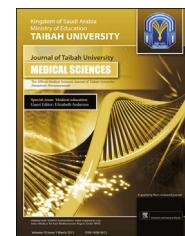Taibah University

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Educational Article

Utilization of blackboard among undergraduate medical students: Where we are from the reality?

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الملخص

أهداف البحث: تهدف هذه الدراسة إلى تقييم إدراك طلاب كلية الطب لاستخدام نظم إدارة التعلم باستخدام نظام ”بلاك بورد“ من حيث الفوائد والصعوبات.

طرق البحث: أجريت هذه الدراسة في كلية الطب، جامعة الملك سعود. وزعت استبانة ذاتية على الطلبة، اشتملت على ثلاثة أجزاء متضمنة المعلومات الديموغرافية، واستخدام نظام بلاك بورد، والصعوبات أثناء استخدامه.

النتائج: وزعت ٨٠٨ استبانة بمعدل استجابة ٤٢٪؛ بين المشاركين ٢٢٤ (٦٥.٧٪) من الطلاب و١١٦ (٣٤.٣٪) من الطالبات. ذكر منهم ٧٨.١٪ ”اختلاف واختلاف قوي“ على ”جدوى نظام بلاك بورد في التواصل مع المعلم“. بينما ذكر ٧٤.١٪ من الطلبة ”اختلف واختلف بشدة“ بفائدة نظام بلاك بورد في التواصل مع الطلاب الآخرين“، في حين أن الغالبية العظمى من الطلبة (٧١.٨٪) لم تستخدم الوسائط المتعددة المتوفرة في نظام بلاك بورد. وأيضا، وافق ٦١٪ من الطلبة على أن هناك ”نقص التدريب المنهجي“ على استخدام نظام بلاك بورد في الكلية، واتفق ٣٧.٢٪ من الطلبة على أن ” استخدام نظام بلاك بورد هو مضيعة للوقت“. مع ذلك، فإن ٣٩.٢٪ من الطلبة لا يعلمون إن كان نظام بلاك بورد يضيف أي عبء إضافي على الطلبة. وكان اتجاه الخلاف بين الذكور والإناث فيما يتعلق بفوائد وصعوبات نظام بلاك بورد متساويا تقريبا.

الاستنتاجات: أظهرت نتائج الدراسة عدم الاستخدام الأمثل لميزات التعلم لنظام بلاك بورد. وأن الطلبة يواجهون صعوبات تقنية أثناء استخدامه. كما تشير نتائج

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هذه الدراسة إلى الحاجة إلى التدريب الإلزامي للطلبة على أنظمة إدارة التعلم التي أدخلت حديثا بما فيها نظام بلاك بورد داخل المؤسسة التعليمية.

الكلمات المفتاحية: بلاك بورد؛ تصورات الطلبة؛ طلاب الطب

Abstract

Objective: This study aimed to evaluate undergraduate medical students' perceptions to Blackboard (Bb) utilization learning management systems in terms of benefits and difficulties.

Methods: The study was conducted at the College of Medicine, King Saud University. A self-administered questionnaire was distributed to the students. The questionnaire consisted of three parts including demographic information, utilization of Bb and difficulties while using Bb.

Results: A total of 808 questionnaires were distributed with 42% response rate. Among the participants, 224 (65.7%) were male and 116 (34.3%) were female students. Of them, 78.1% reported "disagreement and strong disagreement" on "Bb usefulness in communicating with the instructor". However, 74.1% students reported "disagreed and strongly disagreed" on "Bb usefulness in communicating with other students", whereas majority of the students (71.8%) did not use multimedia available in Bb system. Also, 61% students agreed that there is a "lack of formal training" on the use of Bb in the college, and 37.2% students agreed that the using "Bb system is a time consuming". However, 39.2% students did not know about the Bb systems add any additional burden on the students. The disagreement trend of male and female

students concerned with the Bb utility and difficulties were almost same.

Conclusion: The finding of the study showed a poor utilization of Bb learning features. Students faced technical difficulties while using Bb. The findings of this study indicate the need of compulsory students training of any newly introduced learning management systems including Bb in the educational institute.

