



## A COMPARATIVE STUDY OF OPEN BOOK AND CLOSED BOOK EXAMINATION IN A MEDICAL COLLEGE IN NORTH INDIA

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**ABSTRACT** **Background:** It is generally accepted that open book examinations create an enriched environment, offering the student an opportunity to better understand and respond to a particular question. **Aim Of The Study:** The purpose of the present research was to examine the testing effect with two types of tests commonly found in education: closed-book tests, the traditional method of testing students, and open-book tests, a method gaining popularity. **Material & Methods:** A total of n=109 students of final year MBBS participated in the study. A comparative analysis was made for a terminal examination between two papers of general surgery and allied specialties, one paper conducted through conventional method and other one through Open Book Examination. Results were assessed in terms of analysis of feedback form submitted by students and marks obtained. **Results:** There was statistically significant difference in terms of pass percentage between two groups as open book examination clearly surpassed conventional system by having a pass percentage of nearly 70% as compared to closed book examination with ~53%. Marks scored were also better in open book examination. Majority of the students were of the opinion that cheating was less common in open book examination and stress level was lesser, ascertaining open book examination to be a good practical tool for implementation of knowledge. An important consideration was time management which needs to be addressed. Majority of the students were of the opinion to have more open book examinations in future. **Conclusion:** Open book examination is an important tool for practical assessment of knowledge of students & it needs to be explored more for inducting it in our conventional system of examinations.

**KEYWORDS :** Open book examination, Closed book examination, conventional system of examination

### INTRODUCTION:

An examination or evaluation is an assessment intended to measure a test taker's knowledge, skill, aptitude etc. and stands as a feedback mechanism for both teachers and students. Recent research has shown that taking a test can do more than simply to assess learning: tests can also enhance learning and improve long term retention, a phenomenon known as testing effect (1). In order to assess the highest form of learning, the pattern of evaluation should focus more on applicability of knowledge, understanding and analysis than focusing on mere recall. Closed book examinations are a tool to assess the student's capacity to recall and test his long term memory rather than enhancing the student's ability to understand, apply and analyze the basic concepts of subject which is assessed by open book examination (2). In a broader sense, an open book examination allows students to consult some form of reference material in the course of completing the exam.

Open book and closed book examinations have different pedagogical ends. While a closed book examination "places a premium on accurate and extensive recall, and unless carefully designed, its assessment of students' knowledge is likely to be dominated by that ability" (3), an open book examination places the focus on higher level learning. Because open book examinations don't have the same emphasis on memorization, questions can move up Taxonomy of Educational Objectives, and ask students to analyze, evaluate, or synthesize knowledge, rather than just remember it. One may think of two kinds of open book examinations, say the *restricted* type and the *unrestricted* type. In the restricted type of open book examinations, students are permitted to bring into the examination room one or more specific documents approved by the course instructor. In the unrestricted type of open book examinations, students are free to bring whatever they like. They may bring any books (with or without scribbles on the margin), lecture handouts of the course instructor, or their own handwritten notes(4). However there are certain difficulties in Open Book Examination. The examiner must be well aware of the concepts of open book examination and select the questions accordingly. The

primary emphasis must be on testing the application and analysis of the concepts rather than simple recall. There may be less motivation from the students to prepare in advance as they rely in the reference materials.

With this background, a comparison of conventional closed book examination with open book examination was done in our medical college to assess the student's perspective on Open Book Examination through a feedback questionnaire.



Figure 1. CBE

Figure 2. OBE

### MATERIALS AND METHODS:

A total of (n=109) final year MBBS students (8<sup>th</sup> semester) participated in the study. The study was conducted as a comparison between the conventional closed book examination (Fig 1) and open book examination (Fig 2) for subject of general surgery and allied specialties. Two papers were set as paper 1 & paper 2 by the same examiner (senior faculty). Conventional closed book examination was conducted on day 1 through paper 1 and open book examination was held on day 2 through paper 2. Students were informed 1 day before about the pattern of open book examination. The questions for open book examination were mostly clinical scenario based aimed at analyzing and application of knowledge to assess higher cognitive levels. The students were allowed to carry textbooks, notes and all desirable study material along. The time allotted for both papers was

same (3 hours). A questionnaire for feedback was formulated which was filled by all students at the end of open book examination. The feedback form consisted of a total of 11 questions with a response assessment graded as agree, can't say & disagree. The feedback forms were analyzed and results tabulated. Answer sheets of both paper 1 & 2 were checked by same faculty member to minimize bias. Marks obtained in both papers by each student were analyzed and tabulated.

### OBSERVATION AND RESULTS:

A total of 109 students participated in the study. All the students filled the feedback questionnaires. There were 11 questions assessing the response of students in terms of parameters like stress level, difficulty level, time management, understanding the concepts, their perspective on Open Book Examination etc. The response from the students is tabulated in table 1. Nearly 43% students were of the opinion that open book examination was better as compared to the conventional closed book examination and majority of the students (71%) were of the opinion that cheating is less with open book examination, hence it being rated as a fair process. About 20% of students were of the opinion that open book examination was waste of examination though around 48% were in denial of same. A staggering majority of students (73%) were positive about the fact that open book examination tends to avoid stress and anxiety of students. Nearly 50% of the students opined that open book examination help in better understanding of the subject and better analysis of concepts.

