

Bangladeshi Anatomists' Perception for Structuring the Embryology and Genetics Oral Exam of M Phil Anatomy Course

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Abstract

Context: Embryology and Genetics is a compulsory paper in the Master of Philosophy (MPhil) course in Anatomy in Bangladesh. Assessment of the knowledge, skills and attitudes of the students is a key component of a curriculum that is an integral part of any course design. Proper implementation of the assessment exams based on organized documents like exam format or card can make the course meaningful. The purpose of this study was to develop an exam format for structuring the oral exam to be followed by the examiners of the Embryology and Genetics paper of the MPhil Anatomy course.

Materials & Methods: The descriptive study having both qualitative and quantitative components was carried out from January 2004 to June 2005 in the Department of Anatomy, Bangabandhu Sheikh Mujib Medical University (BSMMU) Dhaka, Bangladesh. The questionnaire was distributed to all the postgraduate anatomists (sixty) all over the country excepting eleven who were participated in focus group discussion.

Results: The exam format is an important tool for structuring the oral exam but from time to time it should be modified depending upon the needs and situation.

Key words: Structured oral exam, embryology, genetics, MPhil.

Introduction

Students' learning is largely motivated by the assessment system. Therefore, it is implied that the improvement of an assessment system would invariably lead to an improvement of students learning. Oral exam is the part of assessment system consisting of a dialogue with the examiner, who asks questions to which the candidate must reply. In recent day, Bangladesh has seen the implementation, although in a fragmented form of structuring of exams at the undergraduate level. It is expected, therefore, that the Master of Philosophy (MPhil) exam should also be properly structured, and all the documents related to the exams be

updated according to the modern understanding of the science of assessment in medical education. This would mean that the basic plan and detailed organization of the oral exam would be optimal in terms of:

- Reflection of the objectives of the course and of the paper
- Validity, reliability and objectivity of the test
- Coverage of important course content according to their relative weights
- Functional and clinical relevance
- Assessment of different cognitive, psychomotor and affective skills in their proper context
- Logic of the use of different examination materials
- Practicability of time allocation

Achieving all of this is a daunting task. Proper analysis of the present situation and understanding of the modern views on assessment system are essential prerequisites for preparing the format for structuring the Embryology and Genetics oral exam. Nevertheless, the task must be done, however daunting it may prove, in order to ensure that the

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MPhil course will produce capable anatomists who can facilitate proper learning by their students.

Teaching and assessment together lead to a meaningful learning¹. Teaching should create a desire to learn and assessment should create a constructive awareness of ignorance.

A good test should have validity, reliability, objectivity and practicability.

This study was carried out with objective of formulating an oral exam format that would increase the validity, reliability and objectivity of the oral exam of Embryology and Genetics paper of the MPhil Anatomy course at BSMMU.

Methods

The study was a descriptive type containing both qualitative and quantitative elements. In the study, focus group discussion (FGD) and questionnaire based feedbacks were taken into consideration.

The study was conducted to develop an exam format (Card) for structuring the oral exam of the Embryology and Genetics paper of the MPhil Anatomy course at BSMMU. A card was made considering the objectives of the MPhil course and correlated with the knowledge of relevant personal and peer experiences in the light of the understanding of the principles of medical education. The contents of the Embryology and Genetics paper were arranged into different Groups and Compartments in a logical sequence.

Then feedback was collected regarding the card as a tool for structuring the oral exam from the anatomists of the country through a focus group discussion as well as through a questionnaire.

For the focus group discussion the names of all postgraduate anatomists of the country were collected from the souvenir of the latest general meeting on the Anatomical Society of Bangladesh. From the list the names of the Dhaka-based anatomists who usually deal or have dealt with Embryology and Genetics were selected and their names were arranged in the alphabetical order. Then, they were contacted through telephone serially to take their consent about the participation in the focus group discussion. In this way eleven anatomists were selected consisting of 6 Professors, 4 Associate Professors, and 1 Assistant Professor. The discussants feelings about different aspects of the format were audio-taped after getting

verbal consent from the discussants. The audio-taped discussions were transcribed into a written form word for word. A questionnaire was sent to sixty anatomists with postgraduate qualification(s) residing all over the country.

