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Generated Automated Exam for Sudanese Universities

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Abstract:

Today with the development of technology and the trend of the Sudan government, Sudanese Universities convert the manual exam to e-exam. Starting by four universities(Alnealine University, Open Sudan University ,Alnhda faculty ,International University of Africa) , Despite the increasing numbers of educational institutions that carry out the e - exam, the current practices lack the standard and thus become the need to build a unified model in preparing the number of questions and the method of setting up the e - exam. A random sample was collected from four Sudanese universities for 160 students (undergraduate and postgraduate) 11 teachers and 10 courses, the data were analyzed and therefore deficiencies were identified in the current practices of the e -exam. A standard model for creating the e -exam was proposed and then an automated tool was developed based on the proposed model. The test of the tool after its application proved its ability to estimate the time of the exam in addition to the efficiency and flexibility in the prepare of the exam questions in an organized manner. The researcher recommends developing this tool and using it in the Sudanese universities to increase the efficiency of the e -exam.

Keywords: *Electronic Examinations, Blueprint Matrix, model, moodle, Bloom Taxonomy*

I. INTRODUCTION

Today with the technological development, it is necessary to keep pace with this technology in all fields. The most prominent of these areas is the field of education through which the country develops and rises from all countries. In last year's, technologic entered in the field of learning by added a computer to learning to increasing skills and availability of student which was launched by the name of e learning.

Electronic learning means using the utilizing technologies to access the educational curriculum rather than Traditional, E learning contain multiple filed like Virtual Classroom, Mobile Learning, Video-based Learning, convert Traditional courses to electronic course, and one of these field is Electronic Examinations.

Electronic Examinations is the best method for evaluating the ability of knowledge of student rather than conventional exam, e - examination is a system that involves the conduct of examinations through the web or the intranet.

In last year the universities started to apply the e exam by replaced the conventional exam in part by entered quizzes and after evaluated the experiment the universities applied in final exam , In four years ago Sudanese universities it also applied the E – learning and by share the courses in websites and assignment and applied E – Exams .

To apply E exam we need some step like establish the environment by provide computer devices, servers and training teacher to how to designing electronic exam that have effected in the quality of exam, on academic side to it very important to

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design a good quality of exam and in this paper we discussing about the steps to design the a good exam with international standard and linking with educational system.

In another side this paper to investigate the current challenges of e examinations practicing in Sudanese Universities, in order to propose new standard model for exam preparation supported by a tool for assisting universities and their teachers to create their exams efficiently and effectively, In this study we hope to deploy a model of e - examination , this model is an abstract of previous study and what are challenges when implement e - exams in different area and specifically in Sudanese Universities , this model is helping a teacher to deploy a perfect e - exam because the teacher is the base of implementing e - exams in any educational organization by model that can be used as standard of all Sudanese Universities to design a standard exam and constant time with international standard and must guarantee that the exam is the measure the abilities of student. The ability of teachers is very important to extract excellent exam about the way that tests student ability.

II. E-examination application

Electronic exams (in short, e-exams) are computer-based systems employed to assess the skills, the capabilities or the knowledge of students and professionals. Their importance has raised considerably since several educational and testing institutions began to offer e-exams as a service open to a worldwide-spread audience, there are multiple applications that can be using in E Exam but the best app is Moodle (modular object-oriented dynamic learning environment) is a free e-learning software platform, originally developed to enable educators to create online courses and online exams, Moodle can help the teacher to deploy exam and displayed in web browser , Moodle support 15 types of questions like (Multiple choice ,True and false ,Matching , Drag and Drop) and the series questions showed to the students by specific interface .

2.1 Requirements and preparation of exam

On academic area (educational field) there are some steps to design a good exam , before design questions and before starting teach a course teacher must be designing a blue print matrix of the course that can be able to describe the learning outcome of the course , Blueprint can help to determine if the content and objectives are in the same proportion on the test as they are addressed during instruction, by blueprint we help an instructor to address all levels of learning and mistake in the. The purpose of blueprint is to conceptual map of examination format and the content area and provide Type of measurement tools and proportion of each question format, Topic and the level of training of each topic and relevant learning objective and weighting to each topic Figure shows a sample screen of blueprint matrix.

Topic to be tested	% of period being tested devoted to topic	Level of Understanding (from Bloom's Taxonomy)			# of quest-ions	% of test devoted to topic
		Questions measuring recall/ comprehension	Questions measuring application/ analysis	Questions measuring synthesis/ evaluation		
Number of Questions						
% of test devoted to each level of understanding						

Figure 1: Blueprint matrix

After designed the blueprint matrix teacher can start creating questions depend on Bloom taxonomy, Bloom taxonomy means classifying educational goal and objective into hierarchical structure and representing different forums and levels, Bloom is used to classify the objectives of learning outcome by dividing the learning into three different domain: Cognitive means (knowing or head), Effective means (emotions, feeling, heat), Psychomotor (doing, haptic) Figure shows Bloom taxonomy levels.

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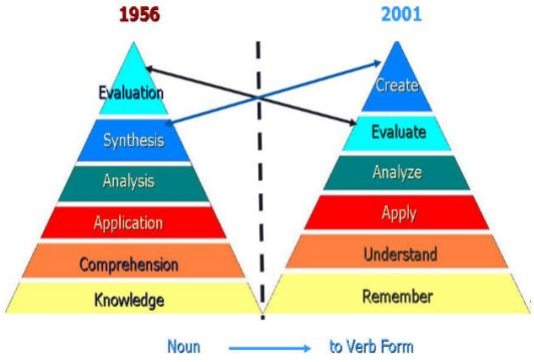

Figure 2: Bloom Taxonomy

2.2 The conventional method

The development of exam process in all universities especially in Sudanese universities, firstly preparation the blueprint and then design the exam questions(optimal work) , but there are some misconduct when design blueprint and design exam questions teacher design the blueprint and after that put the exam question but in sometimes these questions doesn't deal with the rule of blueprint , anther misconduct is when a teacher design blueprint and design the exam questions teacher modified the blueprint after students performed exam and this is not the optimal work to design the exam preparation correctly.

