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For publisher:
Milan Pavlovic, Ph. D, Professor, Dean of the Technical faculty „Mihajlo Pupin", Zrenjanin

Technical treatment and design:
Ivan Tasic, Ph. D, Professor
Dijana Karuovic, Ph. D, Professor
Marjana Pardanjac, Ph. D, Assistant Professor
Erika Eleven, M.Sc, Assistant
Dusanka Milanov MSc, Assistant

Lecturer:
Erika Tobolka, Ph. D, Professor

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Dusanka Milanov, MSc, Assistant, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

With this publication, the CD with all papers from the International Conference on Information Technology and Development of Education, ITRO 2015 is also published.

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INTRODUCTION

This Proceedings comprises papers from the **International conference on Information technology and development of education** that is held at TECHNICAL FACULTY ”MIHAJLO PUPIN”, ZRENJANIN, on June 26th 2015.

The International conference on Information technology and development of education has had a goal to contribute to the development of education in Serbia and in the region, as well as, to gather experts in natural and technical sciences’ teaching fields.

The expected scientific-skilled analysis of the accomplishment in the field of the contemporary information and communication technologies, as well as analysis of state, needs and tendencies in education all around the world and in our country have been realized.

The authors and the participans of the Conference have dealt with the following thematic areas:

- Theoretical and methodological questions of contemporary pedagogy
- Personalization and learning styles
- Social networks and their influence on education
- Children security and safety on the Internet
- Curriculum of contemporary teaching
- Methodical questions of natural and technical sciences subject teaching
- Lifelong learning and teachers’ professional training
- E-learning
- Education management
- Development and influence of IT on teaching
- Information communication infrastructure in teaching proces

All submitted papers have been reviewed by at least two independent members of the Science Committee.

The papers presented on the Conference and published in this Proceedings can be useful for teacher while learning and teaching in the fields of informatics, technics and other teaching subjects and activities. Contribution to science and teaching development in this region and wider has been achieved in this way.

The Organizing Committee of the Conference

CONTENTS

USAGE OF WONDERSHARE QUIZCREATOR SOFTWARE FOR ASSESSMENT AS A WAY OF IMPROVING MATH EVALUATION

D. Jovanovska[*], T. Atanasova Pacemska[*], L. Lazarova[*], S. Pacemska[**], T. Kovacheva[***]
[*]University "Goce Delcev", Stip, Republic of Macedonia
[**]Bureau of educational development of the Republic of Macedonia
[***]Technical University – Varna, Republic of Republic of Bulgaria
dobrila.210123@student.ugd.edu.mk, tatjana.pacemska@ugd.edu.mk, limonka.lazarova@ugd.edu.mk
sanja.pacemska@gmail.com, tsetska.kovacheva@tuvarna.acad.bg.

Abstract - Checking and evaluation are one of the most important elements of the learning process, because they provide information about the extent to which students achieved previously uploaded educational standards.

This paper is a proposal how to improve the evaluation process in mathematics by using electronic tests created by multimedia software known as Wondershare quizcreator software. To make tests for computer based test, there are multiple quiz/test tools to choose from, but for the part of math features supported, QuizCreator will be a good math test tool whether from its powerful feature or ease of use. QuizCreator Online can provide elaborate results analysis by questions, score or students with tables and graphics. Electronic tests are implemented in April, year 2015. Comparison is made between students' outcomes when electronic tests are used and their outcomes gained by old- fashioned testing system pencil-paper. From the research results, we can conclude that this method of testing is very helpful to students and teachers.

I. INTRODUCTION

Checking and evaluation of students' knowledge are an integral part of the teaching process in primary education. They are one of the most important segments of the learning process, as they provide information about the extent to which students achieved previously uploaded educational standards.

The evaluation of students' knowledge and skills takes places in various ways; apply different techniques, [1], [3].

In the overall system of education, there are three main methods of evaluating students: written, oral and combined method. The written assessment method comprises a paper tests shaped "pen-paper" in all subspecies and grading so-called electronic quizzes or tests.

In this paper, we put emphasis on the development and construction of electronic tests / quizzes, their scoring and evaluation through application of the latest software developments.

