

Effective learning through Multiple Choice Questions against short Essay type of assessment in Medical Physiology students of Lahore

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ABSTRACT

Objective: The present study was carried out to evaluate the advantages of Multiple Choice Questions (MCQ) against short Essay type (SEQ).

Study Design: longitudinal study

Place and Duration of Study: This study was conducted Rashid Latif Medical College, Lahore from December 2011 to March 2013.

Materials and Methods: A total of 200 second year students were involved in the study and their scores in SEQ and MCQ papers were analyzed. Out of them 100 students were girls and 100 were boys. The students were informed that they are going to be assessed via three SEQ examinations and three MCQ examinations and then a survey and viva was conducted. Gender differences in performances were also studied.

Results: The result of this study shows that those students who were kept on MCQ type of assessment emerges to be weak students at the end of the session as compared to others who were assessed by SEQs

Conclusion: The SEQ type of assessment was established as a better method of assessment to strengthen student's learning process and helped students to exert and retain more knowledge.

Key Words: multiple choice questions, short essay type, assessment

INTRODUCTION

Learning is obtaining new knowledge besides amending and enhancing previous one. Deep learning engages long term memory through analysis of new knowledge and thoughts as well as in-depth understanding of the newly acquired information, it also associates these to prior knowledge. In learning assessment plays important role. Assessments and evaluation encourages students to exert more and the methods of assessment play important role in their learning process¹.

The choice of best method of assessment in Medical college curriculum of Physiology is debatable topic from last few years in Lahore. In last decade there was a swift transfer of the assessment methodology from essay question towards MCQs^{1, 2}. Innovations are fine and are required in every system after passage of time. The necessity of bringing up innovations arises due to the modern era and its upcoming requirements which also leads to quick examination system and quicker results. Other reasons can be enormous rise in medical students quantity internationally and the need of highest quality and standardized medical education. There can also be a desire to revolutionize which mirrors the hasty life style of current generation which leads to the development of multiple choice questions as an assessment tool¹⁻³.

Multiple choice examinations are those type of assessment in which students opt for the best probable answer from alternatives given. They consist of a main statement and a set of choices. The main

statement is referred as stem and the correct reply is defined as the key but the other incorrect answers are referred as distractors. There are several advantages to multiple choice examinations. It can be a very successful evaluation technique depending upon the expertise level of question maker. They usually involve less time and results in an additional complete assessment of the knowledge as they usually test precise knowledge. They have twisted knowledge into a kind of puzzle, mystery or a crossword according to some critics. According to them it does not let examiner assess the students' knowledge properly. Others say that with these tests students can neither put up and prove their own perception nor they can give irrelevant details. However, in spite of all the criticism multiple choice tests are still accepted because they are standardized. Essay types also have their disadvantages including the individual behavior and perception of the examiners for marking same question and many more along with the issue of scribbled handwriting and time consumption etc. It has also been noticed that female students constantly were far better students than male's worldwide³⁻⁷.

It was hypothesized that if students are asked to prepare MCQ there learning ability and deep learning is reduced as compared to informed SEQ test.

MATERIALS AND METHODS

A total of 200 second year students were involved in the study and their scores in SEQ and MCQ papers were analyzed for the period of less than two years. Out of them 100 students were girls and 100 were boys. The

students were informed that they are going to be accessed by means of three SEQ examinations and three MCQ examinations and then a survey and viva was conducted.

The study was conducted by selection of students who scored 60% marks in the general IQ test and were also of top merit in Fsc. Premedical. After the selection of students they were divided

into two groups 100 each, having equal students of both genders. One group was put into SEQ examination and the other group gone through MCQ examination. Three tests of three different topics were conducted among both groups. Then on same syllabus a verbal examination was conducted for both groups and a survey was also conducted asking students about merits and demerits of SEQs versus MCQs.

Statistical analysis: Statistical analysis was carried out with the SPSS. The data was expressed as mean \pm standard deviation. The significance of differences between two groups of data was done by applying student's t- test after verification of normality of data and equality of variance.

