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Applications of E-Learning tools for Achieving Students Learning Outcomes

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Abstract: This is the extended research presenting how applications of E-Learning tools for aided in meeting the students learning outcomes and how students with different understanding and cognitive skills can get benefits from E-Learning tools. In the current research researchers have tried to find the effectiveness of electronic tool for diverse skills. This research is to confer suggestions on how Electronic tools in learning management services could be implemented by the instructors in the process of Learning and Teaching (LT) to meet the requirements of different learners in Information Systems (IS). In this study the module chosen was E-Commerce in Information System's environment. Thurstone scale to measure the effectiveness of various electronic tools available on Learning Management Services (LMS) "Blackboard". This paper compared these electronic tools for their effectiveness in meeting learning outcomes for different learners in IS. For measuring assessments' results, three tools were used namely Electronic-Quiz (EQ), Discussion Forum (DF) and Safe Assignment (SA). The paper has tried to measure the effectiveness of a new tools introduced on Blackboard named as Safe Assignment for submitting the assignment. Through this tool instructors were able to identify the percentage of plagiarism or matching between the peers. Based on three assessments' results namely EQ, DF and SA, samples were categorized under best, average and poor. These assessments were considered for the purpose of study because they were conducted by the implementation on electronic tool LMS .The performance of student in each group was analyzed and it was found that students in all the groups could contribute and learn the best through open DF. Best Students tried to learn equally through all tools but other two groups plant least efforts and submitted their assignments using search engines such as Google.

Keywords: Electronic tool, LMS, Blackboard, Discussion Forum, Safe Assignment

Introduction

King Khalid University (KKU) conveys home and worldwide learning openings on campus for male and female students. KKU is in the Kingdom of Saudi Arabia (KSA) and is one of the leading educational centers in the Middle East [4]. In 2008, KKU introduced Blackboard Collaborate ™ (BBCl) to accomplish regional and global education and instructional fineness along with a more effective stipulation of their gender-divided campus for more than 65,000 students, half of which are women[4][6] through EL on LMS. King Khalid University (KKU) is located in the city of Abha, in the Asir region of the KSA. It is straddling 81,000 square KMs; the university is comprised of 26 different campuses and 48 colleges, offering further and higher education to its students. The university was formed in 1998 from the merger of King Saud and Imam Muhammad Ibn Saud Islamic universities. It introduced an EL centre in 2005 and presently provides courses on an assortment of subjects, including medicine, pharmacy, computer sciences, engineering, Islamic studies, dentistry and education [4][5][6].

The University has met many challenges like meeting the planned ambition of KKU has not come without major confronts. Previously, the university operated separate campuses for male and female students [5]. Male instructors were not able to teach female students in face-to-face environments and formerly used studios where instructors gave lectures to female students who were watching through a television screen in the room next door. Female students were only permitted to ask questions through a telephone attached to the wall. This approach was

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prohibitive due to many factors including the cost and maintenance of the studios and the university was resolute to develop a more practical and sustainable elucidation [4][5][6].

Women also faced an additional challenge when it came to travelling to and from lectures as a cultural hindrance they were not allowed to drive till 2015; during that time female students at KKU were dependent on their male relatives for commuting for lectures and other academic activities. This was a huge barricade to education, similarly shared with disabled students who also found travelling a challenge as well as costly.

Another challenge was the huge geography and diffusion of campuses that was impacting instructor staffing. It became difficult to obtain the required number of instructors in the university [4][5][6].

Literature Review

In 2005, the university established its first EL centre and in 2008, chose BBCl to integrate with the university's primary LMS, Blackboard Learn™. Mohammad Qatrawi, Research and Development Manager at the EL Center at KKU state "Choosing online collaboration was a strategic decision [4][5][6]." It provides equal chances for all, quality, and better student experiences and keeps us up to date with best practices[4][5]. So, BBCl was used to support achieving EL vision [4]."

With this idea on education, many of the facet and capabilities of the BBCl™ online collaboration platform are assisting KKU with its EL vision. Most widely used capabilities are web conferencing for hosting virtual classrooms, the whiteboard for making classes more engaging and interactive, polling for answering questions, and instant messaging[4][5][6].

A feature that is particularly relevant to KKU's gender separated population is the ability to provide instantaneous collaboration through the operation of instant messaging on BBCl enterprise [4][6]. This has enabled students and teachers to work together in an informal "virtual environment," therefore they are able to chat, connect through video to have one-to-one interviews, and share their desktops with one another to exchange ideas; an enhancement to communication in all the perspective [4][5][6].

Over 7,000 students across 25 departments, including medicine, pharmacy, dentistry, computer sciences, engineering, education, Sharia and religion, training, and more are adopting online collaboration into their prospectus today[6].

