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Evaluation of Performances of 400 Level Medical Students at the Lagos State University College of Medicine, Ikeja, Nigeria in the Second Professional MBBS Degrees Examinations: The Situation Before Programme Modification

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Abstract: The Professional MBBS degrees examinations remain the only means of assessing the knowledge of medical students in Nigeria. This study has evaluated the relative performance of LASUCOM students in the 2006 and 2007 2nd Professional MBBS degrees examinations before the programme was modified, it also provided baseline data with which future studies can be compared. The score record sheets for each of the five subjects (Medical Microbiology, Chemical Pathology, Haematology and Blood Transfusion, Morbid Anatomy and Pharmacology) written in the examinations were obtained from each of the departments from which the following information were extracted: total number of students who sat for the examination in each year (categorised into repeaters and non-repeaters), proportion of male to female students that sat for the examinations, the number of passes and failures in each of the subjects and the mean scores of each of the students in each of the subjects and their assessment parameters. The pass rates were above 70% for Medical Microbiology, Morbid Anatomy, Haematology and Blood Transfusion and Chemical Pathology in both the 2006 and 2007 2nd professional MBBS degrees examinations, but lower in Pharmacology (53.57% vs 63.01%). In overall, Pharmacology was the only subject consistently failed by all the students in both Professional examinations. All the assessment parameters (CA, MCQs and EQs) except for the Practical/Viva/OSPE were failed in Pharmacology in both Professional examinations. The non-repeaters performed better than the repeaters in all the subjects and in each of the assessment parameters. The practical/Viva/OSPE scores correlated least with the total examination scores for most of the subjects in both professional examinations. A trend towards replacing the usual traditional curriculum with problem-based learning curriculum, as practised globally in many medical schools, should be considered at LASUCOM.

Key words: Medical students · LASUCOM · Professional examinations · assessment

INTRODUCTION

Lagos State University College of Medicine (LASUCOM), Ikeja, is a relatively new medical school in Nigeria, founded in 1998 with a restricted intake number of students. The intake was regulated by the Nigerian Medical and Dental Council (NMDC), the body that regulates medical education in Nigeria, based on the limited available facilities to effectively train the students [1,2]. Presently, only medical students are admitted to the college through either direct entry or the University Matriculation Examination, having passed the prescribed basic science subjects at the 100 level.

The actual medical training begins in the preclinical departments where the students study the basic medical science subjects in Anatomy, Biochemistry and Physiology at the 200 and 300 levels for three semesters [1,3,4], lasting about 18 months and Medical Microbiology, Chemical Pathology, Haematology and Blood Transfusion, Morbid Anatomy (now Pathology and Forensic Medicine) and Pharmacology at the later part of 300 and 400 levels for another three semesters [1,4]. At the end of the third semester, the students sit for the 1st MBBS or Part I Professional MBBS degrees examinations. A student must pass the three subjects to proceed to the later part of 300 level which marks the beginning of Pathology and Pharmacology class. Failure in one subject

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leads to a reference in that subject while failure in two or three subjects leads to the student repeating a year and the entire examination. A student who repeats the year and fails two or three subjects again is required to withdraw from the course [4]. Similarly, the students at the end of the third semester in 400 level sit for the 2nd MBBS or Part II Professional MBBS degrees examinations. A student must pass the five subjects offered at the 400 level before proceeding to the clinical stage of the course. Failure in one subject leads to a reference in that subject while failure in two or more subjects leads to repeating a year and the entire examination. A student who repeats the year and fails two or more subjects again is required to withdraw from the course [4].

Since the inception of LASUCOM till date, the 2nd Professional MBBS degrees examinations consist of a continuous assessment- CA (30% of the total examination score) and the professional examination proper: Multiple Choice Questions (MCQs) that carries 25-30% of the total examination score, Essay Questions- EQs (20-30% of the total examination score), Practical Questions- PQs (10- 15% of the total examination score) and *viva voce* (5% of the total examination score). The *viva voce* is optional in only Pharmacology department and it sometime replaces the practical examination. The format of this examination is adopted by most medical schools in Nigeria and abroad with some modifications in both the internal assessment and University examination pattern [5-7]. At the LASUCOM, internal assessment of the students in each of the subjects offered at 400 level involves writing at least two CA examinations. While the first CA examination is usually written midway to the course, the second CA examination is usually written after completing all the prescribed lectures in 400 level from the period after the first CA examination was written to the end of the session after completing all the prescribed lectures by the University. The pattern of the CA examination varies from one department to another.