Introduction

Advances in information technology gave rise to multiple-purposes computer assisted educational programs which have transformed the education fundamentally.[1] In the new era of medical education, there is a rapid change towards the web-based learning (WBL) both at undergraduate and postgraduate levels to enhance the effectiveness of educational programs.[2] The WBL moves either to a re-placement or an adjunct to face-to-face classroom teaching and learning.[3] The change toward WBL is due to faculty shortage, space and time limitations, increase in number of students and to encourage the students for self-directed learning.[4–6] However, cost and technical problems are major concern for its application; it is observed that technology has been used for technology's sake rather than achieving sound educational benefits.[5]

There are different types of WBL systems including, Computer-Mediated Communication (CMC), Web Course Tools (WebCT) and Blackboard (Bb).[2,7–9] Bb learning system is a web-based server software that provided virtual learning environment and course management system.[9] It is available in 12 different languages and more than 12 million users of about 2,200 learning institutions from 60 different countries have been used.[9] The College of Medicine, King Saud University using dynamic Bb learning management system (version 9.1 service pack 10) that working on Window operating and Java (1.6) based hosting system. Bb is providing various interactive tools for the users. The tools are announcement (this tool enables learners to know the latest news, notifications, and announcements), calendar, tasks (informing the learner what he/she has to do, it also allows them to organize according to the subject or personal visions), grades (this task provided grades obtained in examinations/tests) and user manual (this tool provides list of participating students to know each other). Bb technical standards for online learning applications were maintained and backup by the Deanship of E-learning in the University. They are also responsible to arrange Bb training. Bb is a multimedia curriculum-driven learning system that provides instructors with control and flexibility.[10] It has many features accessible to instructors and students including course documents, syllabus, hyperlinks and grade book. Moreover, it improves communication through announcements, discussions, virtual classroom and email.[11,2] Bb enables students to engage in an exciting ways of learning through collaboration and serves to develop and implement technology that improves every aspect of education. The reform of medical education system is a biggest challenge in the medical education. The College of Medicine of the King Saud University, is the first medical college of the Saudi Arabia, which has the responsibly to established modern education system and produced competent doctors. Therefore, College of Medicine undergraduate medical curriculum has been extensively revised for a decade. Since 2008, system based, integrated and reformed curriculum has been applied with different innovative instructional methods to facilitate students' learning in the era of new trends in medical education. Therefore, Bb as a learning management system was an important inclusion in the reformed curriculum. Bb training has been given to the students and faculty at beginning of academic session. As the training is not compulsory, students' attendance is usually poor. Also, students were frequently instructed to visit the Bb system as study materials are uploaded in the system.

It has been reported that opinion and attitudes of the user can affect any technology implementation.[12] Therefore; the effective utilization of the Bb learning system mainly depends on students and faculty members' background, readiness and acceptance of such system. Furthermore, frequently training is an important factor to facilitate maximum utilization. This study aimed to explore the Bb utilization by undergraduate medical students as learning management systems in their learning process. Also, to identify benefit and difficulties of the system faced by students.

Materials and Methods

Study subjects

This study was conducted in the College of Medicine, King Saud University, Riyadh, Saudi Arabia, using a self-administered questionnaire. The questionnaire was distributed to first to third year medical students during the academic year 2011−2012. The covering letter explained the objectives and purpose of the study. The participation of the students was voluntary and responses were guaranteed confidentiality. The study was approved by the College Research Ethical Committee, King Saud University.

Data collection methods

The questionnaire was developed based on extensive literature review results. The questionnaire included three parts namely; demographic information, utilization of blackboard and difficulties when using Bb. Four educational experts reviewed the questionnaire to improve the content and face validity. The first part of questionnaire included demographic characteristics; second part contained fifteen different items about the utilization of blackboard and third

part contained ten different items about the difficulties perceived by the students. Answers of the each item was calculated using a likert-type scale as following; '1' for "Strongly agree", '2' for "Agree", '3' for "Don't know", '4' for "Disagree", and '5' for "Strongly disagree". Therefore, the number '1' was given the highest agreement score, and the number '5' was given highest disagreement score. The questionnaire was piloted with a group of 20 students. The internal consistency of the instrument was measured using Cronbach's alpha reliability and showed 0.81 for utilization of Bb and 0.80 for difficulties perceived by the students.