**Table 1. Student Response To Open Book Examination (n=109)**

S. No.	Statement	Agree	Can't say	Disagree
1	Do open book tests work better than closed book/Conventional examination	47	28	34
2	Cheating is more common in open book	11	20	78
3	Open-book exam is waste of examination	22	35	52
4	Open book exam avoids stress and anxiety of examination	80	12	17
5	Open book exam is better for the concepts and understanding of the subject	53	22	34
6	Everyone will score good marks in open book exam	39	34	36
7	Open book exam is easier than conventional exam	58	18	33
8	Open book exam reflects real life situation more closely compared to closed book	64	21	24
9	Open book exam is good for application of knowledge	73	10	26
10	Time management is more important in open book exam to write appropriate and adequate answers.	101	4	4
11	Are more Open Book Exams are needed?	59	21	29

We got an equivocal response with regards to probability of every student scoring good in open book examination, however this parameter was rechecked by comparing individual marks of each student in both papers. With regards to level of difficulty, nearly 50% of students found open book examination to be easy. Since open book examination was a type of problem based learning for students, nearly 60% of students found it to be reflecting real life situations more effectively than conventional examination. We got a positive response in terms of how good open book examination was for application of knowledge. About 70% students favored that open book examination is good for practical implementation of knowledge. One of most important parameters for both types of tests being time management, 92% students were of the opinion that time management is more important in open book examination as compared to conventional pattern. Only around 27% students were not in favor of open book examination, while majority were clearly inclined in having more of these tests in future.

With regards to marks obtained (Table 2) in both types of examinations, we concluded that the difference was significant ( $p$  value  $< 0.01$ ).

**Table 2. Marks Obtained In Conventional And Open Book Examination**

Marks	Conventional (Paper1)	Open Book Examination(Paper2)	P value
Minimum	06	9.5	<0.01
Maximum	39	44.5	
Mean	27.1	30.77	
Pass percentage	53.6%	69.9%	

### DISCUSSION:

Learning is an active and a continuous process which results in a relatively permanent change in the behavior of the learner. There are many levels of learning with the most primitive being signal learning to the most complex problem based learning. Learning and assessment are integral part of medical education. Medical education is a dynamic process. The students should cope up with the evolving and changing concepts in medical field. A medical graduate should acquire both core and backup knowledge. The conventional closed book examination tests mainly the core knowledge. Open book examinations aim at testing the backup knowledge. Open book examination helps the students in learning and developing problem solving skills which was evident from our study as well with majority of students favoring open book examination in terms of it being good for practical application of knowledge and at same time reflects real life situations more aptly. Nearly 73% students in our study believed that open book examinations avoid stress and anxiety of examinations and nearly half were of the opinion that it is an easy format as compared to conventional one. Educators agree that open-book examinations reduce anxiety, and students appear to consistently prefer open-book exams despite the understanding that they generally require the exhibition of higher-order thinking skills (5).

Students are not required to engage in parroting of concepts (4), if they understand the concept they would answer correctly which was also justified by 48% of our participants of study. This will remove stress of examination which has become integral part of normal education system. Open book examination enhances information retrieval skills of students by finding the efficient ways to get the necessary information and data from books and various resources.

Generally open book examinations need more time than closed book examinations. This clearly reflected in our study and study by Durning SJ (6). About 92% of students were of the opinion that time management may be more important in open book examination as compared to conventional method. This may be due to the fact that these students were new to this pattern of examination or used surface learning and hence used the exam time to search for answers. Another reason for poor time management would be students trying to over write answers with additional points copied from study material. Heijne & Kuksin in their study pointed out that reducing the test time might force the students to prepare longer and deeper for open book examinations(7). The overall impression of the students was 55% agreed for open book examination and 20% disagreed.

### CONCLUSION:

Open book examinations have fulfilled both the requirements of an assessment tool and a student-centered approach to education, as a technique that reduces the level of anxiety experienced by participating students. This is thought to result in more comprehensive student examination preparation, and hence more consistent learning throughout the course of study, with students avoiding "cramming". It is generally accepted that the perceived "worth" of an open book assessment is directly related to its ability to expose higher order "thinking" skills of candidates. It is true that it will take some time and effort on the part of students and teachers to adapt themselves to the demands of open book examinations, but the changes will be inevitable.

In summary, although open-book tests are gaining popularity and result in large initial benefits, they produce a similar amount of long-term retention as traditional closed-book tests. Still, both types of tests enhance learning more than restudying or testing without feedback, thus open-book and closed-book tests should be used as strategies to improve the retention of material. In addition, subjects predicted they would recall more in the future after repeated studying than after testing, even though the opposite was true and testing enhanced long-term retention relative to restudying. This metacognitive illusion could have dire consequences for students when they must monitor and regulate their own learning.

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