The professional examination consists of paper I (MCQs), paper II (essay questions- which may be short, long or both) and practical examination with *viva-voce* or Objective Structured Practical Examination (OSPE) or *viva voce* only. The reliability of MCQ examination in grading all levels of education, including medical degrees examinations is well documented in both Nigeria and abroad [8-10]. "Long essay" modes of examination in medical schools have been found to suffer several defects [11-13] and attempt to solve these problems have led to using an increased number of questions as short essays or questions requiring only brief answers. The latter development progressively diminishes error in the marking of long essay questions [13-15]. OSPE is gradually increasing in many institutions in India [16,17] and Nigeria and is very acceptable to the students. Apart from reducing time and money spent in conducting practical examination, it reduces subjectivity and bias since all the students are made to answer the same questions. At the LASUCOM, OSPE is sometime used to replace the *viva voce* in Pharmacology examinations.

The NMDC has just modified the programme of the LASUCOM. The usual pattern of proceeding on clinical postings immediately after passing the 2nd Professional MBBS degrees examinations has been reversed to the students proceeding on clinical postings after two months of introductory lectures in Medical Microbiology, Chemical Pathology, Haematology and Blood Transfusion, Morbid Anatomy and Pharmacology. This study is therefore aimed at assessing the relative performance of LASUCOM students in the 2nd Professional MBBS degrees examinations over the 9 years of the College inception and to provide baseline data with which future studies can be compared. This study is however limited to two academic sessions (April 2006 and April 2007) due to the difficulty in accessing the results of the other academic sessions.

The 2007 2nd Professional MBBS degrees examinations was the last of such examinations in the College before the programme was modified. In the past, the 400 level medical students hold their lectures and practical classes for three semesters and write the 2nd Professional MBBS degrees examinations at the end of the third semester, thereafter the successful candidates proceed on a month posting in Medicine and Surgery to acquire basic clinical skills in preparation for the task ahead in their proper clinical postings. Nowadays, the 300 level students are given introductory lectures in the five subjects offered in this class for two months, thereafter they proceed on a six month clinical posting and later resume back to the 400 level to complete their lectures and practical demonstrations in the Laboratory Medicine subjects and Pathology.

MATERIALS AND METHODS

The study was based on the actual performance of the 400 level medical students of the LASUCOM in the 2nd Professional MBBS degrees examinations taken at the first attempt in 2006 and 2007. These students were both repeaters and non-repeaters. The score record sheets for each of the subjects (Medical Microbiology, Chemical

Pathology, Haematology and Blood Transfusion, Morbid Anatomy and Pharmacology) written at the examination in the years under study were obtained from each of the departments and the following information were extracted: total number of students who sat for the examination in each year (categorised into repeaters and non-repeaters), proportion of male to female students that sat for the examinations and the number of passes and failures in each of the subjects. For the purpose of proper comparison of the students' performances in each of the subjects, the pass and failure rates were determined for the CA, MCQs papers, EQs papers, practical papers and the *viva voce* where applicable.

Data collected were analysed with SPSS version 13. Comparison of the performances of the students in each of the subjects was with chi-square test at < 0.05 significant level.

RESULTS

A total of 73 and 56 students sat for the 2nd Professional MBBS degrees examinations in the year 2006 and 2007 respectively. While the 2006 students consisted of 38 males and 35 females of whom 18 were repeaters and 55 non-repeaters, the 2007 students consisted of 38 males and 18 females of whom 5 were repeaters and 51 non-repeaters. The age of the 2006 students ranged from 20 to 31 years with a mean age of 24.14±2.47 years and that of the 2007 students ranged between 19 and 32 years with a mean age of 23.76±2.87 years.

Table 1 compares the total score of the students in each of the subjects taken in the 2006 and 2007 2nd professional MBBS degrees examinations. The mean scores of all the students in each of the subjects were consistently above average in both Professional examinations except in Pharmacology (47.56±8.29 vs 48.52±6.79). There was a significant difference in the final scores of all the students in all the subjects taken in both Professional examinations except in the 2006 Morbid Anatomy 2nd Professional MBBS degrees examination (P= 1.000). But contrarily, no significant difference existed in the final scores of all the students in all the subjects taken in the 2007 2nd Professional MBBS degrees examinations except Pharmacology (P= 0.045). A further breakdown of the students into repeaters and non-repeaters also showed a poor performance in both the 2006 and 2007 Pharmacology 2nd Professional MBBS degrees examinations. However, significant differences occurred only in the scores of the non-repeaters in both Chemical Pathology and Pharmacology (P= 0.004 vs P= 0.015) in the 2006 2nd Professional MBBS degrees examinations.

