

Overview of open book-open web exam over blackboard under e-Learning system



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Overview :

- ★ This paper evaluates the effectiveness of 'open book-open web' (OBOW) examinations in comparison to invigilated closed book-pen and paper exams.
- ★ An OBOW exam was conducted, wherein 127 students participated in it.
- ★ The result obtained in this exam was compared with the invigilated exam taken by the same students previously.
- ★ Cheating was assessed based upon the time at which the student started taking the exam, the total time taken to complete it and the marks they scored.

Overview :

- ★ A few cheating cases were observed in the OBOW exam and also in the invigilated exam, which is unavoidable in any circumstance.
- ★ The results indicated that there was no notable difference in the results between the two types of exams.
- ★ About 10 students faced technical problems like loss of internet connection, slowing of the internet connection due to traffic congestion in the network, hanging of the user's computer system.
- ★ It can be concluded that OBOW exams are better in accessing the student's ability to understand the subject and reproduce it.

METHODOLOGY :

OBOW exam was conducted at College of Medicine, King Khalid University, Abha, Kingdom of Saudi Arabia. This non-invigilated exam was made open online to the students outside the University working hours, when the students will be at their residence. A total of 127 students took this exam in Clinical Biochemistry on Molecular Biology topic. These students were categorized into three different groups :

- 1** **Group I:** Thirty (30) female students belonging to first year undergraduate dental sciences.
- 2** **Group II:** Fifty two (52) male students belonging to first year undergraduate dental sciences.
- 3** **Group III:** Forty five (45) male students belonging to first year Medical Laboratory technology course.

METHODOLOGY :

Control: Equal number of the same students in each of the above 3 groups, were considered as control.

Marks obtained by these students in the previous invigilated exam with the books closed on paper were considered for comparison with the OBOW exam.



METHODOLOGY :

Table 1. Summarized overall difficulty index for the questions in relation to the answers given by all the students

Difficulty Guide	Difficulty index	Number of questions				Average
		Group I	Group II	Group III	As perceived by the instructor	
Easy Questions	> 80 %	11	13	6	10	10
Medium Questions	30 % to 80 %	7	5	11	5	7
Hard Questions	< 30 %	2	2	3	5	3

Table 2. Comparison of the number of students in the three groups, scoring different grades in OBOW verses invigilated exams

Groups	Number of students scoring the grade						Type of Exam
	A	B	C	D	F	U	
Group I (n=30)	11	7	3	5	1	3	OBOW
	12	14	4	0	0	-	Invigilated
Group II (n=52)	26	14	9	2	0	1	OBOW
	17	18	10	7	0	-	Invigilated
Group III (n=45)	9	6	11	7	6	6	OBOW
	19	18	3	1	4	-	Invigilated
Overall (n=127)	46	27	23	14	7	10	OBOW
	48	50	17	8	4	-	Invigilated

A = 90-100%; B = 80-89%; C = 70-79%; D = 60-69%; F = 0-60%; U = Ungraded due to technical problems

METHODOLOGY :

each and every student was interviewed personally after the exam to evaluate and to get their views regarding the pros and cons of this OBOW exam and to note their grievances, if any. Further, the online attempt by all the students was analyzed by the instructor to scrutinize the degree of cheating and / or difficulties faced by the students during the exam.

Cheating was assessed based upon the time at which the student started taking the exam, the total time taken to complete it and the marks they scored.

The number of question not attempted by the student in relation to the total time taken by the student to submit the exam was used as an index to evaluate the technical problems during the exam.

Data analysis :

We analysis of the data using the automated data analysis available in the Blackboard version 6.1.3, existing over the eLearning server for the staff of King Khalid University, Abha, Kingdom of Saudi Arabia. The parameters analyzed by this software included difficulty index of the questions, average score, standard deviation and standard error.

