

# Analysis of Previous Year University Anatomy Question Papers Based on Content Validity

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## Abstract

**Background:** In the current medical system of education, the students are mainly focusing on passing the examinations rather than improving the knowledge. Judgement making capabilities and clinical application of the knowledge should be assimilated through medical education. The ideal evaluation system is always necessary to determine whether programmed educational objectives have been accomplished. The written examination papers of undergraduate in anatomy and their valid content are the most important tools of assessment. **Subjects and Methods:** The first MBBS examination papers of Anatomy from the year 2009 to 2013 were collected and analyzed. **Results & Conclusion:** The appropriate coverage of anatomy subject is essential for validity of an assessment. Even though the content of anatomy written examination papers was given in syllabus, the weightage of various subdivisions of anatomy was not specified.

**Keywords:** University question papers, Content validity.

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Received: 15 June 2020

Revised: 29 July 2020

Accepted: 04 August 2020

Published: 22 December 2020

## Introduction

**“The mere imparting of information is not education”.**

To modify the curricula without changing the examinations will accomplish nothing! Altering the examination system without changing the curriculum had a much additional thoughtful impact upon the nature of erudition than changing curriculum without changing the examination structure - G.E. MILLER.

The ideal evaluation system is always necessary to regulate whether programmed educational objectives have been achieved.<sup>[1]</sup> Assessment is a very significant distinctive of medical education and accordingly, the system is an indispensable fragment of the prospectus of a course. So, the examination should be effective, and thus replicate the content and aims of course, by which the potential in knowledge and judgement creation capabilities of student is found out.<sup>[2]</sup> The vacillations in the assessment structure can fetch around the changes in education structure such that the knowledge includes much beyond grinding of the proofs.<sup>[3]</sup> If the evaluation system is not virtuous, it will fundamentally reduce the instructor's competence, undergraduate's aptitude and adequacy of resources.<sup>[4]</sup>

The assessment tools are of three types. These tools are used in evaluating medical students in anatomy being written, oral and practical examinations. The written examination papers of undergraduate anatomy and their valid content are the most important tools of assessment. No other method of evaluation can replace the written examination. The written examination has an important place in the evaluation system.<sup>[5]</sup> Written examination consisted of two papers, paper - 1 and paper - 2. Contents of the two papers were visibly specified in the curriculum. In the curriculum 2008, only long and short answer type questions have been endorsed with no multiple choice questions. Even though the content of anatomy written examination papers was specified in the syllabus, the weightage of diverse subdivisions of anatomy was not cited. The satisfactory handling of the anatomy subject would be obligatory for the soundness of assessment.

The core components of an assessment tool are: Validity (the correctness of the given tool for accomplishing the vital purpose), Reliability (the degree of constancy with which a tool measures what is imagined to measure), Objectivity (the extent to which two or more independent examiners accept on a correct answer), Feasibility (the assortment to which it is

attainable under the specified circumstances).<sup>[5]</sup> The validity of a test is the degree to which a test measures what it is supposed to measure.<sup>[6]</sup> It is of five types namely Content validity, Concurrent validity, Predictive validity, Construct and Face validity.<sup>[7]</sup>

The most significant form of assessment is content validity, where the knowledge and skills of the learner would be judged correctly. It must be arbitrated to cover important skills and abilities and likewise according to the objectives of the assessment.<sup>[1,2]</sup> The assessment should have a maximum coverage of the contents.<sup>[8]</sup>

## Subjects and Methods

The first year MBBS examination papers of anatomy from The Tamil Nadu Dr. M.G.R. Medical University from the year 2009 to 2013 were collected and analyzed. Each year has got two sets of papers with two parts (paper -1 and paper-2) and totally twenty papers are analyzed in detail. Each set of question paper is analyzed about the subdivisions of anatomy and their weightage of questions. All the questions were long and short answer form. 476 questions were analyzed. There were subdivisions per question. The various subdivisions of anatomy like Genetics, General anatomy, Gross anatomy, Neuro anatomy, Histology and Embryology were analyzed for variable frequencies and stated as percentage of total number of segments of the questions.

## Results

From the thorough question papers analysis we have found that diverse parts of the anatomy were not given appropriate weightage. There were few subdivisions of anatomy which were covered scarcer than obligatory and some of the subdivisions covered very well. The Gross anatomy was covered very well with 78.25% and Genetics, Embryology, Histology, Neuro anatomy and General anatomy were given the minimum importance. Questions from some of the subdivisions like General Anatomy and Genetics were poorly enclosed and were not found in four sessions out of ten sessions analyzed. Multiple choice questions and problem resolution defiance of the students were not at all incorporated. More notably the applied anatomy aspects were covered very poorly in all the papers [Table 1-2].

## Discussion

Regarding weightage of various subdivisions in anatomy there were no authorized guidelines. From the question paper analysis, it was clear that various subdivisions of anatomy

were not properly covered. Content validity is to be based on proficient decision and evaluator should relate what was taught with what was measured by the test. If the test was conducted for good results content validity must be confirmed.