Table 1: Comparison of the mean score of the students in each of the subjects taken in the 2006 and 2007 Second Professional MBBS degrees examinations

Category of students and subjects taken	2006 Examination Mean±S.D	P-value	2007 Examination Mean±S.D	P-value
All Students	(n=73)		(n= 56)	
Medical Microbiology	52.70±5.92	0.000	52.93±5.04	0.612
Morbid anatomy	57.74±4.93	1.000	55.61±3.65	1.000
Haematology	55.38±4.77	0.038	56.23±6.42	0.218
Chemical pathology	54.90±4.26	0.000	53.70±4.00	0.064
Pharmacology	47.56±8.29	0.000	48.52±6.79	0.045
All Repeaters	(n=18)		(n=5)	
Medical Microbiology	49.00±3.76	0.771	53.00±4.30	1.000
Morbid anatomy	53.91±3.29	0.775	53.00±4.30	1.000
Haematology	53.26±3.46	0.771	55.40±4.10	0.896
Chemical pathology	53.39±3.22	0.857	51.00±3.94	1.000
Pharmacology	47.83±8.36	0.771	45.20±5.07	1.000
All Non-repeaters	(n=55)		(n=51)	
Medical Microbiology	53.91±6.02	0.143	52.92±5.14	0.744
Morbid anatomy	58.87±4.73	1.000	55.62±3.69	1.000
Haematology	56.07±4.95	0.197	56.31±6.62	0.198
Chemical pathology	55.40±4.47	0.004	53.96±3.95	0.074
Pharmacology	47.47±8.35	0.015	48.84±6.89	0.099

While the pass rates were above 70% for Medical Microbiology, Morbid Anatomy, Haematology and Blood Transfusion and Chemical Pathology in both the 2006 and 2007 2nd Professional MBBS degrees examinations, they were lower in Pharmacology (53.57% vs 63.01%). Table 2 compares the mean scores of the students in each of the assessment parameters: CA, MCQ, EQs and Practical/Viva/OSPE in both the 2006 and 2007 2nd professional MBBS degrees examinations respectively. In these Professional examinations, all the students appeared to have performed better in the CA and MCQs when compared with EQs. However, about half of the students failed Pharmacology CA, Medical Microbiology and Pharmacology MCQs and EQs in all the subjects, except Morbid Anatomy in both the 2006 and 2007 2nd Professional MBBS degrees examinations. The non-repeaters performed better than the repeaters in all the subjects and in each of the assessment parameters.

All the students passed the Practical/Viva/OSPE in all the subjects with mean scores above average in both the 2006 and 2007 2nd Professional MBBS degrees examinations. In overall, Pharmacology was the only subject consistently failed by all the students in both Professional examinations. A further look into the assessment parameters also showed that all the

Table 2: Comparison of the performance of the students in each of the assessment parameters in each of the subjects taken in the 2006 and 2007 Second Professional M.B;B.S degrees examinations respectively