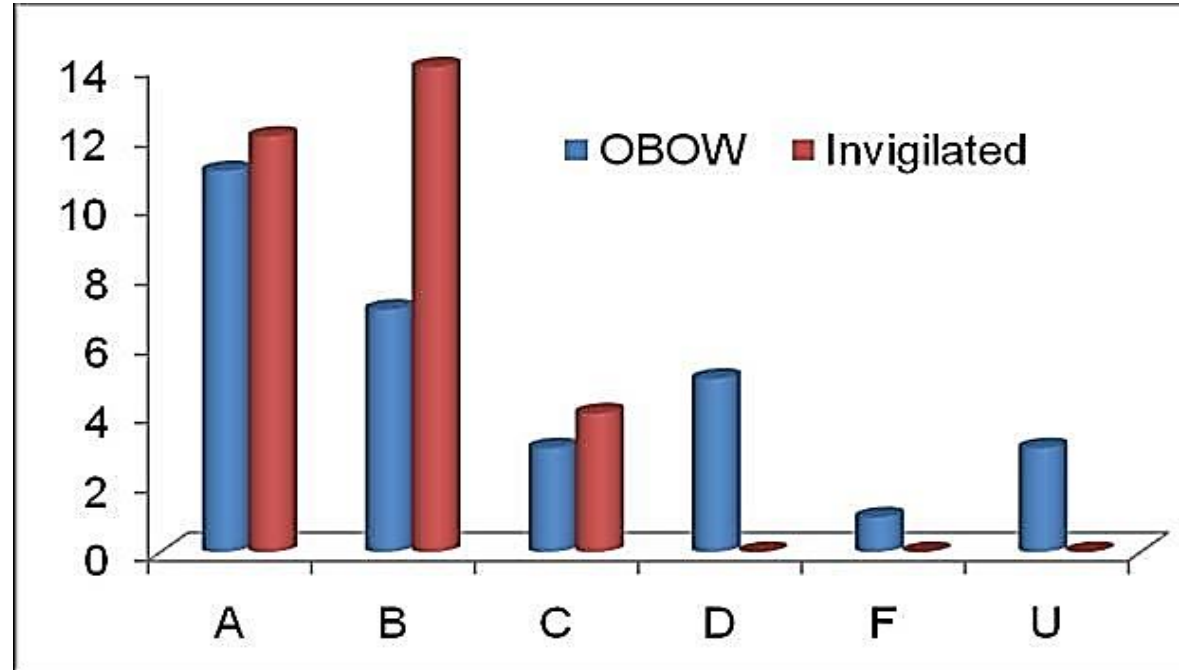


Figure 1. Comparison of the number of students scoring different grades by group I students in OBOW verses invigilated exams

Data analysis :