Analyses of the data

The data, gathered from the focus group discussion, were analyzed qualitatively, looking for the main 'themes' that emerged from the focus group discussion. Quantitative analyses of the data were done from the questionnaire-based study. These were mostly percentage frequencies of responses on Likert scales. Mean and standard deviations were calculated using the Statistical Package for Social Science program (SPSS). The Likert scale used scores of ascending order (1, 2, 3 and 4 representing disagree, tend to disagree, tend to agree and agree respectively). In this, the higher scores stood for the desired results. Therefore, any mean value above 2.5 was considered as inclining towards the desired results.

Results

From the analyses of the transcriptions of the audio recordings of the focus group discussion, the following themes emerged:

Theme a. The format (card) for the oral exam more or less reflected the objectives of the course and of the paper.

During the discussion most of the anatomists agreed that the objectives of the course and of the paper had more or less been reflected in the card. One said that, in a broad sense, the objectives of the MPhil Anatomy course was to develop a teacher and a researcher who would be able to design an anatomy-related course and to give medico-legal comments on anatomical aspects, when required of him/her.

Theme b. A wide coverage of contents had been incorporated in the card.

Some of the participants mentioned that there was a wide coverage of content in the card, although some rearrangements of contents within and across the compartment were needed.

Theme c. Students' depth of knowledge could be assessed by asking different types of questions

One participant suggested that one recall type, one understanding type and one application type of question should be asked from separate compartments, so that in-depth knowledge can be assessed. Most of them agreed on this.

Theme d. Understanding is more important than recall

One discussant said that in any compartment, if an examinee failed to satisfy the examiner with the answer to a recall-type of question, the examiner might switch over to an understanding-type question; this would ensure the student was not failed in that compartment solely based on recall of content, because understanding is more important than recall. Another discussant commented:

'If one wishes to assess the understanding of a student, then go for understanding type questions right away'.

Theme e. A minimum time allocation should be mentioned, but flexibility had to be allowed.

Most of the anatomists said that the time actually allowed in the exams should not be less than the time allocated in the card, but more time might be allowed for proper assessment.

Another two participants gave their opinion by saying,

'It is better to mention the time limit, but rigidity is to be avoided'.

Theme f. The mark distribution and marking system was appropriate

One participant pointed out that the examiners gave marks instantly and individually. Another teacher said that it was better to mark in percentages rather than in absolute numbers. Others did not oppose the notion.

Theme g. The card, of course, may be accepted as a tool for structured oral exam, but from time to time it should be modified based on the need and situation

Questionnaire-based feedback

A questionnaire was sent to sixty anatomists with postgraduate qualification(s) residing all over the country. The overall response rate for the questionnaire was 68.33% (41). Table 1 Shows anatomists opinion regarding the structuring of oral exam of the Embryology and Genetics paper of M Phil Anatomy course.

Table-I
Questionnaire-based feedback from anatomists on the utility and acceptability of the card for structuring the oral exam of Embryology and Genetics paper

Statement	N	Frequency of responses for each statement			*Mean score ± SD	
		Disagree %	Tend to disagree %	Tend to agree %	Agree %	
The card is quite capable of testing an examinee's depth of knowledge	41 (Undecided: 8)	9.09	9.09	30.30	51.51	3.24 ± .97
Division of the contents into compartments has to encourage a student not to study a particular compartment at all, and manage by studying some other compartment	41 (Undecided: 4)	32.43	13.51	21.62	32.43	2.54 ± 1.27
The card system can ensure the use of different assessment materials (e.g. specimens, figures, models etc.) more than in the traditional exams	41 (Undecided: 0)	0	0	19.51	80.89	3.80 ± .40
The card system would ensure more improvement in assessment compared to the loss of freedom that the examiners would face	41 (Undecided: 4)	5.40	0	48.65	45.95	3.35 ± .75
The card system is a better way of assessment than the traditional oral Exam	41 (Undecided:1)	2.50	0	45	52.50	3.48 ± .64

N: Number of respondents for the particular statement (a total of 41 respondents responded to the questionnaire)
Each percentage value has been calculated after excluding the absence of responses and undecided responses (if any) from the respective "N"s

*Each mean score represents the mean of the scores (1, 2, 3 or 4) available for the comments on an individual statement.