	Scoring Parameters			
Category of students and subjects taken	CA (Maximal score=30) Mean±SD	MCQ (Maximal score=30) Mean±SD	ESSAY (Maximal score=30) Mean±SD	PRACTICAL/ VIVA/OSPE (Maximal score=10) Mean±SD
All Students (2006 exam, n=73; 2007 exam, n= 56)				
Medical Microbiology				
(2006 exam)	19.45±1.90	14.82±2.16	11.15±2.80	5.43±0.89
(2007 exam)	19.88±1.77	13.94±2.24	12.46±2.55	5.44±0.99
Morbid anatomy				
(2006 exam)	16.49±2.29	17.78±2.26	16.16±1.54	6.64±0.47
(2007 exam)	15.93±1.37	17.26±2.29	15.62±1.30	6.47±0.89
Haematology				
(2006 exam)	16.77±1.48	16.45±2.11	14.95±1.64	6.56±1.66
(2007 exam)	16.48±2.00	16.25±2.74	15.57±1.70	6.93±1.15
Chemical pathology				
(2006 exam)	15.67±1.74	16.85±2.15	14.69±1.37	6.95±4.26
(2007 exam)	14.95±1.43	16.16±2.28	13.67±1.33	7.41±0.77
Pharmacology				
(2006 exam)	12.94±2.52	14.72±3.66	13.02±2.95	6.77±1.43
(2007 exam)	13.13±2.10	11.56±0.79	12.79±3.52	7.80±0.54
All Non-repeaters (2006 exam, n= 55 2007 exam, n= 51)				
Medical Microbiology				
(2006 exam)	19.78±1.95	15.17±2.22	11.76±2.79	5.50±0.86
(2007 exam)	19.91±1.82	13.90±2.30	12.47±2.55	5.42±1.07
Morbid anatomy				
(2006 exam)	17.04±1.76	18.18±2.24	16.48±1.48	6.69±0.47
(2007 exam)	15.91±1.33	17.35±2.34	15.64±1.30	6.42±0.91
Haematology				
(2006 exam)	16.93±1.58	16.83±2.23	15.39±1.49	6.60±1.83
(2007 exam)	16.56±1.94	16.29±2.87	15.61±1.75	6.92±1.91
Chemical pathology				
(2006 exam)	16.05±1.76	17.15±2.24	14.77±1.36	6.83±1.05
(2007 exam)	14.94±1.39	16.24±2.27	13.81±1.20	7.46±0.76
Pharmacology				
(2006 exam)	12.94±2.42	13.99±3.99	13.52±2.88	6.99±1.24
(2007 exam)	14.85±2.66	13.13±2.53	13.06±2.89	7.77±0.79
All Repeaters (2006 exam, n=18 2007 exam, n= 5)				
Medical Microbiology				
(2006 exam)	18.47±1.39	13.78±1.58	9.26±1.88	5.22±0.98
(2007 exam)	19.56±1.33	14.38±1.61	12.36±2.84	5.60±0.62
Morbid anatomy				
(2006 exam)	14.68±2.76	16.54±1.75	14.98±1.14	6.42±0.44
(2007 exam)	16.12±1.95	16.27±1.54	15.47±1.43	6.68±0.60
Haematology				
(2006 exam)	16.28±1.04	15.30±1.14	13.59±1.33	6.47±0.98
(2007 exam)	15.65±2.74	15.87±0.36	15.18±1.16	7.09±0.63
Chemical pathology				
(2006 exam)	16.05±0.24	17.15±2.24	14.77±1.36	6.83±1.05
(2007 exam)	15.04±1.99	15.30±2.58	12.18±1.77	6.90±0.83
Pharmacology				
(2006 exam)	12.93±2.88	16.94±3.62	11.49±2.71	6.08±1.76
(2007 exam)	13.13±2.10	11.56±0.79	12.76±3.52	7.80±0.54

Table 3: Comparison of the level of significance in the performance of the students in each of the assessment parameters in each of the subjects taken in the 2006 and 20097 2nd professional M.B;B.S degrees examinations

	Assessment Parameters in the Examinations			
Category of students and subjects taken	CA (P-value)	MCQ (P-value)	ESSAY (P-value)	PRACTICAL/ VIVA/OSPE (P-value)
All Students				
Medical Microbiology				
(2006 exam)	0.998	0.967	1.000	0.082
(2007 exam)	0.567	1.000	0.361	0.067
Morbid anatomy				
(2006 exam)	1.000	0.920	0.407	0.008
(2007 exam)	0.426	1.000	0.958	0.911
Haematology				
(2006 exam)	0.223	1.000	0.763	0.946
(2007 exam)	1.000	1.000	0.992	1.000
Chemical pathology				
(2006 exam)	1.000	1.000	0.983	0.909
(2007 exam)	0.328	1.000	0.923	0.158
Pharmacology				
(2006 exam)	1.000	1.000	0.994	0.970
(2007 exam)	1.000	1.000	1.000	0.752
All Non-repeaters				
Medical Microbiology				
(2006 exam)	0.999	0.994	1.000	0.278
(2007 exam)	0.430	1.000	0.536	0.037
Morbid anatomy				
(2006 exam)	1.000	0.831	0.681	0.080
(2007 exam)	0.395	1.000	0.963	0.914
Haematology				
(2006 exam)	0.361	1.000	0.801	0.806
(2007 exam)	1.000	1.000	1.000	1.000
Chemical pathology				
(2006 exam)	1.000	1.000	0.998	0.997
(2007 exam)	0.635	1.000	0.942	0.125
Pharmacology				
(2006 exam)	1.000	1.000	0.997	0.951
(2007 exam)	1.000	1.000	1.000	0.748
All Repeaters				
Medical Microbiology				
(2006 exam)	1.000	1.000	1.000	1.000
(2007 exam)	1.000	1.000	1.000	0.896
Morbid anatomy				
(2006 exam)	1.000	1.000	1.000	0.986
(2007 exam)	1.000	1.000	1.000	0.896
Haematology				
(2006 exam)	0.431	1.000	1.000	1.000
(2007 exam)	1.000	0.896	0.896	1.000
Chemical pathology				
(2006 exam)	1.000	1.000	1.000	0.986
(2007 exam)	0.819	0.896	1.000	0.896
Pharmacology				
(2006 exam)	1.000	1.000	0.997	0.995
(2007 exam)	1.000	1.000	1.000	0.896