Data analysis

Data were entered in the Microsoft Excel program and descriptive statistics (mean, standard deviation, and percentages) was used for summarizing the study and outcome variables. Pearson's chi-square test was used for observing and quantifying the association between categorical outcomes.

Results

Demographic information

A total of 808 questionnaires were distributed to the students and of them 341 (42%) students responded to answer of the questions. Out of the 341 participants, 65.7% were males and 34.3% were females. Among the participants, first, second and third year students were 132 (38.70%), 135(39.60%) and 74(21.70%) respectively (Table 1).

Utilization of the Bb

The overall mean of all items was 3.77 ± 1.21, showing poor utilization of Bb by students. It was noted that using Bb system to communicate and to discuss with the faculty and colleagues in addition to utilization of multimedia available in the system had the average mean value 4.19 ± 1.0, 4.04 ± 1.09 and 4.01 ± 1.05 respectively. However, student getting the course assessment results and feedback through system showed the lowest mean value 3.45 ± 1.39. The rest of the items had mean value ranging from 3.57 to 3.87 (Table 2).

The students are "disagreement and strong disagreement" with the utilization of Bb ranging from 53.1% to 78.8%, indicating poor utilization of Bb. Also, the students responded

with "Don't know" in all items ranged from 12.6% to 27.9% (Table 2). The result indicating that the 78.8% students were "disagreement and strongly disagreement" on Bb usefulness in commutating with the instructor, among them 80.7% were males and 75.9% were females ($p = 0.28$). In addition, 74.1% of students were "disagreed and strongly disagreed" on Bb usefulness in commutating with other students, among them 73.2% were males and 75.9% were females ($p = 0.67$). The 71.8% students, who did not use multimedia available in Bb in which 74.6% were male and 64.7% were female students ($p = 0.04$). Similarly, 67.4% male and 68.1% female students reporting that the Bb is not useful for submitting homework and assignment ($p = 0.03$). However, 54.9% male and 48.3% female students reporting that the Bb is not useful for getting course grade and feedback ($p = 0.04$). In compared to the third year students, first and seconds years students reported high "disagreement and strong disagreement" with the useful in obtaining course requirement, communication with the instructor, communication with the other students, know the homework and submission of homework and assignments ($p = 0.00-0.007$).

Difficulties faced by students' with Bb

The overall mean of all items was 2.69 showing that student faced difficulties with Bb. However, highest mean value was 4.25 showing that students are well familiar with computer systems (Table 3).

It was noted that majority of the students (61%) agreed that there is a lack of formal training on the use of Bb, therefore, 39.2% of students did not know if Bb system added any additional burden on the students or not. In addition, 37.2% of students agreed that the utilizing Bb system was time consuming. However, almost the same percentage of students 36.9% agreed that utilizing Bb system is not time consuming. The majority of the students (53%) agreed that there is a limitation in the services provided by the Bb. In addition, 67.2% of students found user instructions in Bb were unclear. Furthermore, 52% of students agreed that Bb interface was poorly design and that the page was overload with information. The results show that 31% of students have no problems logging on to Bb. However, 142 (42%) students faced technical difficulties with Bb. Most of the students (82.4%) know how to use computer. However, 203 (60%) students agreed that there is a lack of interaction from faculty in Bb (Table 3).Almost all students (97.1%) did not have any training in how to use Bb. In addition, 88% of students did not even read user manual how to use Bb that indicates a need for students' training. As the results of poor utilization and difficulties, 69.8% of students do not like to have more courses that use Bb as a part of their instructional method.

Further comparative analysis found that the majority of female students were "disagreement and strong disagreement" on the Bb increased the additional curriculum burden (33.0%), time consuming (34.2%), and lake of instruction (13.9%), in compare to the male students ($p = 0.08-0.82$). In addition, majority of female students also reporting technical difficulties in handling of Bb ($p = 0.29$) as well as less information available on Bb ($p = 0.08$). Similarly, in compared to third year student, first and second year students reporting Bb did not increase the

Table 1: Demographic characteristics of the participants.