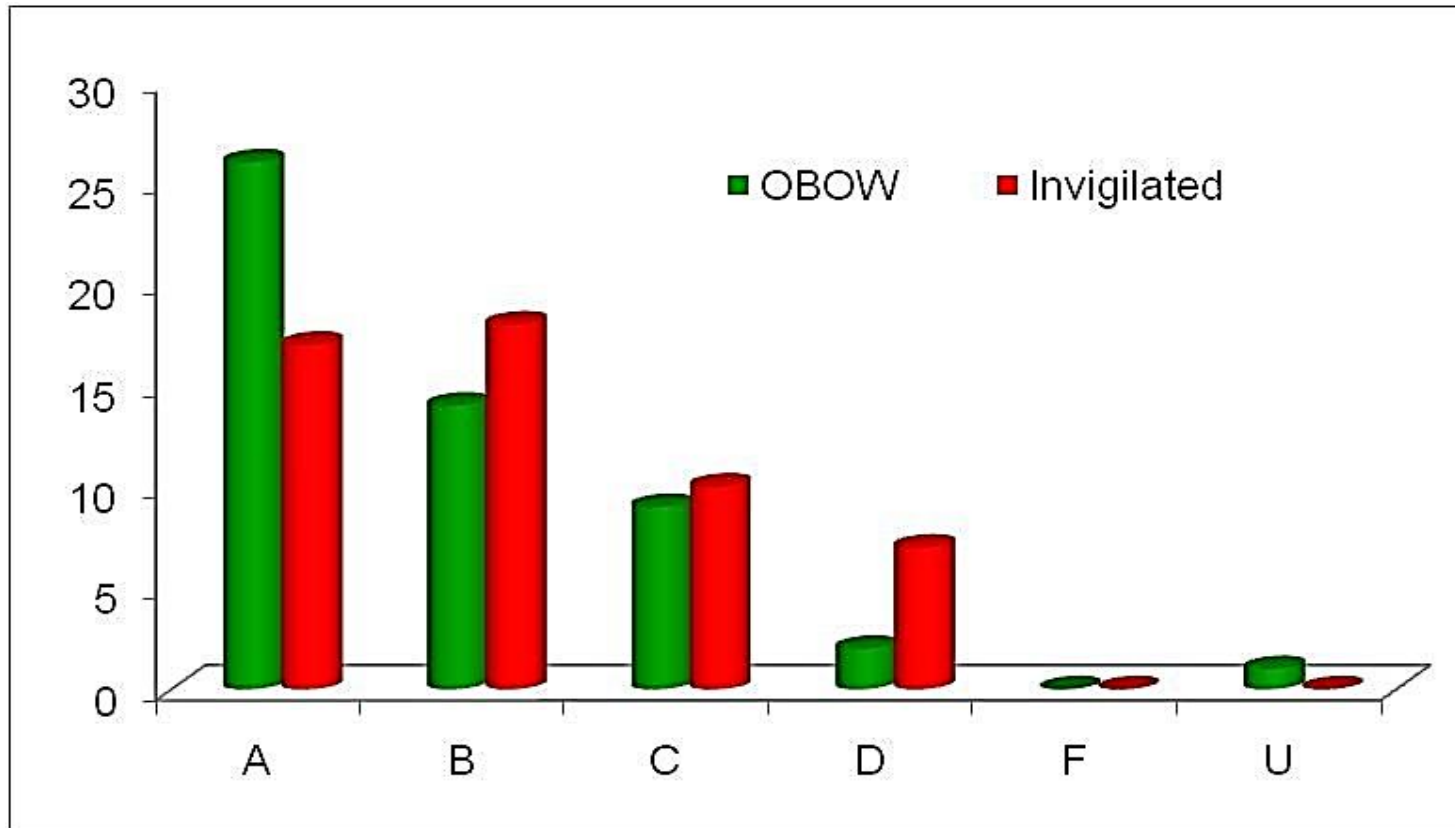


Figure 2. Comparison of the number of students scoring different grades by group II students in OBOW verses invigilated exams

Data analysis :

The number of students scoring B, C, D and F grades in OBOW exam were 6, 11, 6 and 7 respectively, whereas 18, 3, 1 and 4 students scored B, C, D and F grades respectively in the invigilated exam (Figure 3).

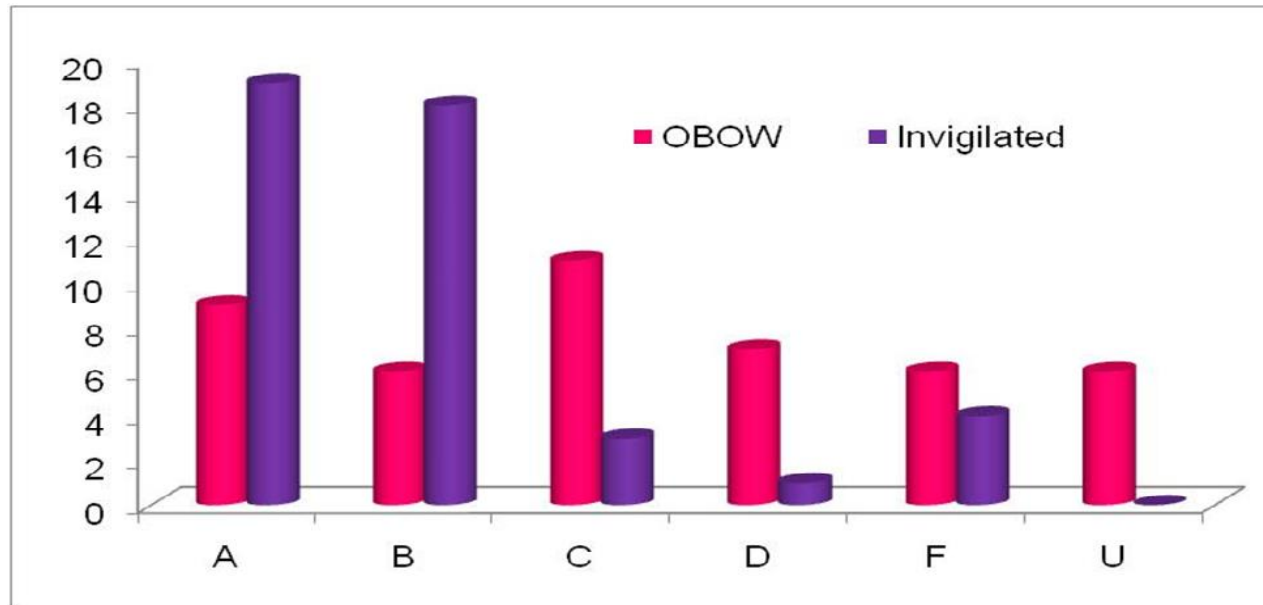


Figure 3. Comparison of the number of students scoring different grades by group III students in OBOW verses invigilated exams