Discussion

The study was intended to produce an oral exam format which would contribute to the improvement of structuring of oral exam of Embryology and Genetics paper of the MPhil Anatomy course.

The oral examination is supposed to be used to probe more deeply to assess a student's ability to think and to express his knowledge clearly. This also helps to assess other competencies such as communication skills. Direct personal contact allows assessment of appearance, manner, personality, alertness, confidence, honesty, self-awareness and other aspects of values and attitudes⁶. Traditional oral exam is usually a subjective test and at times, it can be threatening to the students. In this regard, a memorable quote of Colton⁷ 'oral examinations are formidable even to the best prepared, for the greatest fool may ask more than the wisest man can answer'. It should also be pointed out that, sometimes oral examiners end up asking questions that simply assess students' ability to recall information rather than their ability to think deeper or show their problem solving skills, which is the main aim in oral examinations. 82% anatomists agreed that the card is quite capable of testing an examinee's depth of knowledge.

An oral examination may be improved by organizing it in a structured manner. From the results of our study, it was evident for structuring oral examination the various elements of oral examination might be organized taking into account:

- Questions are framed in advance, at different levels of cognitive domain.
- Equal duration of time is ensured for each candidate.
- Contents are divided into compartment.
- Use of different assessment material
- The exam starts with an easy topic, and then proceeds to more difficult problems.
- If someone fails to an answer in one area, the topic is shifted.
- Each question may be marked individually and all summed up at the end.

Manual on Teaching Methodology⁴ for structuring oral examination supported our results. Harden⁸ identified three rules that apply to selecting an

assessment procedure: the method should be valid, reliable and consistent, and practical. Considering these aspects an exam format was made to make the oral exam more reliable and valid. 100% anatomists agreed that the card system can ensure the use of different assessment materials more than in the traditional exam. Paul⁹ mentioned that selecting a representative set of test items is essential for increasing the validity of an assessment process. It has also been mentioned that increasing content areas also improves validity¹⁰. Both of these had been sincerely tried in the card. 52% anatomists believe that division of the contents into compartment has encouraged the students to study all compartments to get good marks. This was reflected in the FGD and questionnaire-based feedback. Without prior planning, it is always difficult to distribute the contents in different parts of the examination according to their appropriate weight, and there is always a risk of repetition. A planned exam format is expected to alleviate this problem. In traditional oral exams, examiners are often inconsistent in the time allocated for or in the number of questions asked to individual examinees. Examinees failing to answer the first one or two questions properly are very likely to face fewer questions than those answering well to the first few questions. The card system gets rid of this bias.

There are several levels of cognitive domain. The higher levels often go unpracticed or untested in traditional oral exams. Thus, the deeper learning is affected. The card system is aimed at improving deeper learning in Embryology and Genetics by ensuring that understanding and application-type questions are asked in adequate numbers. This conforms to the feeling expressed in the FGD that 'understanding is more important than recall'. One of the aspects of understanding in Embryology is that of developmental mechanism. Feedback from the anatomists revealed that this aspect was adequately addressed in the oral exam card.

In the card, the importance of mechanism and clinical aspects of development have been emphasized and assessment of knowledge of these aspects has been ensured. Developmental process should be considered as 'a sequence of dynamic events', as suggested by Pansky¹⁰. Unless the

assessment process in Embryology concentrates on mechanisms, rather than simply on sources, the understanding of the story of development would be incomplete. Misconceptions regarding the mechanisms would also lead to misunderstandings related to developmental anomalies. The term 'cognitive' implies 'knowledge' in its widest sense. Thus its assessment is neither simple nor is there an ideal format for achieving it, though many senior and experienced postgraduate examiners feel that they have mastered the knack of doing so¹¹. Often the examiners end up asking recall-level questions throughout the exam. Prior planning as required with the oral exam format should resolve the problem.

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