected by the program. The test designer can add to question graphic elements in one of the formats: ppt, .pps, html or doc.
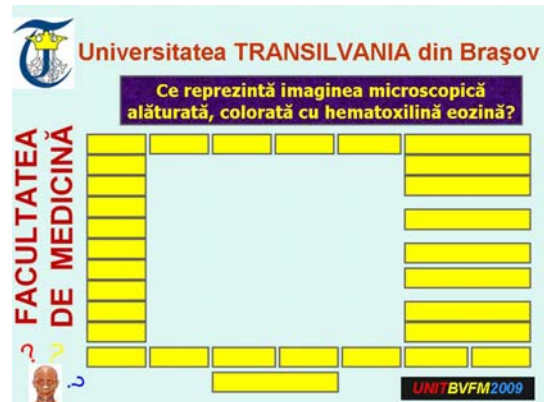

Fig. no.3

The program can be launched from any computer with Windows OS and Microsoft Office. The system has a graphic user friendly software interface.

Tests have different degrees of difficulty. The difficulty level is established by the examiner

The examiner establishes also the number of questions for which the answer may be wrong, for example – e.g. in our case less than 50%. If the student has a wrong answer to more than the accepted number, she/he fails the test.

The student has the opportunity to select from a variety of options

The query is performed in a predetermined time unit blocking the possibility of access / view of further questions.

The program provides, automatically, a maximum response time in accordance with the number of questions and the difficulty degree (e.g. difficulty level 1, 1 field, 30 questions, 1 correct answer: 30 minutes, or difficulty degree: 5; Questions: 90; time: 180 minutes).

At the end of the assessment there is the possibility of visualizing the wrong and right answers, without influencing the final mark.

Along the examination the student may also give up some questions but not more than 50% or just abandon the test at any time.

The test can be saved with users name or can be printed.

Figure 4 presents the program interface; the student is asked to accept the knowledge assessment and to identify herself.

Fig. no.4

Figure 5 shows one question asking the student to explain what microscopic image is represented. It is a multiple-choice test.
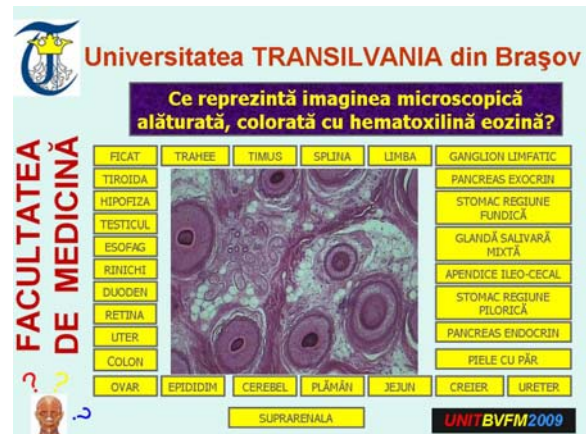

Fig. no.5

When the student gives a wrong answer she/he has also the right to try twice more before the answer to ve invalidated. (Figure 6).

Fig. no.6

At the end of the test the student achieves a number of points and she/he will be informed by the program if she/he has passed or not the test (figures 7 and 8).
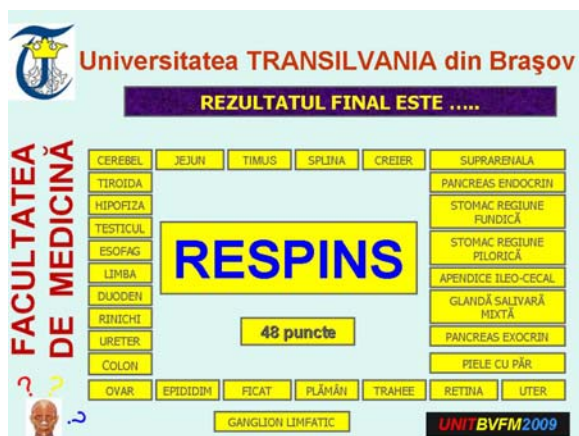

Fig. no.7

Fig. no.8

Finally (Figure 9) the results are centralized and the student can see the number of correct and incorrect answers, number of question he has abandoned during test or just to see the correct answer for a specific question.
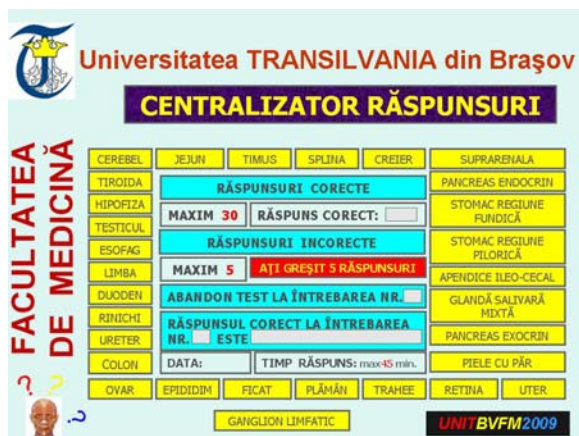

Fig. no.9

4. CONCLUSIONS

We have presented a software application for students' evaluation. - The basic idea was to create a tool for evaluation and self-evaluation, with a friendly IT interface, easy to be used and modify by the professor from a medical speciality, who may not have a high level of computer literacy. The application has been tested for the evaluation of the knowledge acquired by students of the faculty of medicine at the course in histology. The results were very good, both students and teachers being satisfied with the software.

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