Data analysis :

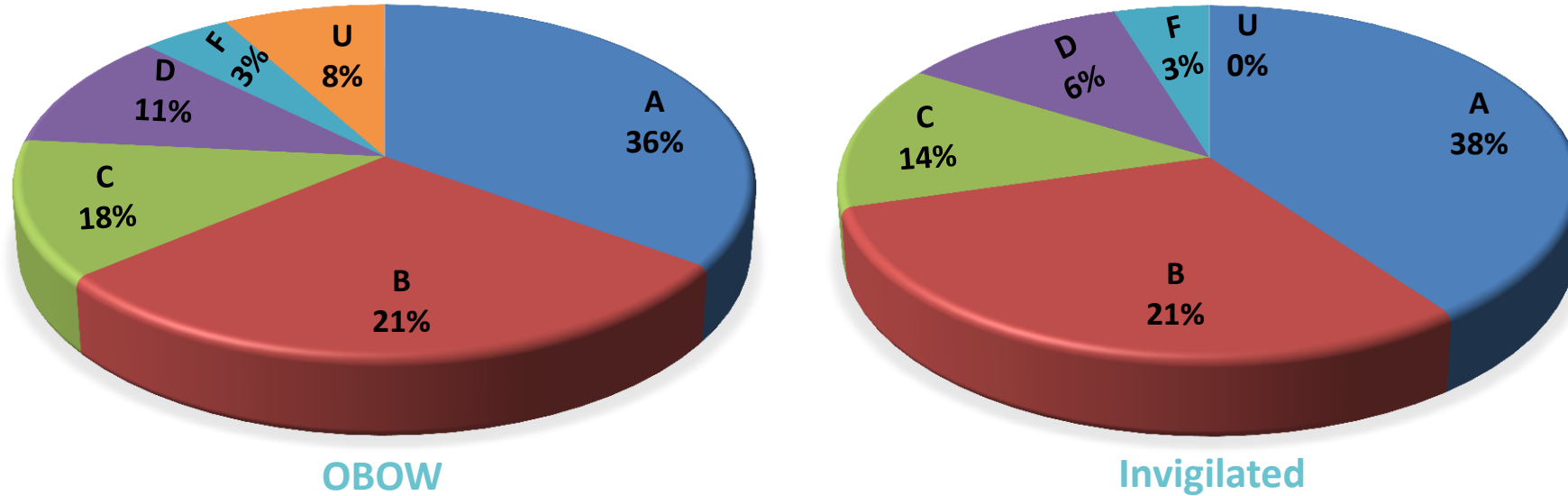
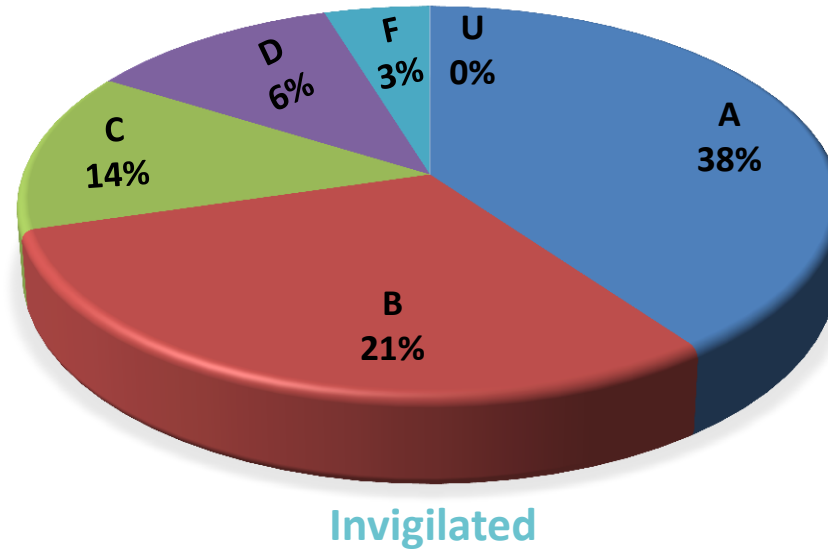
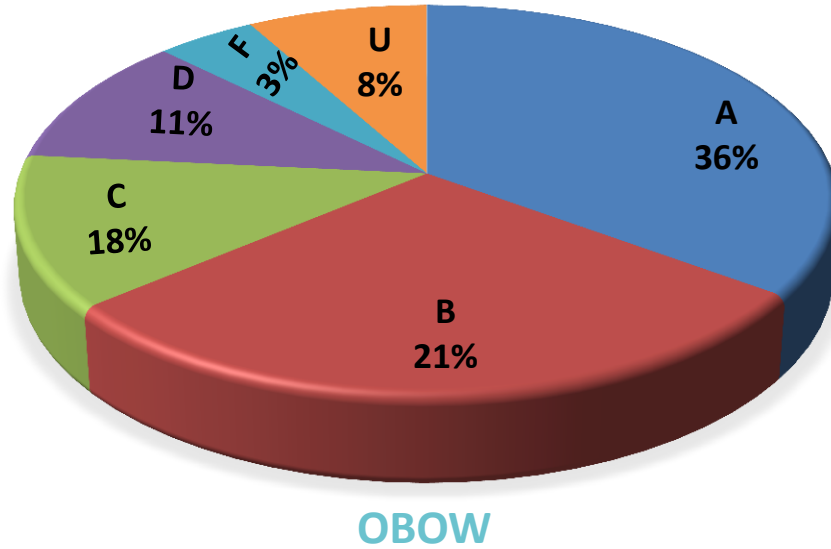