Generally, tests in mathematics are designed to measure knowledge, skills and abilities of students in mathematics; teachers can realize the weaknesses of students, to evaluate the effect of teaching and learning and to improve the process of learning.

Writing effective questions takes time and practice. Well-designed tests provide an accurate measure of mathematical knowledge of students, [2], [4].

This paper covers the process of creating e- test and its implementation in April 2015 entitled System linear equations with two unknowns. The process of drafting and implementation is described.

It is made a comparative analysis of student achievement obtained by e-test and their achievements obtained by the classic paper test.

II. MULTIMEDIA SOFTWARE WONDERSHARE QUIZCREATOR

A. Basic information about wondershare quizcreator

As advanced information technology and teachers are becoming more skilled in their use, is increasing possibility teachers to apply them in the evaluation process. For assessment of students with computers there, are many free and easy for using programs that can easily fit into regular classes? A computer can be used for tests at

different levels, of processing data collected through testing, to automate fully testing system. Electronic test of knowledge and skills can be automatically generated, processed and evaluated. When the results are collected, processing is performed and processing of all information.

The application of these programs to create tests is an easy way assessing to be easier and simple. In general, a math test can be conducted on paper or computer.

To create the paper test is enough Microsoft Word with its powerful math equation editor. To create so-called electronic tests, there are many tools, but for tests in mathematics best features has multimedia software Wondershare Quizcreator (fig.1).

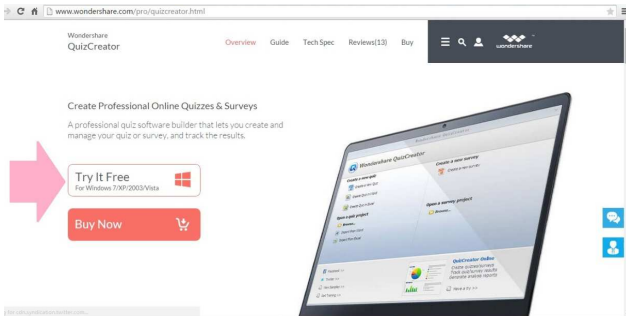


Figure 1 Wondershare Quizcreator

This excellent software allows us with a minimum work to get maximum good electronic test. This software allows electronical evaluation of knowledge, skills and abilities of students, and therefore more economical and simpler way to improve the learning process. Wondershare QuizCreator can be a comprehensive solution for teachers, teachers at the school, and working at home.

The advantages of the software relative to the other intended for the same or similar purposes are:

- Creation of questions and tasks and their organization in quizzes;
- Publishing and reporting of questions and tasks via Internet;
- Monitoring of results and their presentation with diagrams;
- Creating interactive quizzes based on simple Flash animations;
- Preparation of interactive e- tests, simple quizzes and their assessment with AICC / SCORM system in accordance with LMS (Learning Management System).

B. Creating Electronc Test

The process of creating electronic test with Wondershare QuizCreator consists of several steps:

- Installing the multimedia software;
- Registration with a valid email address;
- Creation of the test (asking questions / tasks);
- Publication of the test;
- Monitoring of the results.

QuizCreator allows easily creating of interactive multimedia quizzes / tests through nine different types of questions:

- True or false;
- Questions with multiple choices, where only one is correct;
- Questions with multiple choices, when more than one is correct;
- In addition;
- The gradual alignment;
- Connecting;
- Short essay tasks;
- Tasks with an alternative choice and;
- "Click on map" (multiple-choice questions with multiple correct answers graphically displayed on a particular tile surface).

Also in QuizCreator you can directly write mathematical and scientific formulas (which is not the case with other tools), applying the Equation editor. The test can be enriched with images, audio songs, video clips, and adding flash animation in the question itself.

Further features upon which this software apart from other, are a range of functions available to us:

- setting up an adequate number of attempts to solve the test,
- Time limit to solve the test,
- given the correct answer in background,
- Ability to skip questions, etc.

This software can be ordered online, by buying, you get a license for a single computer, but in this paper is used trial version. Installation is simple. After installation, a window that lists all options for creating electronic test / quiz or able to open someone else has already created test (fig.2).