2.3 The applied methods

The methodology of this paper is to distributed a survey for 11 teachers to make sure the teacher is the one who can design the perfect exam and to make sure that the teacher Knows that the knowledge level or the knows rule that can be used when designing exam, the questioner was distributed into four Sudanese's Universities(international university of Africa ,alnealine university , open Sudan university ,alnhada faculty) and the data was collected from different faculties , and also160 Students to make sure there is no difficult to perform exam and 3 administrators to show how admins apply e- exam into the universities

2.4 The model

To prevent the misconduct of the conventional method the researcher designed a model to help a teacher to design a perfect exam with the international standard , The base of model depends on teacher and the extent of the commitment to design the perfect exam this model divide as sex steps before export exam) Figure shows model steps .

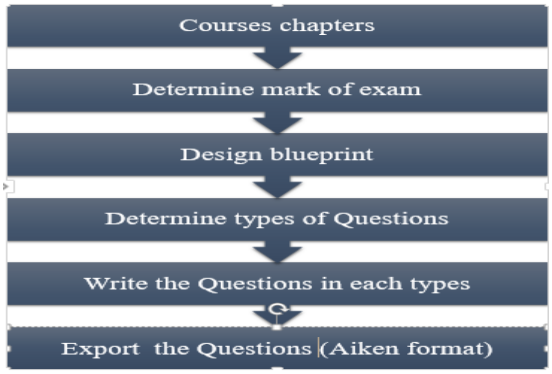

Figure 3: steps to prepare Questions (model)

The researcher developed the model as tools (Generated Automated Exam), and this tools divided as some interface before teacher export exam, the first interface is to create a course and determine the course objective and the outcome that student acquired by the students, Generated Automated Exam Steps depend on each other , secondly teacher determine the course chapters and the weight of each chapter and after that teacher can be design the blueprint matrix by showing the course chapters and the weight chapter but in this steps teacher must be choose the type of questions depend on cognitive level (Bloom Taxonomy) Figure shows blueprint matrix

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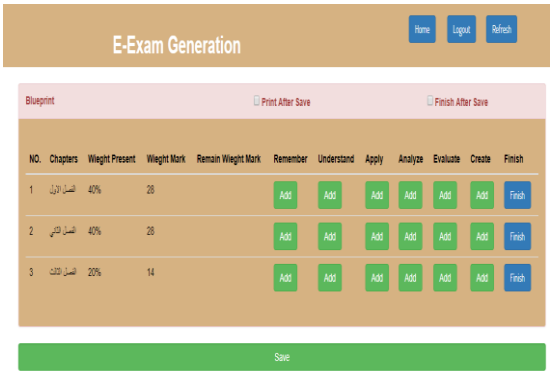

Figure4: prepare blueprint

After that teacher can show the details of exam by showing the questions types, time of exam and grades of each questions if the teacher finish this step teacher can be enter the questions depend on the questions types that have choose in the blueprint and finally teacher export an xml file of the exam . Figure shows Questions of exam

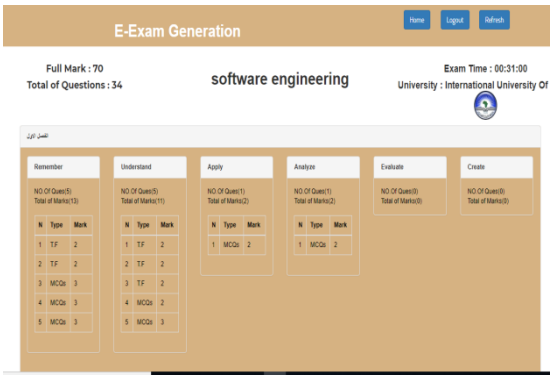

Figure5: details report of blueprint

III. Discussion and Result

After finishing the analyzed data and designed the Generated Automated Exam there are many results in this paper: firstly there is no standard to determine time of exam and the number of questions per exam, in Alnhda Faculty used 2 hours of exams without any standard, in Alneelane University it determines used 2 hours depend on the credit hours of the program and the International University it determines 2 hours depend on the credit hours also. More than 50% from the teachers who are interviewed and distributed questioner among them don't know the bloom taxonomy. when applying this model to all Sudanese Universities that want to implement e- exams there is standard to design exams and that guarantee the level of students is the same between Universities because the standard of exams is also the same differently rather than designing exam manually. In another area to design the exam and blueprint manually is very difficult and decreases the time and effort and are extracted through personal interviews with teachers but with model to design the exam and blueprint are easier and very efficient rather than manual. Of nature to prepare exam firstly design the blueprint manually and printing the report of exam after that link the blueprint with questions and design question, all this procedure in word document, after that we enter the exam manually into Moodle question by questions and that is consumption of time and effort. In manual prepared, each teacher prepares an exam different from other teacher knowing that the exam is the exam. When the teachers use this model, all of them they will abided by the criteria for the preparing of examinations. When the teacher generates exams with model, the abilities will be continuously increased with guarantee that the teacher will know the cognitive level.

IV. Conclusion

This paper aim to helped teacher to designed perfect exam with international standard and depend on the objectives of the course by designed generated automated exam to export exam and time of exam with international standard , this paper firstly discussed about the concept of bloom taxonomy ,blueprint and E- Exam application and after that discussed about the steps to design this tools and finally after validation the teacher can be used this tool to design a perfect exam and guarantee with steps of designed quality exam .

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