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RESEARCH ARTICLE

EVALUATION OF QUALITY OF MBBS PHYSIOLOGY QUESTION PAPERS OF SUMMATIVE ASSESSMENT IN A MEDICAL COLLEGE, SURAT

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ABSTRACT

Assessment drives the learning process. It's a very important input to judge the value of educational programs. For assessment to move smoother way planning and pre-preparation is required & after preparation, a quality check mechanism is required at the university level but today such a mechanism is not available, teachers are preparing question papers on their own experiences and judgments. So to assess the quality of the question paper is the motive behind this project. **Aim and Objectives:**To evaluate the quality of MBBS Physiology question papers of summative assessment in a medical college, Surat. **Methodology:** The present study was conducted over a period of six months in the physiology department, at a medical college. Last ten years a total of 20 theory Physiology question papers for written summative examinations conducted from the year 2008 to 2017 were collected and the quality of each paper was analyzed. **Findings:** In general, there was no uniformity observed in comparing the distribution of marks with the lecture hours assigned to each topic. Also, it has been observed that in more than 50% of cases,semi-structured Long Essay Type Question (LEQ) is asked, in that, structured questions were prepared but separate marking for the subdivisions was not indicated in all the cases. Long Essay Questions are mostly comprehension and recall knowledge type of questions, the application part /level of a cognitive domain in Bloom's taxonomy is missed out from the question paper. **Conclusions:** The responsibility of our own along with MCI andthe board of studies of universities, to develop a Blueprint for the planning & Implementation of various assessments. Blueprinting will help faculty who sets question papers, assessors as well as students to perform well in assigned work.

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INTRODUCTION

Assessment drives learning process and it is also very important input to judge the value of educational programme. Different assessment methods are going to asses various domains like cognitive, affective & psychomotor. Written theory examination is used as a tool to check the improvement in cognitive domain of learning. In cognitive domain you can ask the question to check the various levels of cognition (Bloom's taxonomy). On the basis of that, we are going to assess the performance of the students. In today's scenario, every medical college and university under the influence of Medical Council of India issued a syllabus copy which includes topics from must know, desirable to know and nice to know area, also under the influence of nodal/regional center has started basic medical education workshop to sensitize teachers regarding the syllabus, teaching learning methodologies, appropriate assessment methods, and also gives hands on experience, 'how to prepare a quality question paper'.

But after preparation of question paper, there is no quality check mechanism at the university level and this is the motive behind this project. I am not the first one, who is conducting this type of study; there were many other who have performed this in India and overseas. This study is first in its type for evaluating quality of summative assessment question papers for duration of 2008 to 2017 years for physiology course in India.

Aim

To evaluate the quality of MBBS Physiology question papers of summative assessment in a medical college, Surat

- To assess the relation between weight-age given to the each organ system with number of lectures.
- To identify the long answer question format as structured, semi structured or unstructured.
- To evaluate the percentage weight-age of questions from three categories (must know, desirable to know and nice to know category) as per Medical council of India.

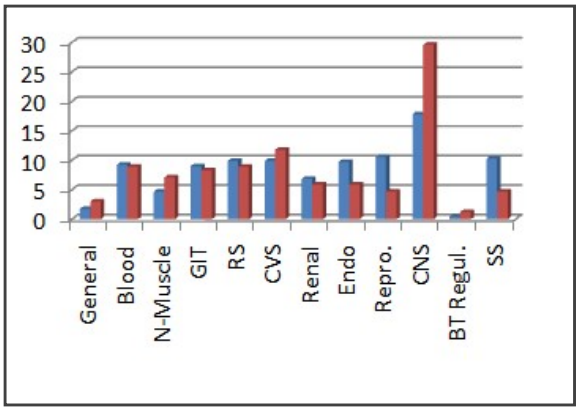
- To categorize level of cognitive domain of Long Essay Question (LEQ) i.e. Recall, comprehension & application.