The increase in adoption has been driven by their 'top–down' vision where instructors are comprehensively trained either face-to-face or more often, online. All of the content and training materials are published on the university's EL Deanship website and EL specialists can be reached practically to help students requiring backing [4].

Research Methodology

This was a descriptive Study presented that the discussion forum was the most effective electronic tools to meet the needs of diverse student to meet learning outcome of this particular Information Systems' module. BBCl has facilitated instructors to communicate learning materials in various methods like videos, presentations, etc also assessment methods has been refined and became time effective on Blackboard. The assessments were considered for the purpose of study because they were conducted by the implementation on electronic tool LMS .The performance of student in each group was analyzed and it was found that students in all the groups could contribute and learn the best through open DF. Best Students tried to learn equally through all tools but other two groups plant least efforts and submitted their assignments using search engines such as Google.

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Discussion And Findings

This study was conducted for the session 2019-2020 first semesters. There were two sections for this course E-Commerce totaling 38 students. Based on three assessments' results namely EQ, DF and SA, samples were categorized under best, average and poor. These assessments were considered for the purpose of study because they were conducted by the implementation on electronic tool on LMS and aided in meeting course learning outcomes (CLO) [8][9][10][11]. Also it was important to mention that statistics on usage of electronic tool for the purpose of learning the module was done through tracking student's access to online LMS, Attendance and finally assessing the activities submitted by the individual student.

For measuring assessments' results, three tools were used namely Electronic-Quiz (EQ), Discussion Forum (DF) and Safe Assignment (SA).

Figure 1. El Tools used on LMS

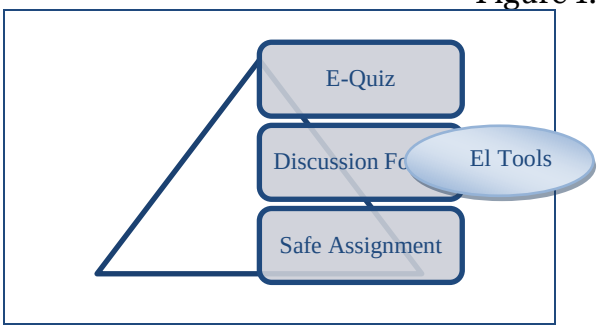
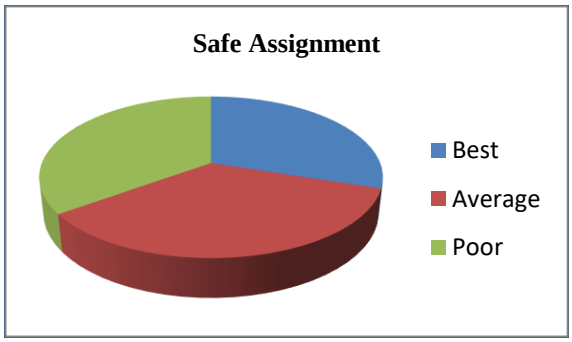


Figure 2. Results of SA for IS module E-Commerce



Researchers and course instructors found that SA tool was effective and appropriate to measure the analytical skills of students and this tool helped the researchers to clearly categorize best, average and poor students. This tool was quite effective in identifying the plagiarism too. Results show students are almost equally divided in best, average and poor. Instructors assume with reference to Quality Matters standards for online learning [1] various activities should be used to meet CLOs of the particular module as learners have diverse skills and needs. Some learners who could not present their ideas in close ended environment could perform well in opened environment. Language barrier and cognitive skills were the main reasons for many students in poor performances, as a result they had very high matching and plagiarism. Average students were found to take most of the information from search engines but they tried to explain in their own words too. Best students were very excellent in analysis, performed a good research and submitted their assignment in most distinguished manner.

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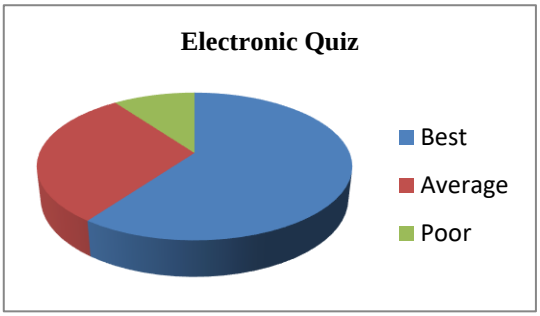
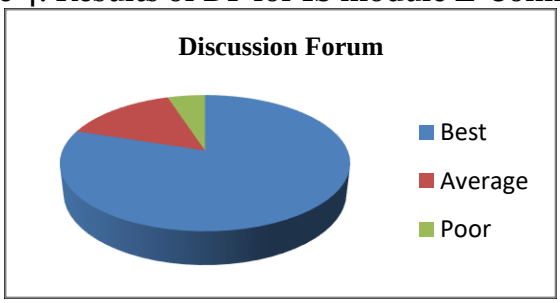
Figure 3. Results of EQ for IS module E-Commerce



Researchers found that EQ were very effective electronic tools to meet the needs of diverse student populations to meet learning outcome of the particular module. There were various types of questions presented on EQ like multiple choices, either-or, true and false, fill in the blanks, pools and matching, etc. Some questioned needed manual grading and other types were graded automatically as the answers provided by the instructor were close ended. 60 % of the students were graded under the category of best students and only 10 % students could not perform very well.