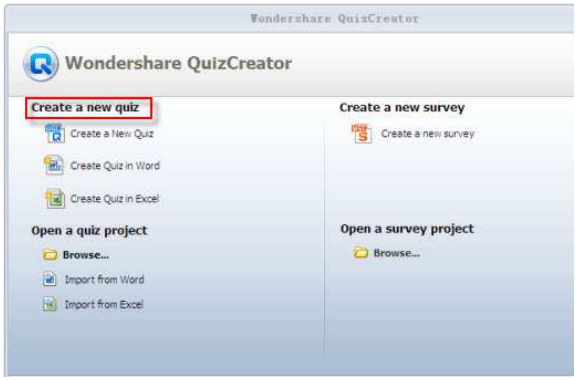


Figure 2.

After the initial page, there is a window in which on the left side is offered types of queries that can be made. After entering all the questions, window gets looks like fig.3.

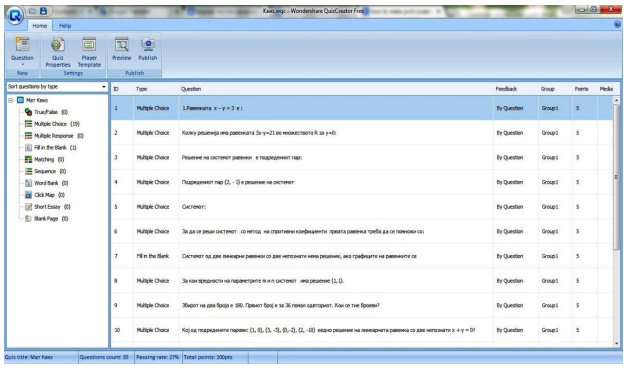


Figure 3.

In order to protect issues and to facilitate the smooth execution of the test, the student is allowed only once to solve the test with the default IP address, to adjust the duration of the test and others parameters. Once you make all settings to publish the test i.e. to export it in a document or to publish it on Internet on a server you need to click subsection Publish. The test can be shared in many kinds of files provided on fig .4

Figure 4.

The final appearance of the test is given on fig.5.

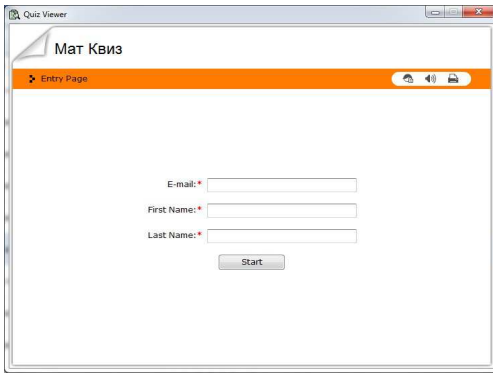


Figure 5.

C. *Implementation of the Electronic Test*

The first condition for realization and implementation of the electronic test is availability of Internet on the computers. Students register with their username and passwords given by the teacher, created by him, and starting with the test. The test consists of 20 questions with multiple choice answers of which only one is correct. Each true answer question is valued with 5 points, total 100 points. The student can pass the test with at least 27% or 27 points out of 100. To solve the test students have 40 minutes, one school class, and immediately after that period test is automatically closed. Before you pressed, the finish button students can see which questions they answered correctly, and which incorrectly. At the same time, students obtain their results and get feedback where they have made mistake and what is the correct answer.