METHODOLOGY

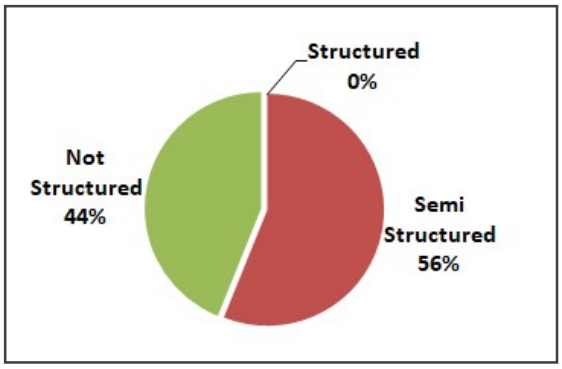
The present study was conducted over a period of six months in the physiology department, a medical college. Last ten years, total 20 theory Physiology question papers (10 of paper I & 10 of paper II) for summative examination conducted duration last consecutive 10 years (i.e. 2008 to 2017) were collected by request from question bank, central library and the quality of each paper was analyzed and evaluated. There are two separate question papers for the physiology theory written examination: Paper I (50 Marks) and Paper II (50 Marks) if we include the optional question than 70 marks per paper were assigned i.e. total 140 marks. Ist MBBS physiology syllabus has been broadly divided into 12 major topics, with specific lecture hours for each topic (1). The data was compiled in Microsoft excel, presented as tables and graphs and analyzed in terms of proportion and represented in percentages. Coefficient of Variation (CV) was calculated for parameter tested. CV is the ratio of the standard deviation to the mean (average).

OBSERVATIONS AND RESULTS

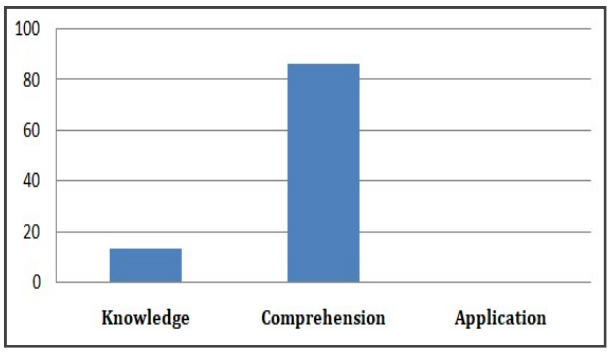
In the present study following observations were recorded and presented in the form of tables and graphs. Table 1 illustrates number of hours of lectures for each topic in physiology; including its relation with percentage of marks/ weight age given for that topic in summative examination. The number of hours of lectures is assigned in proportion to the importance of the topic.



Graph 1. Distribution of lecture hours & weight-age of each topic



Graph 2. Appropriateness of Long Essay Type Question (LEQ)



Graph 3. Level of cognitive domain in Bloom's Taxonomy

In general, there was no uniformity observed on comparing the distribution of marks with the lecture hours assigned to each topic. It was observed that the weight-age in terms of percentage of marks assigned to major topics like Blood, Cardiovascular System, Respiratory System, Endocrine, Special Sense and Gastrointestinal System was very close in relation to number of hours of lectures indicated and in some cases like Central Nervous System & Cardiovascular system, too low in relation to number of hours of lectures indicated in Table 1 and Graph 1.

Long Essay Type Question (LEQ) format in summative examination is structured, semi structured (i.e. clear to the student what are the point should be include in his/her answer and how much marks allotted for which portion of question) or non-structured type. It has been observed that more than 50% cases semi structured Long Essay Type Question (LEQ) is asked, in that, structured question were prepared but separate marking for the subdivisions was not indicated. Most important thing is that questions prepared from the important system like Central Nervous System are mostly unstructured question.

Table 3 illustrates lectures topic in Paper I and Paper II and total frequency, expressed as % marks asked in summative examination under must know (MK), desirable to know(DK) and nice to know (NK) area. Table 4 and Graph 3 indicate that Long Essay Question is used to ask to check the knowledge, understanding and application component. Whether students are able to remember previous learned information and also retrieve that information. Our study indicates that questions were asked in physiology are mostly comprehension type of question, to assess the better understanding of the concept on the level of cognitive domain in bloom's taxonomy.

DISCUSSION

Theory examination serves as an important tool for evaluation of students in summative assessment. Different type of questions asked in question paper and we measured the levels of cognitive domains using Bloom's taxonomy (3). In the present study, it is evident that there is no uniformity in the assignment of marks to the various topics. Weight-age to the content areas is a delicate issue on which even the experts often differ in opinion. It has also been cited, that the weight-age of various topics depends mainly on the examiners own judgment (4).