Figure 4. Overall comparison of the percentage of students scoring different grades by all the three group of students in OBOW verses invigilated exams

Looking into the overall performance of all the three group of students in OBOW and invigilated exam, it is observed that there is not much difference in the results.

Data analysis :



36 % of the students scored “A” grade in OBOW exam as compared to 38 % in the invigilated exams. Further 21 %, 18%, 11% and 6 % of all the students scored B, C, D and F grades respectively in OBOW exams as against 39%, 14%, 6% and 3% respectively in the invigilated exams.

Cheating :

We documented a total of 11 cases of cheating in the entire three groups during the OBOW exam. The ground on which it was concluded that these students might have indulged in cheating is presented in Table 3. As expected, there was only one case of cheating among the girls (Group-I) and five each among the boys (group-II and III). The authors came across a similar number of cheating cases during the invigilated exam. Some of the students were warned, others seats were changed and yet a few were sent out of the exam hall by the authors.

Technical problems :

The technical problems faced by the students included dropping of the internet connection, slow internet connection, problem with the browser, user computer very slow or totally stuck-up etc. A total of 10 students faced technical difficulties during the exam.



CONCLUSION :

Finally conclude that OBOW exams are better in accessing the student's ability to understand the subject and reproduce it, provided:

- 1** The questions are made in the ratio of 2:1:1: easy: medium: hard. Hard questions must include thought provoking, problem solving and case oriented questions.
- 2** The time allotted for the exam should be just enough for an average student to complete the exam.
- 3** The total time an exam is available to a user should not be much more than the allotted time for the exam.
- 4** The software should not allow the student to begin the exam 10 minutes after the start of the time of the exam to minimize cheating.

CONCLUSION :

Finally conclude that OBOW exams are better in accessing the student's ability to understand the subject and reproduce it, provided:

- 5 The questions and answers (in an MCQ) should be displayed in random order and backtracking should be prohibited. The exam should be auto submitted on expiry of the allotted time.
- 6 Cheating can be totally avoided if the number of questions added to the test is 4-5 times more than the actual number of questions that a student needs to answer.
- 7 Technical problems can be minimized by creating a practice exam with dummy questions in order to make sure the system is ready at the student end and moreover the student is in a comfortable situation before the exam, online real time video monitoring and technical support and training and practice with dummy exams.

Thank You!

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