III. RESULTS AND DISCUSSION

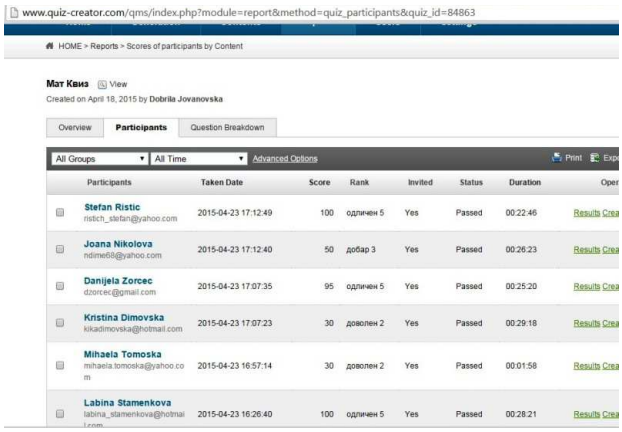
In April 2015, the knowledge of a group of 30 students on the topic: System linear equations with two unknown, were checked electronically. All of them passed the test with an average score very good (4.03). On the same topic the students were tested in March 2015 with the classic written, paper tests, with an average score good (3.03). Table 1 presents the comparative analysis of results obtained in two tests.

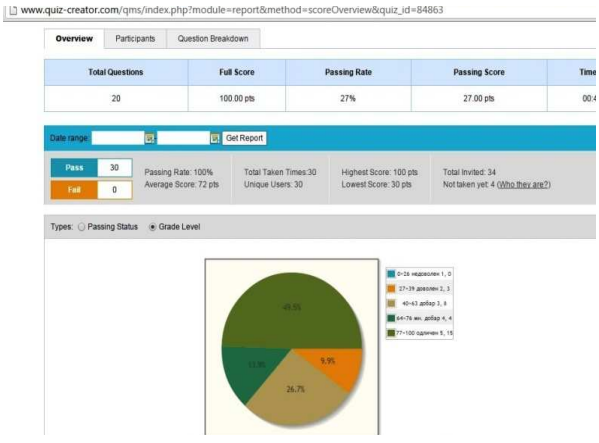
TABLE I. COMPARISON OF RESULTS FROM DIFFERENT TESTS

	Traditional / classic "paper" test	electronic test
great	7	15
very good	5	4
good	6	8
pleased	8	3
dissatisfied	4	/
Number of students	30	30
Average grade	4,03	3,03

From the results in Table1 it is noticeable that all students have passed the test and the average grade was improved for 1.00%. Although the percentage of average grade is improved, still student achievement should be monitored for longer period and when it will be possible should be tested larger number of students. During e-test, performing it was noticed that sufficient time was available for going through the complete tests, all students have finished test on time, results from testing were available instantaneously, and any subjective professors' opinion was excluded enabling fair and objective grading.

After evaluation, an important role in the evaluation process has results analysis, which gives us information, details of testing that can be used for further improvement. QuizCreator Online analysis of data obtained processed immediately is descriptive analysis on answered questions and it also gives a percentage representation.





Electronic tests have become a useful tool that provides full, quick, easy and objective evaluation of pupils with complete statistical analysis of test results and the full documentation of the testing is available to monitor the further progress of the students. The analysis of test results gives you more insightful viewpoint. You can find out the weakness in students, optimize the writing of test questions, teaching methods, teaching contents and make changes, and finally optimize the learning experience and enhance the math knowledge of the students.

The main advantages of this type of knowledge assessment are:

- Checking and evaluating is fast, because data is generated immediately after its completion;
- For checking no presence of a teacher is needed;
- According to students any subjective professors' opinion was eliminate;
- Require faster response from students;
- Achieves greater savings in preparation time;
- Is more economical, the saving of material for preparation of the test;
- The number of tested students can be larger

The disadvantages of this proposed approach to knowledge assessment are:

- For implementation of this method it is necessary to invest in computer equipment;
- There is no teacher-student contact;
- Question is whether this way of testing gives the real situation of students' knowledge.

IV. CONCLUSION

The rapid development of computer and information technology enables improvement of old software solutions for creating electronic tests. I would recommend this software for creating electronic tests of knowledge to all the mathematics teachers.

By applying electronic testing can achieve significant time saving needed for testing and evaluation, which allows the teachers to increase test-checks, and thus improve the quality of the teaching process by enabling continuous evaluation of acquired knowledge.

Instead of traditional division of the test in several groups, electronic tests allow an individual combination of questions for each student randomly from existing database of questions, which almost completely prevents copying of answers.

The results of the individual tests are calculated quickly and easily with analysis and automatic generating of correct answers, thus providing immediate feedback with useful information about the current level of each student.

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