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A support tool for qualifying examinations

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Resumen

En este artículo se presenta una herramienta software enfocada al apoyo de docentes para tareas tales como: elaboración de exámenes y calificación inmediata de reactivos. Dicha herramienta funciona sin la necesidad de acceso a internet, además de dejar de lado el empleo de hojas de papel. En el presente trabajo se enfatizan las ventajas que ofrece esta herramienta y se explican sus características, sus diferencias con herramientas similares, requerimientos para su uso y algunas mejoras futuras que el software calificatron pudiera tener para hacerlo más sencillo y eficiente.

Exámenes, Enseñanza-Aprendizaje, evaluación

Abstract

This article presents a software tool focused on the support of teachers for tasks such as: development of immediate testing and grading of reagents. This tool works without the need for internet access, in addition to set aside the use of sheets of paper.

In the present work, we emphasize the advantages offered by this tool are explained and their characteristics, their differences with similar tools, requirements for its use and some future enhancements that the software calificatron might have to make it more simple and efficient.

Test, Teaching-Learning, Evaluation

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Introduction

School tests may be considered as the best known and used throughout the years as a teaching tool evaluation technique. They are also a historical instrument and an indicator of the evolution of educational, psychological and philosophical ideas of humanity in relation to the teaching-learning process (Barriga 1993).

The use of new technologies in all human fields, particularly in the field of education, offers new tools to support teaching. This allows for example, improve the processes of qualification exams for students by allowing teachers to optimize the time applied in the activities of design, development and implementation of tests, making the teachers have a greater uptime and can perform other activities . Some authors Hammond and Collins, 1991; Reeves and Okay, 1996, proposed the design of constructivist evaluative environments with support from the Information Technology (IT) such as HTML forms that allow feedback to the teacher, closed software with auto-correction evidence provided by the students, while facilitating remote communication, self-direction, self-regulation and greater dynamics of the evaluation process.

However although there are multiple platforms or software that allow you to design tests, there are few alternatives that have the power to qualify in real time and with a large number of students in classrooms without using an Internet connection. Some similar systems are:

iTest Group Hoel, defined as an online assessment tool that allows teachers to configure multiple choice exams and students take exams using only a web browser, this tool generates and automatically corrects exams type test, which is distinguished by the characteristics of random selection of questions and answers plus it lets you include multimedia resources such as images, likewise instantly qualifies each test and collects statistics per student or question.

The main software found some of its most important features are described.

Hot Potatoes: Create questions interactive multi-choice, short answer, fill in the space, crossword puzzles, and exercises disordering of a sentence. Humanities Center at the University of Victoria (UVic) Canada (2013) Recovered from http://hotpotatoes.softonic.com/.

iTest: Design a simple way interactive polls and surveys, has two components: the application in which the student fills out the questionnaire and the server hosting the database with answers, dienes and statistics results. The program has multiple options for presenting questions in addition to classify them according to their difficulty, the subject to which they relate, the time for consideration and possible responses it. Tom Lein, M. (July 1, 2001) Recovered from http://iTest.softonic.com.

Socrative Teacher: It is a freely distributed application and mobile platform Android and OS.

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It has the feature of being compatible with google drive for file storage plus multiple questions, true or false, open to take the results and generate tests that are automatically qualified choice exams also sharing with other teachers and account Socrative Likewise view reports of results, taking compatibility with multiple browsers. Socrative Inc. (July 19, 2013)

Therefore, in this study a tool that does not use internet, and offers the possibility of creating, applying and qualifying exams, which may have questions of multiple, true or false choice, to relate columns and open questions is proposed .

It is noteworthy that the cost of software design and development is very low and considering marketing the product would have an advantage in maximizing profits**.**

Criteria	proposed software	iTest-Group	Hot Potatoes	iTest	Socrative
complete text	X	✓	✓	✓	X
attach Images	✓	✓	X	✓	✓
attach Videos	X	✓	X	X	X
attach Audio	X	✓	X	X	X
Mathematical formulas and graphs	X	✓	X	X	X
Rate test in real time	✓	✓	X	✓	✓
Retro-power test	✓	X	X	X	X
Statistics per pupil	✓	✓	X	✓	✓
Statistics Exam	✓	✓	X	X	✓
Use without internet	✓	X	✓	✓	X

Table 1 Comparative Table of Proposed Software.

General purpose

Create and implement a computer program through which they can design, implement and qualifying examinations in a classroom.

Methodology

To solve the problems in the educational process, a software engineer or team of engineers must incorporate a development strategy to accompany the process, methods and tool layers (Pressman, 2002), so this strategy is often called process model or paradigm of software engineering.

