A PRACTICAL MODEL FOR LEARNING THE *EXCEL* PROGRAM WITH ITS APPLICATIONS IN PHYSICAL EDUCATION AND SPORTS

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Abstract:
In the present modern society the implementation of Computer Assisted Instruction in physical education and sports faculties represents one of the current priorities.
The aim of this paper is to realize a practical model for learning *Excel* program, with applications in physical education and sports.
The system units, which form the model allow the students to develop their abilities for solving the problems, to put into practice the theoretical knowledge, which was assimilated at the courses and, after the graduation, to use the programs for administrating the sports results.
The structure of the practical units contains the introduction with a short revision of the theoretical knowledge in *Excel*, some applications of the formulas and functions of the program in physical education and sports and, at the end, the solutions, so that the students can verify the syntax and the results of the calculations.
Independent practice in the classroom or at home represents also an advantage of these types of exercises.
The optimization of the CAI for students of physical education and sports faculties stimulates their participation and active engagement in learning process. The elaboration of the practical model for learning *Excel* program increases the level of competence and the efficiency of the teaching process.

Keywords: CAI (Computer Assisted Instruction), Excel, formulas, functions, physical education and sports

1. Introduction

In the modern society the implementation of Computer Assisted Instruction in physical education and sports faculties has become essential and represents one of the present priorities.

In this paper we try to propose a new perspective of the teaching process, which uses the information technology and offers new possibilities to increase the students' interest for studies.

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It is known that the CAI has positive effects on the students learning; students receiving CAI learn better and faster than students receiving conventional instruction. (J. Kulik, C. Kulik, 1987, Kathleen Cotton, 1991). For this reason, we decided to create a practical model for learning the *Excel* program with its applications in physical education and sports, like an alternative method to traditional forms of teaching.

The objectives of this application are the following:

- to develop the students' abilities for solving problems in physical education and sports;
- to put into practice the theoretical knowledge, which was assimilated at the courses;
- after the graduation to use the programs for administrating the sports results;
- to develop the attention and stimulate the participation of students at lessons;
- to allow the individualization of the work and the follow-up of progress;
- moreover, the students will have the occasion to use complex worksheets accessible to their level.

2. A general description

The system units, which form the model allows students to develop their abilities for solving the problems, to put into practice the theoretical knowledge, which was assimilated at the courses and, after the graduation, to use the programs for administrating the sports results.

The program was tested and used in the classroom at the Faculty of Physical Education and Sports, Craiova, Romania. We estimated the advantages and disadvantages of this kind of model and, in function of the students' feed-back and level, we modified the program.

In the next section we present the main features offered by this application.

The structure of the practical units contains the **Main menu** divided in three parts:

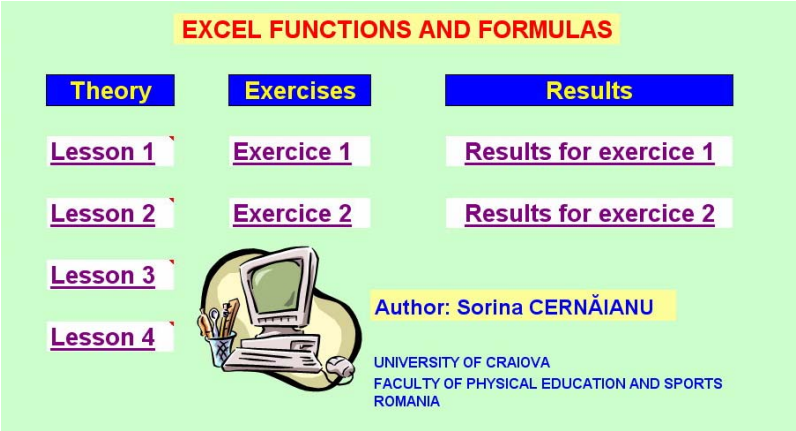

Fig. 1 *Initial screen of the application.*

A. *Theory* – represents a short revision of the theoretical knowledge in *Excel* for functions and formulas and contains 4 lessons:

1)"About functions in Excel" – definition, parts of the function and how to insert the function in the spreadsheet;

2) "Some usual functions in physical education and sports", like: COUNTA, COUNT, AVERAGE, MAX, MIN, SUM;

3)"Functions with «IF»" - IF, SUMIF, COUNTIF;