RESULTS

Results of the present study were presented as follow:- The SEQ and MCQ results of students of whole year (three test / year) were depicted in Table no 1 and were plotted in figure 1. It compared the average of three SEQ test results of group one with the results of MCQ's test (three test / year) of other group , having 100 students of equally both genders. The results of the two groups were almost more or less similar and p-value is non- significant reflecting that the difference among two groups is not noticeable.

Table No.1: SEQ and MCQ results of students of whole year (three test / year)

Groups	SEQ/NCQ Examination results Mean \pm 1 standard deviation	p-value
SEQ students group (n=100)	79.5 \pm 1.0%	0.324
MEQ students group (n=100)	81.0 \pm 1.5%	

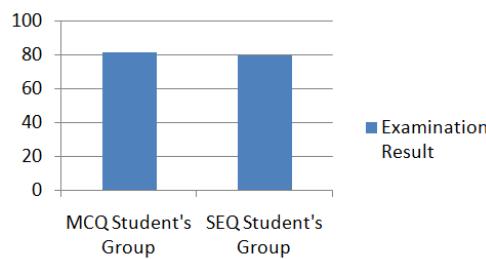


Figure No.1: Examination Result

The Viva results of students of both groups were represented in Table no 2 and are plotted in Figure 2

showing the comparison of verbal performance when both groups were having 100 students of equally both genders. The comparative results of the two groups were highly significantly different as estimated by the p-value. The result of this study shows that those students who were kept on MCQ type of assessment emerges to be weak students at the end of the session as compared to others who were assessed by SEQs.

Table No.2: Viva results of students of both groups

Groups	Viva results Mean \pm standard deviation	p-value
SEQ students group (n=100)	85.5 \pm 2.0%	0.000*
MEQ students group (n=100)	62.0 \pm 3.5%	

* significant (p-value < 0.05)

Non significant (p-value > 0.05)

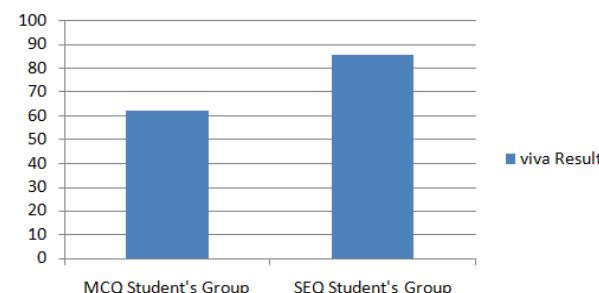


Figure No.2: Viva result

In survey report the students said that while preparing for MCQ examination, they just failed to retain the memorizing part and were unable to develop a clear concept besides whatever they read was not retaining and it was really easy to attempt MCQ without actually preparing for it

DISCUSSION

Assessment works as an incentive for learner and educator. The constant internal assessment system is a form of teaching learning activity.⁸ This helps the students to prepare their studies and syllabus on time and also maintain and develop them more disciplined, perceptive and improves their result. The concluding assessment in any subject should be made upon the result of a large number of periodical tests and assignments.⁹ In 2010 a research was conducted in subject of pharmacology which put side by side the performance of medical students in MCQ as well as SEQ and revealed that student performance and result was independent of examination format.¹⁰

The noteworthy finding of this study was that there was a no statistically significant difference between student performance on MCQ and SEQ as noted by Mujeeb and Dagogo also^{10, 11} in their similar researches, but there was remarkable difference of student scores in viva voce examination in this research which was not

considered in methodology of above mentioned researches. This research indicated that, in general, students who performed well in the SEQ were also likely to do well in the MCQs but there depth of concept and practical life implementation of the bookish knowledge which was judged by multiple examiners in *viva* was far less in those students who belong to MCQ group.

CONCLUSION

The SEQ type of assessment was established as a better method of assessment to strengthen student's learning process and helped students to exert and retain more knowledge. The result of this research goes in favor of SEQ type of assessment as assessment methods guide to fabricate better learning among students.

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