The first priority of an assessment is the content validity. It is the degree to which the assessment contains a vivid illustration of material imparted in the course.<sup>[1]</sup> It must include vital skills and abilities.<sup>[2]</sup> Design of examination must be able to evaluate the candidate's skill in order to encounter required purposes and must cover the main contents of the course.<sup>[9]</sup> Weightage of the content parts is very subtle matter on which even experts often vary in judgement. Weightage of different subdivisions hinged on mainly on the assessor's personal judgement as stated by Adkoli.<sup>[5]</sup> In the present study, we have found that proper weightage was not given to various subdivisions. Some subdivisions were covered less than required and some of the subdivisions covered very well. The gross anatomy was covered very well with 78.25% and Genetics, Embryology, Histology, Neuroanatomy and General anatomy were given the least importance. Questions from some of the subdivisions like General anatomy and Genetics are poorly covered and not found in four sessions out of ten sessions analyzed.

Mc Aleer stated that content validity as the extent to which a test or examination actually measures the intended content area. It must have item validity and sampling validity. Item validity and sampling validity could be explained with simple example. If a test was intended to measure knowledge of human anatomy then good item validity would be present, if all the questions deal with topics relating to entire human body. But, poor sampling validity would be present if all the questions highlight on the lower limbs.<sup>[6]</sup>

Crowl mentioned that in defining the content of an instructional element, enquire yourself not only what areas were covered but also what percentage of the total content each topic epitomizes. What percentage of lecture period and textbook was ardent to each topic? While setting the question paper for unit assessment test, see that the percentage of the total amount of test items dealing with each topic look like to the proportion of the total content dealing with that topic. The test outcome would have a content validity as the test items represent an accurate illustration of the material concerned.<sup>[10]</sup>

**Aleer also stated the following ways to instigate the content validity -**

- Describe the subject material being evaluated
- Categorize the intellectual / behavioral / attitudinal process intricately
- Establish the consequences anticipated
- Draw up a specification grid

Specification grid would classify the content portions and lay down the learning consequences. Also it regulates the

**Table 1: Master chart displays the frequency of coverage of various parts of anatomy in the question papers of individual examinations**

Sub divisions in Anatomy	Feb-09	9-Aug	Feb-10	10-Aug	Feb-11	Aug-11	Feb-12	Aug-12	Feb-13	Aug-13
General anatomy	0	1	1	1	0	0	3	0	2	1
Gross anatomy										
Upper extremity	8	3	9	9	5	9	5	11	10	11
Lower extremity	8	9	5	7	5	7	9	14	7	5
Thorax	6	4	6	5	3	8	10	7	8	7
Abdomen	7	13	12	10	10	12	11	11	14	10
Head and neck	12	17	13	13	13	16	16	14	15	16
Neuro anatomy	5	2	5	1	8	6	3	9	9	2
Histology	4	3	5	4	6	5	5	2	0	1
Embryology	4	6	1	3	3	4	5	2	0	1
Genetics	1	1	1	4	1	0	1	0	0	0

**Table 2: Showing the frequencies of coverage of various parts of anatomy in twenty question papers of the first MBBS examinations of Dr. MGR University of Tamilnadu**

Part of syllabus	Segments present (Total Segments : 607)	Overall percentage of segments
General anatomy	9	1.48%
Gross anatomy	475	78.25%
a. Upper extremity	80	13.17%
b. Lower extremity	76	12.52%
c. Thorax	64	10.54%
d. Abdomen	110	18.12%
e. Head and neck	145	23.88%
Neuro anatomy	50	8.23%
Histology	35	5.76%
Embryology	29	4.77%
Genetics	9	1.48%

Each question paper had 22 questions. \*Aug '11 and \*Feb '12 papers had 27 questions. Essay question separately had subdivisions. Each subdivision had one or more 'segments'. \*Total number of segments of questions analyzed were 607

number of items for respective contented part and learning objectives. It must be ensured that the amount of matters in each compartment is in percentage to the time expended in training and learning as stated by McAleer.

A good content validity regulates the scope of academic triumph of predetermined objectives. Examination blueprint, Test specifications could be efficient methods to harmonize

test building procedure and would be the most noteworthy pace in assessment progress.<sup>[11]</sup> If the illustration of aims and content parts included in any assumed test would advance the validity of test and for additional enhancement of assessment system, content validity would be desirable and recognized. A proper validation to content validity could be given only by allocating appropriate weightage to all parts of anatomy.<sup>[12]</sup>

## Conclusion

There is a necessity to review the design in which questions were being asked that would advance perceptive skills and problem solving defiance. The uniform curriculum with methods like test blue printing and table of specifications with appropriate weightage of the questions from all the subdivisions is important for proper evaluation and assessment of first year MBBS student. A faultless question paper must give identical weightage to various content areas and should include all analytical, objectives, long and short answer type questions with an unwavering marking arrangement. Apart from providing information about the subject, we need to extemporize the skills, judgement capabilities and clinical acquaintance of the applied anatomy for attaining academic fitness.

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**How to cite this article:** Anasuya DG, Jeevamani SG. Analysis of Previous Year University Anatomy Question Papers Based on Content Validity. *Acad. Anat. Int.* 2020;6(2):21-24.

DOI: [dx.doi.org/10.21276/aanat.2020.6.2.4](https://dx.doi.org/10.21276/aanat.2020.6.2.4)

**Source of Support:** Nil, **Conflict of Interest:** None declared.