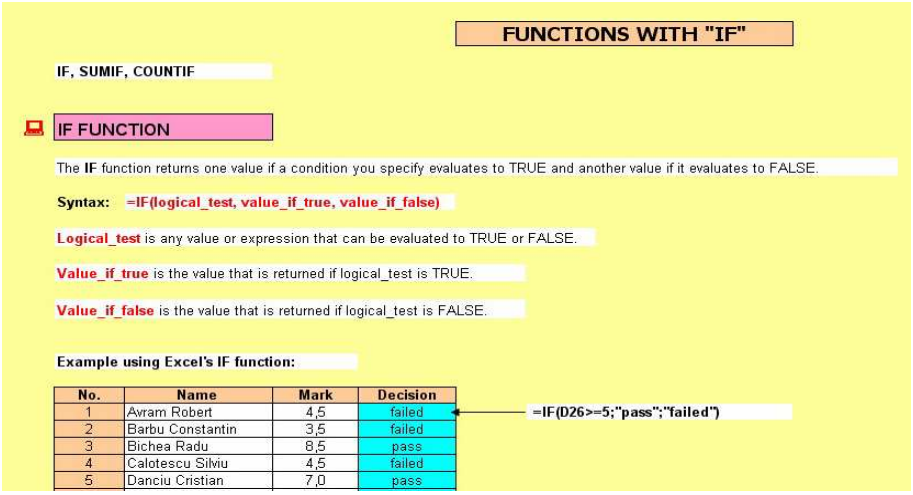

Fig. 2 *Functions with IF and examples.*

For the *Excel,* the functions are specified:

- the name and use;
- the syntax - specifies how the function should be written;
- some examples applied in physical education and sports.

4)"About formulas" .

For the *Excel,* the formulas are specified:

- the definition;
- the steps for writing a formula;
- the mistakes when building formulas;
- the mathematical operators;
- the comparison operators;
- examples of formulas applied in physical education and sports.

B. *Exercises* – some applications of the formulas and functions of the program in physical education and sports divided in two lessons are given:

1) the student have to calculate for each subject the simple average of 3 marks, the average with coefficients, the number of males and females, passed and failed subjects (if

the average is less than 5), the average of the results of males and females and the maximum and the minimum of results;

2) for the second exercise the students have to show, using formulas and functions for each subject, the sports where the mark is less than 5 and give a qualitative description, like: very good, good, satisfactory, unsatisfactory, in function of the average with coefficients, which were obtained by the subjects.

C. *Results* of this exercises (the solutions), so that students can verify the syntax and the results of the calculations, which create the possibility to work individually, in the classroom or at home.

RESULTS FOR EXERCICE 2

	Voleyball	Basketball	Handball	Track and field	Gymnastics		Sum of coefficients
Coefficients	0,6	1,5	0,2	0,5	1,8		4,6
Subjects	Voleyball	Basketball	Handball	Track and field	Gymnastics	Average	Average with coefficients
Antonie Silvia	9,3	8,4	10	9,4	10	9,42	9,32
Danciu Valentin	5	5,3	9,4	7,8	9,7	7,44	7,43
Efrem Mihaela	6,3	7,9	5,3	5,6	8,4	6,7	7,52
Gheorghe Daniela	8,7	4,5	4,6	4,7	3,2	5,14	4,57
Ilinca Gabriela	5,6	6,1	7,8	8,2	8,7	7,28	7,35
Marcu Gheorghe	5,4	6,7	6,8	7,6	8,6	7,02	7,38
Moroşanu Victoria	6,7	6,3	3,4	7,3	1,5	5,04	4,46
Paleacu Daniel	8,9	8,9	5,7	5,4	5,6	6,9	7,09
Popescu Alin	7,2	9,7	6,8	6,3	5,8	7,16	7,35
						Average	Average with coefficients
Average for each sports	7,01	7,09	6,64	6,92	6,83	6,90	6,94
Maximum	9,30	9,70	10,00	9,40	10,00	9,42	9,32
Minimum	5,00	4,50	3,40	4,70	1,50	5,04	4,46

Number of subjects	9
Number of passed subjects	7

Fig. 3 Example screen from *Results of the exercises.*

Independent practice in the classroom or at home represents the advantage of these types of exercises. At the same time the program can be used by students, by pupils and by teachers to manage the marks of the class or the group of subjects.

3. Conclusions

The optimization of the CAI for students of physical education and sports faculties stimulates their participation and active engagement in the learning process.

The elaboration of the practical model for learning the *Excel* program increases the level of competence and the efficiency of the teaching process.

At the same time this application is useful to help the physical education teachers to manage the evaluation results.

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