Test Statistics is Chi-square, P-value < 0.5 is significant

parameters (CA, MCQs and EQs) were failed in Pharmacology in both the 2006 and 2007 2nd professional MBBS degrees examinations except the Practical/Viva/OSPE.

Table 4: Correlation of the mean scores of the students in each of the assessment parameters for each subject with their total scores obtained in the 2006 and 20097 2nd professional M.B;B.S degrees examinations

	Assessment Parameters in the Examinations			
Category of students and subjects taken	CA (r value)	MCQ (r value)	ESSAY (r value)	PRACTICAL/ VIVA/OSPE (r value)
All Students				
Medical Microbiology				
(2006 exam)	**0.870	**0.792	**0.777	**0.655
(2007 exam)	**0.721	**0.787	**0.756	**0.486
Morbid anatomy				
(2006 exam)	**0.768	**0.867	**0.759	**0.457
(2007 exam)	**0.812	**0.592	**0.582	**0.471
Haematology				
(2006 exam)	**0.810	**0.776	**0.686	**0.500
(2007 exam)	**0.837	**0.851	**0.854	**0.805
Chemical pathology				
(2006 exam)	**0.726	**0.766	**0.638	**0.479
(2007 exam)	**0.751	**0.817	**0.398	**0.532
Pharmacology				
(2006 exam)	**0.854	**0.798	**0.804	**0.587
(2007 exam)	**0.872	**0.734	**0.770	**0.560
All Non-repeaters				
Medical Microbiology				
(2006 exam)	**0.871	**0.793	**0.731	**0.729
(2007 exam)	**0.735	**0.787	**0.747	**0.473
Morbid anatomy				
(2006 exam)	**0.834	**0.860	**0.717	**0.408
(2007 exam)	**0.809	**0.609	**0.586	**0.451
Haematology				
(2006 exam)	**0.826	**0.779	**0.645	**0.499
(2007 exam)	**0.848	**0.861	**0.854	**0.808
Chemical pathology				
(2006 exam)	**0.713	**0.759	**0.612	**0.590
(2007 exam)	**0.758	**0.824	**0.461	**0.498
Pharmacology				
(2006 exam)	**0.878	**0.832	**0.836	**0.679
(2007 exam)	**0.867	**0.748	**0.767	**0.602
All Repeaters				
Medical Microbiology				
(2006 exam)	**0.759	**0.628	**0.821	0.429
(2007 exam)	0.468	0.833	*0.896	0.838
Morbid anatomy				
(2006 exam)	*0.517	**0.806	**0.625	0.377
(2007 exam)	0.468	0.833	*0.896	0.838
Haematology				
(2006 exam)	**0.640	**0.603	**0.774	**0.606
(2007 exam)	**0.987	0.561	0.865	0.842
Chemical pathology				
(2006 exam)	**0.741	**0.726	**0.763	0.222
(2007 exam)	*0.952	0.733	-0.453	0.647
Pharmacology				
(2006 exam)	**0.800	**0.885	**0.893	*0.503
(2007 exam)	*0.937	-0.179	**0.992	-0.275

r value is coefficient of correlation

*Correlation is sgnificant at the 0.05 level (2-tailed).