Table 1. Distribution of weight-age of each organ system and coefficient of variance

S. N.	Topics/Systems	Weight-age		
		Lectures Hours	% lectures	Marks %
1	General Physiology	5	3.0	1.72
2	Blood & Immunity	15	8.9	9.23
3	Nerve & Muscle Physiology	12	7.1	4.66
4	Gastrointestinal System	14	8.3	8.99
5	Respiratory System	15	8.9	9.89
6	Cardiovascular System	20	11.8	9.89
7	Renal System	10	5.9	6.86
8	Endocrine System	10	5.9	9.72
9	Reproductive System	8	4.7	10.54
10	Central Nervous System	50	29.6	17.81
11	Body Temp Regulation	2	1.2	0.41
12	Special Senses	8	4.7	10.29
	No. of Samples		12	12
	Mean		8.3333	8.3341
	SD		7.2865	4.5595
	Coefficient of Variance		0.8743	0.547

Table 2. Appropriateness of Long Essay Type Question (LEQ)

S.N.	Topics/Systems	Appropriateness of LEQ		
		Structured	Semi Structured	Non Structured
1	Appropriateness of Long Essay Type Question (LEQ)	0	56%	44%

Table 3. illustrates lectures topic in Paper I and Paper II and total frequency, expressed as % marks asked in summative examination under must know (MK), desirable to know(DK) and nice to know (NK) area

Types	LEQ	SAQ	Brief /One Word	Total	Percentage
Must Know	296	656	214	1166	97.09
Desirable To Know	00	14	21	35	2.91
Nice To Know	00	00	00	00	00
Total	296	670	235	1201	100

Table 4. LEQ asked and its level of cognitive domain: Remembering, Recall or retrieve previous learned information &Understanding the concept are shown in the table below

S. N.	Topics/Systems	Levels of Cognitive Domain (Bloom's Taxonomy)		
		Knowledge	Comprehension	Application
1.	Type of Question	04	26	00
Out of 30 question				

In the present study, it is also evident that, examiners prepare mostly simple recall type and comprehension types of questions, application type of questions are missing from the undergraduate question paper. We fail to assess our students for the higher cognitive levels of learning. This study gives overall idea about weight-age of marks to each topic & cognitive levels of the questions is very important to develop some standard blue printing plan of physiology question paper. Medical Council of India and University should take part in the process of blue printing of question paper and Standards should be fixed accordingly. Whenever university request paper setter for preparation of question paper, it's the duty of university to send this standard blue print to paper setter and responsibility of paper setter is not to deviate from this standard format.

CONCLUSION

The estimation of question papers revealed the fact that uniformity is not present between the assignments of marks to different topics, when we compare the lecture hours allotted to that topic. Some of the important topic allotted more number of lecture classes but less than 50% weight-age we can observe in question paper. Uniformity also not seen in the question asked in the area of must know, desirable to know & nice to know area.

Mostly questions were asked form the must know area but not a single question is asked from nice to know area in last 10 years. Moreover, higher cognitive domains like application of learning were not tested; questions mostly cover recall or retrieve previous learned information & understanding of concept. We test student's levels of performance without any indication of marker to discriminate between different. Basically this is not because of lack of performance by students in examination or due to lack of quality of question papers. It is mostly because of poor planning & scheduling and unavailability of detailed plan. This lack of quality of the assessment criteria can be overcome by use of blue print plan. A Blue print is a guide for making something; it's a design or pattern that can be followed. Blueprint ensures that, the plan has been developed and mapped carefully against the educational objectives and specific objectives of assessment in medical sciences. The responsibility of our own along with Medical council and University's board of studies, to develop this plan and blue print for the planning & implementation of various assessment. This will help faculty who sets question paper, he or she knows, question from which topic, for how much marks, from which core or noncore area. To achieve this, medical council and nodal center of MET train the faculty in topic like blue printing & assessment. This is the only way to succeed in examination, if one must ensure fairness in

assessment, student will get fair chance to perform and then passes the exam and faculty will thrive in examination.

Implications: It should be made mandatory to every faculty members to go through the Medical Education Training for preparation of theory question papers and its evaluation.

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