Parameters	N(%)
Gender	
Males	224(65.70)
Females	116(34.0)
Missing	1(0.30)
Total	341(100)
Academic year	
First year	132(38.70)
Second year	135(39.60)
Third year	74(21.70)
Total	341(100)

Table 2: The items regarding the information obtained from undergraduate medical students about the utilization of blackboard.

Items	Participants	Mean ± SD	Strongly agree n(%)	Agree n(%)	Don't know n(%)	Disagree n(%)	Strongly disagree n(%)
Bb was useful in obtaining course description	341	3.57(1.20)	20(5.9)	46(13.5)	88(25.8)	92(27.0)	95(27.9)
Bb was useful in obtaining course objectives	341	3.72(1.13)	13(3.8)	38(11.1)	84(24.6)	101(29.6)	105(30.9)
Bb was useful in obtaining course requirement	340	3.68(1.15)	14(4.1)	39(11.5)	95(27.9)	87(25.6)	105(30.9)
Bb was useful in obtaining course references	340	3.75(1.15)	16(4.7)	33(9.7)	82(24.1)	99(29.1)	110(32.4)
Bb was useful to get the lectures material of the course	338	3.54(1.34)	35(10.4)	50(14.8)	53(15.7)	96(28.4)	104(30.8)
Bb was useful in communication with the instructor	340	4.19(1.00)	8(2.4)	16(4.7)	48(14.1)	100(29.4)	168(49.4)
Bb was useful in communication with other students	340	4.04(1.10)	11(3.2)	27(7.9)	50(14.7)	100(29.4)	152(44.7)
Bb was useful in E-mailing faculty	341	3.87(1.24)	21(6.2)	35(10.3)	56(16.4)	86(25.2)	143(41.9)
Bb was useful in E-mailing colleague	340	3.81(1.33)	34(10.0)	28(8.2)	50(14.7)	86(25.3)	142(41.8)
I like to use multimedia available in Bb	340	4.01(1.05)	12(3.5)	14(4.1)	72(21.2)	102(30.0)	140(41.2)
Bb was useful to know homework	341	3.82(1.26)	25(7.3)	34(10.0)	52(15.2)	95(27.9)	135(39.6)
Bb was useful in submitting homework and assignments	340	3.82(1.30)	26(7.6)	41(12.1)	43(12.6)	88(25.9)	142(41.8)
Bb was useful to know exam schedule	340	3.76(1.28)	26(7.6)	38(11.2)	60(17.6)	84(24.7)	132(38.8)
Bb was useful to know announcements	340	3.61(1.26)	25(7.4)	48(14.1)	68(20.0)	92(27.1)	107(31.5)
Bb was useful in getting course grades and feedback	339	3.45(1.39)	42(12.4)	52(15.3)	65(19.2)	72(21.2)	108(31.9)
Average score	340	3.78(1.21)	22(6.4)	36(10.6)	64(18.9)	92(27.1)	126(37.0)

Table 3: Undergraduate medical student's perception about the utilization of blackboard.

Items	Participants	Mean ± SD	Strongly agree n(%)	Agree n(%)	Don't know n(%)	Disagree n(%)	Strongly disagree n(%)
Lack of training in Bb	337	2.28(1.13)	97(28.8)	112(33.2)	83(24.6)	26(7.7)	19(5.6)
Bb increases the curriculum burden	339	2.89(1.12)	45(13.3)	68(20.1)	133(39.2)	65(19.2)	28(8.3)
Bb use is time consuming	336	2.96(1.21)	46(13.7)	79(23.5)	87(25.9)	89(26.5)	35(10.4)
Limitation of Bb services	337	2.33(1.01)	86(25.5)	95(28.2)	125(37.1)	22(6.5)	9(2.7)
User instructions are not clear in Bb	338	2.12(1.09)	121(35.8)	106(31.4)	73(21.6)	27(8.0)	11(3.3)
Bb front page is overload with information	339	2.49(1.11)	75(22.1)	101(29.8)	101(29.8)	47(13.9)	15(4.4)
Weak interaction from faculty in Bb	335	2.15(1.00)	109(32.5)	94(28.1)	113(33.7)	10(3.0)	9(2.7)
I faced technical problems logging on to Bb	338	2.92(1.17)	53(15.7)	57(16.9)	121(35.8)	79(23.4)	28(8.3)
Technical difficulty with Bb	338	2.57(1.04)	64(18.9)	78(23.1)	156(46.2)	21(6.2)	19(5.6)
I have difficulty using computer	337	4.25(0.96)	10(3.0)	9(2.7)	37(11.0)	113(33.5)	168(49.9)
Average score	303.6	2.70(1.09)	71(20.9)	80(23.7)	103(30.5)	50(14.8)	34(10.1)

additional curriculum burden ($p = 0.0001$), and did not consume time ($p = 0.02$). However, they reported technical difficulty in handling of Bb ($p = 0.06$).