Figure 4. Results of DF for IS module E-Commerce



Researchers found that DF was the most effective electronic tools to meet the needs of diverse student populations to meet learning outcome of the particular module. 80 % of the learners performed very well and participated in active learning on the forum. Some students also created discussion threads and invited their peers to participate or to write blogs. Only 5 % percent of the learners were found not very participative but reasons were not known. Instructors assume that it could be due to language barrier. LMS has helped KKU to conquer many of its challenges around enhancing the quality of education, improving access to teaching and resources, and meeting CLOs. Also this tool helped in developing interpersonal skills amongst the students.

Furthermore a short E-Survey was conducted on LMS to know effectiveness of EL tools and techniques. There were 50 respondents, all 38 students from two sections of E-commerce module and 12 EL experts/instructors were given this close ended questionnaire. Below given table shows 5 Points Scale from strongly agree to Strongly Disagree:

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Table 1. Result Analysis for effectively of EL tools on LMS in KKU

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Do you think LMS has effective application in Higher Education?	35	10	5	0	0
Do find LMS applications effective in KKU	35	10	5	0	0
Do think Elluminate live is effective medium for course instruction?	35	10	5	0	0
Do you think LMS has solved the problem of Gender divide?	35	10	5	0	0
Do you find LMS effective for Assessment Methods?	35	10	5	0	0
Do you think LMS has Quality services?	35	10	5	0	0
Do you think LMS has solved the problem of online learning for the students commuting from remote areas?	35	10	5	0	0
How would you rate your experience with LMS?	35	10	5	0	0

Respondents were also asked to rate the level of quality [2] , of various tools of LMS for KKU on the scale of Excellent to Poor.

Table 2. Result Analysis for Quality service of LMS tools in KKU

Questions	Excellent	Very Good	Good	Fair	Poor
Elluminate Live	10	20	20	0	0
Trigity Tool	15	20	15	0	0
Assignment	35	15	0	0	0
Content Area	50	0	0	0	0
Assessment Tools	50	0	0	0	0
Course tools	40	6	4	0	0
Communication Tool	25	5	16	4	0

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Respondents were asked to rate the frequency of using a particular LMS Blackboard tool in instructing their modules on the scale of Every Time to Never.

Table 3. Result Analysis for frequency of using service of LMS tools [3]

Questions	Every Time	Almost Every Time	Occasionally	Almost Never	Never
Elluminate Live	0	5	45	0	0
Trigity Tool	0	5	45	0	0
Safe Assignment	0	5	45	0	0
Content Area	40	0	10	0	0
Assessment Tools	40	0	10	0	0
Course tools	0	5	45	0	0
Communication Tool	0	5	45	0	0

Results

The performance of students in each group was analyzed and it was found that students in all the groups could contribute and learn the best through open discussion forum. Best Students tried to learn equally through all tools but other two groups plant least efforts and through Google search uploaded their work only. Researchers also concluded that many instructors may not be using El tools and techniques in meeting CLOs [8][9][10][11] but they well realize the advantages of the applications of EL tools in meeting diverse needs for example in the situation when students coming from remote areas or students who are disable and in the condition of gender divide. In addition EL tools on LMS and BBCl are used to integrate with the university's primary LMS and has changed the entire teaching pedagogy and supported the University in achieving its vision.

EL has exploited the best of BBCl capabilities which are web conferencing for hosting virtual classrooms, the whiteboard for making classes more engaging and interactive, polling for answering questions, and instant messaging, etc, but for the purpose of this study we focused only on three important tools, SA, DF and EQ.

Conclusion

It was found that discussion forum was the most effective electronic tools to meet the needs of diverse student to meet learning outcome of this particular Information Systems' module. BBCl has facilitated instructors to communicate learning materials in various methods like videos, presentations, etc also assessment methods has been refined and became time effective on Blackboard. Some popular assessment methods used by keen instructors are Quizzes, Online exam, Question mark, Assignment, Blog, Discussion forum and Journals.

Now with the help of EL tools on BBCl, access to teaching and resources has become easier, students with diverse skills, competence and needs are learning better and finally it is helping to manage a gender divided in the university.

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