The selection process model for software engineering in the construction of the application site was made from the nature of the project and the application, thus defining the methods and tools to be used, based on the controls and deliveries required; resulting in the paradigm of software engineering; prototyping by the following process sequence:

Collection and refinement of requirements: Defined as the starting point of the paradigm, so the technician and the customer meet and define the overall objectives for the software, identify all known requirements and outline the areas where you will need more definition.

Rapid design: It focuses on the representation of the user-visible aspects of the software which subsequently leads to the construction of a prototype.

Construction of the prototype: This part of the process a prototype that implements some subset of the functions required of the desired program is built.

Prototype evaluation by the customer: The prototype is evaluated by the customer / user and used to refine the software requirements to develop.

Prototype refinement: In this section an interactive process in which the prototype is "tuned" to meet customer needs while facilitating that develops a better understanding of what needs to be done occurs.

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Product engineering: It is the culmination or "stop" the paradigm of software development which is considered as the final product delivered to the customer.

Contribution

The computer system developed serves as a tool for teachers as it focuses on supporting activities to develop, implement and qualifying exams, managing the results obtained so as to provide a correct and timely assessment rating for each.

It offers a friendly for users to interact in a flexible and intuitive manner and adapting to the needs of individual teachers and to all levels of education environment. The workload reduction will be reflected in optimizing the time of teachers, allowing them to perform activities that contribute to the quality of education.

The system will also contribute to the conservation of the environment, because traditionally develop tests generates a large consumption of paper sheets that scale represents a significant increase in deforestation and excessive water consumption. Therefore it can manifest, that this tool is committed to the conservation of the environment fostered a green culture, to address climate change.

Consumption of leaves per teacher		
Teachers	Student 1 paper	Student 2 papers
1	60	120
5	300	600
10	600	1200
15	900	1800
20	1200	2400

Table 2 Consumption of leaves per teacher

The tool supports the development of skills on the use of technologies in the academic level to be followed, because you need to have basic knowledge and skills in managing laptops or smartphones or tablets and wireless connectivity of these devices. If students do not have the necessary skills, the teacher is the instructor on the use of devices and the correct application of the tool. Well, it induces students and teachers in the use of new technologies by commonly used devices of all people (tablets, smartphones, laptops, etc.), because the use of the tool is designed to make it easy operation to make all students to focus on the main function of answering an online survey on a specific area of your school year and allows teachers to develop the roles of instructor, consultant and facilitator, and you can configure your automated tests exactly as if it were made of sheet of paper and in line with the use of technologies.

Results

The results obtained with the development of this tool are to provide software that provides a flexible and intuitive for users who interact with him and that suit the needs of different levels of education environment.

Users will interact with the system are the student and the teacher, being the teacher who will have more interaction and control.

It was determined that for the proper use of the tool is necessary computer equipment that has poterior or Pentium processor and 4 GB of RAM to have a correct use of MySQL Workbench, a device that allows to create a network such as a switch or router and a computer, cell phone or any other mobile device with a browser.

The instructions for using the tool are:

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- Enter information about the materials, units, groups focusing on certain details like: their type, status, class, school periods and times.

- Develop a bank of questions is greater than the number of items destined for each exam, the teacher can choose from 4 different types of questions: open, they are the only ones that do not qualify immediately because they must be reviewed by the teaching; multiple choice and true or false relate columns. The teacher can include an image that serves as support for the question, and can also choose to answer mandatory for students, as shown in Figure 3 questions.

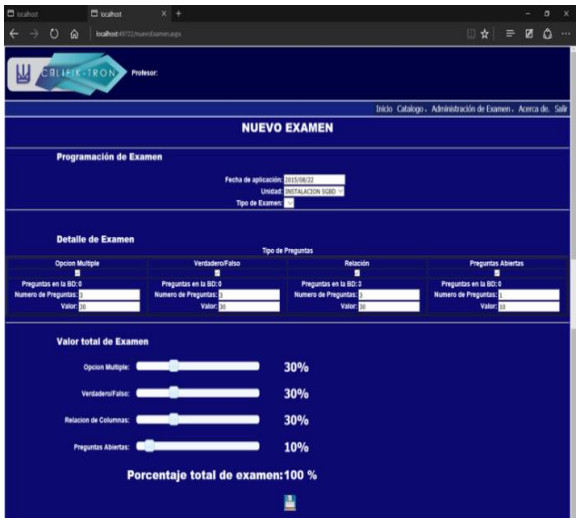

Figure 1 Interface used by teachers to develop the test.

To apply the test tool offers the necessary security conditions by providing reagents randomly for each student as well as a different order of reagents, so that students do not have the opportunity to agree on the question with close associates.

Each student must sign to access the exam, and only allowed access once if the student finds and want to enter again the system will not allow it.