Discussion

Education processes need a variety of instructional methods that may enable and encourage self-directed learning. Presently, worldwide educational institutions started using e-learning tools such as Bb as a part of their instructional setting.[12] Computer experience is positive predictor for student using e-learning systems. In contrast, our study showed that student's computer experience is not positive predictors for using e-learning systems. Robert et al (2004)[6] reported that Bb is used as a high tech mailing system. However, our study showed a poor utilization of email feature between students (18.2%); between students and staff (16.5%). Chawdhry et al. (2011)[13] showed that student preferred using Bb as it improves communication with the course instructor. In contrast to our study, this showed students strongly disagreement on Bb usefulness in communicating with the instructor and between students 78.1% and 74.1% respectively.

Online accessible course materials through Bb can help student to study anywhere and anytime. However, the result of the current study showed that only small percentages of student agreed or strongly agreed that Bb was useful in obtaining course description (19.4%), course objectives (14.9%), course requirement (15.6%), course references

(14.4%) and course lectures 25.2%. In contrast to other previous findings which showed that Bb was useful in obtaining course materials.[2,13–15] Abuloum and Khasawneh (2006)[16] reported that 89% of students agreed or strongly agreed that Bb is useful in obtaining grades. Similarly, Jones and Jones (2005)[17] showed that 76% of students found that Web-based course management system was useful in obtaining grades. However, the result of the current study showed only 27.7% agreement.

The current study showed that the majority (67.7%) of students disagree or strongly disagree that Bb was useful in submitting homework and assignments. In addition, 57.5% of students disagreed or strongly disagreed that Bb was useful to get information about homework and assignments. In contrast, it has been demonstrated that 52.8% of student agreed or strongly agreed that Bb was useful in submitting homework and assignments, even though technical problems were also perceived during assignment submission, as reported by 95% of students.[16] The current study showed that 51.9% of students agreed that Bb interface was poorly design and page was overload with information. Similarly, researchers in Pennsylvania reported that a percentage of students who prefer using Bb found poorly designed interface.[13] Our results show that 31% of students have no problems logging on to Bb. Similarly, other study showed the same findings.[16]

Training is essential in any instructional method used, in addition, our study showed that 62% of students agreed or strongly agreed about the lack of training in Bb which aligns with the finding of previous study.[16] It has been reported that 66% of students agreed or strongly agreed in having Bb as a part of their course instructional method.[16] However, our result is not consisting with this report and indicated that the 70% of students do not like to have Bb as a part of their course instructional methods. The students also imposing the difficulties in Bb persisted, which might be influence the poor utilization of Bb. This also reflects that the students are not attending or even not aware of the training provided for the faculty as well as for the students. This is a first local study which explored the perception of the students about Bb utilizations and difficulties. Student responses indicate the poor utilization of the Bb learning management system to obtain course objectives, learning materials, communication, assessment tasks, announcement and feedback. Hence our present study might be useful for the Bb content management to improve Bb contents as well as sort out the technical difficulties by an extensive training system. In addition, frequent feedback from the students also will be helpful to sort out the problems facing in Bb utilization. Hence, improvement of Bb learning management system might be useful in greater learners' interactivity, efficiency, motivation and flexibility of learning style.

There are some limitations of the study. A low response rate, inclusion of only three levels of students instead of all levels, and no opinion of faculty members are main limitation of the study.

Conclusion

The finding of the present study show a poor utilization of blackboard features by undergraduate medical students. In addition, students faced technical difficulties while using the blackboard. The findings indicate a need for students and staff training programs before and during launching any new educational instructional methods including blackboard.

Conflict of interest

The authors have no conflict of interest to declare.

Acknowledgements

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