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Faculties' feedback on powerpoint based spotter examination for first year medical students

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ABSTRACT

Practical examination in Biochemistry involves spotters requiring rotation of students through ten stations in batches. As the numbers of students are large, it adds more difficulty in conducting such examination within the given time frame. Moreover, some of the stations require the use of an instrument or reagents which have to be arranged with the help of technical staff. So, to find a feasible, acceptable and valid tool for conduct of such examinations, a pool of questions in Microsoft (MS) - PowerPoint format based on the specification table and learning objectives was prepared. During periodic internal evaluations, these slides were used to orient the students for such examination. During university examinations, these questions were then administered to the entire batch of students simultaneously. A feedback regarding the same was taken from the teachers after the spotter examination using a questionnaire with 5 point Likerts scale. All faculties (100%) felt that this method overcomes most of the needs required in conventional spotter examinations like laboratory infrastructure, student rotations between stations, reagents, preparation time, staff- technician coordination etc. So, PowerPoint based spotter examination can be an efficient and feasible tool for conducting such examinations for large number of students.

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Introduction

Considerably a large number of admissions in medical institutions create multiple problems in teaching and examinations. (1) When conducting practical examinations, most of the institutions adopt the conventional method which also involves spotter examination arranged in 10 – 20 stations involving prefixed and limited set of specimen /charts which student has to answer within a time frame. This requires the student rotations in small batches through each station (2). This is very challenging as it takes lot of time of students and faculty and it requires cooperation and coordination of technical staff, material and infrastructure. Ideally for every batch of students taking exam, the stations have to be changed each time to avoid repetition. But because of limited infrastructure/personnel and other constraints, same or limited sets of specimen/charts are repeated for the entire batch of students in many institutions. So, there is a need for a feasible, acceptable and valid tool for conduction such examinations (3 -7).

Method

Institutional Ethics committee permission was taken to carry out this study. Ten faculties involved in teaching Biochemistry to first year medical students prepared ten questions each during each semester in a MS - PowerPoint format (8), based on the specification table and learning objectives mentioned in the syllabus which helped in generating a pool of questions (question bank) (9). During periodic internal evaluations, these slides were used for conducting such examination to orient student population. During university examinations, the entire batch of students taking practical examination for a given day was made to sit in a lecture hall. External examiner was asked to choose ten slides from the given pool. Then the slides were arranged, and projected at preset time intervals to the entire batch of students simultaneously. (Figure 1) All students would view each slide simultaneously and answer them in the sheet provided. Faculties' feedback regarding this mode of examination was taken using a questionnaire taken from previously published study after making necessary modifications and validation (Table 1) (10).

Result

Accreditation Council for Graduate Medical Education (ACGME) categorizes medical competence into six related domains: medical knowledge, patient care, professionalism, communication and interpersonal skills, practice-based learning and improvement, and systems-based practice (11). Accordingly methods for student assessment in medical education have changed over the past 50 years. We have moved from a standard of pen-and-paper tests of knowledge and facts to a more complex system of evaluation. Medical students today are tested on knowledge, attitudes, and skills across multiple settings and methods. Also the success of any examination depends to a great extent on addressing feasibility and practicality issues. The cost of implementation for conventional spotters is comparatively high in terms of personnel, facilities, finances, and time for examinees and faculty. Depending on the availability of resources, institutions often need to deviate from conventional test designs.

We observed student took more interest due to a variety of questions which can be answered without having to move through stations. Also, they kept themselves alert during the whole process of examination as the slide will change automatically within a specified time frame, which was not observed in conventional one. As the examination was executed at once for the entire group of students taking exams for that day, it prevented information leak due to cross talks between each batch of students. If such examination is regularly used for formative assessment then it can enhance teacher-student interaction as well. Unlike the conventional type of spotters, it can also be used for testing higher level of cognition (11) than pure recall as well as in clinical simulations based questions as it is easy to show or create such questions on slides which may further improve the validity of such examinations (11). This examination can be modified easily as per institutional circumstances and need without having to go through recreation of new specimen/infrastructure. Further, a large number of students can be tested within a relatively short time.

Conclusion

The renewed emphasis on patient safety, quality outcomes (12) and the social consciousness in medical education necessitates it to use high-quality, reliable, valid (13), educationally sound assessment methods (14). So, PowerPoint based spotter examination can be an efficient, feasible, valid and acceptable tool for conducting such examinations for a large number of students.

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Table 1: Faculty feedback assessment of digital spotter examination:

Dear sir/Madam,

Please tick the appropriate column for each question. The purpose of this survey is to find out your feedback regarding the new digital spotters as compared to our conventional one. Thank you.

Sl. No	Question	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
1.	Less time consuming					
2.	Easy to administer					
3.	Preparation demands less faculty time					
4.	No need to monitor time for each spotter					
5.	No need of laboratory facility					
6.	Can be administered to the entire batch of students					
7.	Requires less faculty/ technician coordination					
8.	Saves preparation time					
9.	Students need not rotate/move form station to station					
10.	Clearly visible to the student as no overnighting					
11.	Good quality question as the bank is scrutinized by entire faculty through discussion					
12.	Can have more variety of questions					
13.	More appealing to the students					
14.	Prevents cross talking between students as entire batch will see and answer the questions together					
15.	Prevents wastage of reagents/paper/material					
16.	Any other comment you want to add regarding advantages/disadvantages of digital spotters as compared to conventional:					

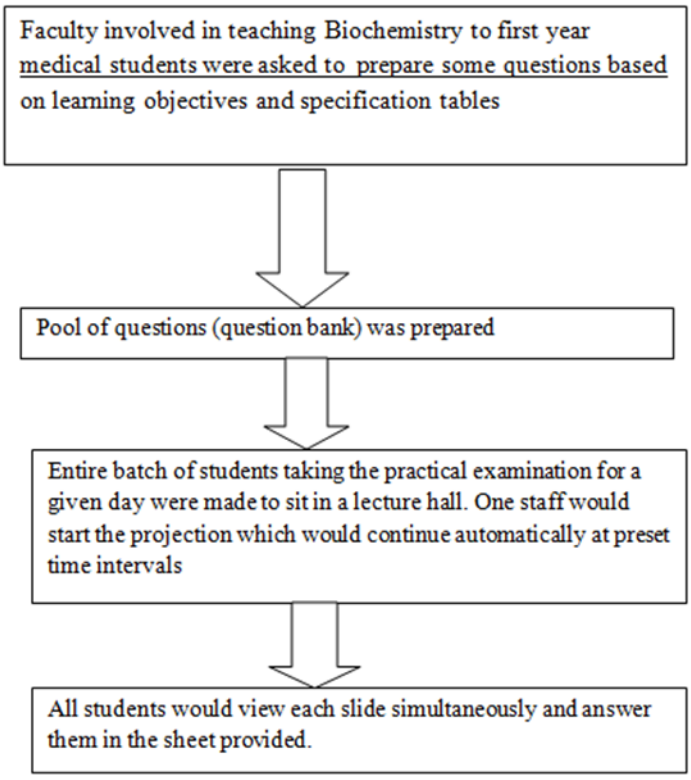

Figure 1: Preparation and conduction of Power point based spotter examination

Table 2: Faculty feedback on Microsoft PowerPoint based spotter examinations (n = 27)

Attribute	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Total
Prevents wastage of reagents	0	0	7.40%	25.93%	66.67%	100%
Easy to administer	0	0	7.40%	7.40%	85.20%	100%
Preparation requires less time	0	7.40%	7.40%	25.93%	59.26%	100%