Finally, the software will store the value of each response while the student pass question, and finally the end of the review will provide the final score. The test answers are saved each student and the teacher can review the results.

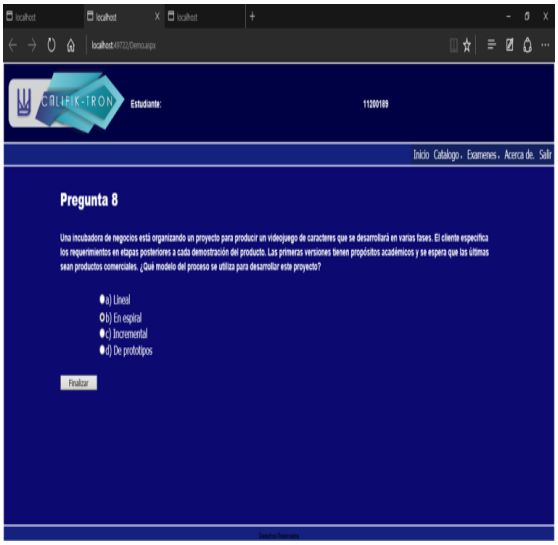

Figure 2 Interface used by the student to take the exam.

Conclusions

Using this tool generates reduction in the workload of teaching, reduces possibility of errors in qualifying, and has the skills quickly, timely and accurate. It also offers an easy and accessible interface that is independent of Internet use in many situations is a problem in the classroom for both students and teachers.

The cost of software design and development is very low and an advantage compared to other systems on the market is that it requires the use Internet.

Proposals to improve the tool are to add the type of questions, the option to complete, set the level of difficulty to the questions and the time limit for answering the exam, students can get feedback to see the result and end the use of the tool for entrance exams, selection and psychometric tests.

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References

Institute de Estadística de la UNESCO. (2013). USO DE TIC EN EDUCACIÓN EN AMÉRICA LATINA Y EL CARIBE. Montréal, Québec: Institute de Estadística de la UNESCO.

Oficina Regional de Educación para América Latina y el Caribe (OREALC/UNESCO Santiago). (2013). ENFOQUES ESTRATÉGICOS SOBRE LAS TICS EN EDUCACIÓN EN AMÉRICA LATINA Y EL CARIBE. Chile: Institute de Estadística de la UNESCO.

Ángel et all. (Septiembre, 2010). "Las TIC potenciando la evaluación de las instituciones educativas." Septiembre 21, 2015, de UNAM Sitio web: http://reposital.cuaed.unam.mx:8080/jspui/bitstream/123456789/4055/1/VE14.289.pdf

Ruiz, M.. (2010, marzo 20). "Evaluación Vs Calificación". Innovación y Experiencias Educativas, Vol.1, 1-10. 2015, Septiembre , De Revista Digital Base de datos.

Fernández, I. (Abril, 2010). LAS TICS EN EL ÁMBITO EDUCATIVO. Septiembre 20, 2015, de EDUINNOVA Sitio web: http://www.eduinnova.es/abril2010/tic_educativo.pdf

Pressman R.S. (2010). INGENIERÍA DEL SOFTWARE. Un enfoque práctico. Madrid, España: Mc Graw Hill.

Roberts, T., Romm, C. y Jones, D. (2000); Current practice in web-based delivery of IT courses. APWEB2000.

Rosenberg, M. (2001): E-learning: Estrategias para transmitir conocimiento en la era digital. Bogotá. McGraw-Hill Intramericana.

Díaz Barriga, A. (1993): El problema de la teoría de la evaluación y la cuantificación del aprendizaje, en DÍAZ, B. (comp): El examen: texto para su historia y debate UNAM, México.

Hanmmond M, Collins R. (1991): Self-directed learning: Critical Practice. Kogan Page, London.

Reeves, T.C., & Okey, J. (1996): Alternative assessment for constructivist learning environments. In B. Wilson, (Ed). Constructivist learning enviroments (pp. 191-202). Englewood Cliffs, NJ: Educational Technology.

Boneu, J. M. (2007): Plataformas abiertas de e-learning para el soporte de contenidos educativos abiertos. Revista de Universidad y Sociedad del Conocimiento, 4, 36-47. 2015, julio 20, De UOC Base de datos.

Centro de Humanidades de la Universidad de Victoria (UVIC) Canadá (2013) Recuperado de http://hotpotatoes.softonic.com/.

Grupo de Investigación HEOL,(2012), recuperado de http://dosi.itis.cesfelipesegundo.com/heol/doku.php?id=quienes_somos.

Tom lein, M. (Julio 01, 2001) Recuperado de http://iTest.softonic.com.

Socrative Inc. (Julio 19, 2013) Recuperado de http://play.google.com/store/apps/details?Id=com.socrative.teacher&hl=es_419