**Correlation is sgnificant at the 0.01 level (2-tailed).

Table 3 showed that there was no significant difference in the scores of all the students in each of the assessment parameters in each subject taken in both the 2006 and 2007 2nd Professional MBBS degrees examinations, except for the 2006 Morbid Anatomy Practical/Viva/OSPE (P= 0.008). A significant difference in the total scores of the non-repeaters was also observed in the 2007 Medical Microbiology Practical/Viva/OSPE (P=0.037). Each of the assessment parameters significantly and positively correlates with the total examination scores in both the 2006 and 2007 2nd Professional MBBS degrees examinations, except for all the repeaters that had scores that insignificantly and negatively correlated with the total examination scores in 2007 Pharmacology MCQs (r=-0.179) and Practical/Viva/OSPE (r=-0.275) and Chemical Pathology EQs (r=-0.453). In overall, the Practical/ Viva/OSPE scores correlated least with the total examination scores for most of the subjects in both the 2006 and 2007 2nd Professional MBBS degrees examinations.

DISCUSSION

Despite the growing literature on changes in undergraduate medical curricula and programme all over the world [18-21], none has been reported in Nigeria, especially in basic medical sciences. It is a commendable effort that such undergraduate medical programme modification taking place globally has extended to LASUCOM. To evaluate the impact of curriculum and programme modification in any institution, it is imperative to have a report of the situation before the modification takes place. Furthermore, to the best of our knowledge, there has been no previous study in Nigeria evaluating the performance of medical students in the 2nd professional MBBS degrees examinations. The present results did not only highlight the basic medical science subjects failed most in the 2nd Professional MBBS degrees examinations at LASUCOM and the effects of each of the assessment parameters on the overall performances of the students in the Professional examinations, it also will provide important baseline data with which future similar studies can be compared. Previous studies in Nigeria that have attempted to evaluate medical students' performance in Basic Medical Professional examinations only compared their performance in preclinical physiology using short and long essays [3] and MCQs and SEQs [10]. Apart from the fact that these subjects are not similar to those taken in the 400 level, the non-inclusion of the final score in the professional examinations and other

assessment parameters in these publications make any form of comparison difficult.

The mean scores of 47.56±8.29 and 48.52±6.79 percents in the 2006 and 2007 Pharmacology 2nd Professional MBBS degrees examinations respectively and the low pass rates in Pharmacology when compared with other subjects, is of great concern. The results clearly showed that the students are deficient in Pharmacology. The reason for this is not clear to us. However, certain factors might have contributed to this. Traditional methods of teaching Pharmacology may be a contributory factor and this along with views of the students on the ways to improve on the teaching methods at LASUCOM had earlier been reported [22]. Tutorials, seminars and group discussions have been reported in India to enhance students' performance in their pharmacology examinations [23,24]. LASUCOM students had earlier advocated these methods of teaching [22]. Clinically oriented questions are usually not asked in pharmacology examinations at LASUCOM probably because bedside teaching of clinical pharmacology is not usually done. The willingness of the students in wanting to learn clinical pharmacology and also be examined in the professional examination has been reported in our earlier study [22].

The findings that the repeating students did not perform well enough as the non-repeaters in most of the subjects taken in both the 2006 and 2007 2nd Professional MBBS degrees examinations is not surprising. Similar report had been made by Adewoye *et al* in preclinical physiology examinations amongst 300 level medical students in Nigeria [3]. A possible explanation to this is that most likely the repeating students were weaker academically than their colleagues who passed the examinations at the first attempt.

A further look into the assessment parameters showed that only Practical/Viva/OSPE were passed by most of the students; however, the effect of the pass on the total score in the 2006 and 2007 2nd Professional MBBS degrees examinations was not very noticeable as indicated by their low correlation values, probably because of the low percentage allotted to it out of the total examination score. CA, MCQs and EQs were failed in Pharmacology by about half of the students in both the 2006 and 2007 2nd MBBS Professional examinations, probably as a result only two CA taken by the students in Pharmacology, unlike the other subjects where more than two CA were written. Increasing the number of CA in Pharmacology beyond the traditional two had been suggested by the medical students from LASUCOM [22]. While we may not be able to find an explanation to the failure rates in both Pharmacology and Medical Microbiology MCQs in the 2nd Professional MBBS degrees examinations, the failure rates in the EQs might have resulted from their weakness in writing essays since the students were rarely assessed in essay questions during the CA examinations. Essay writing on short essay questions was assessed in the second pharmacology CA examination but the 2nd Professional MBBS degrees examinations contained both long and short essay questions. Therefore, the short essay assessment in the CA may not have prepared them enough for the Professional examinations. Another possible explanation for the failures of the students in essay writing is that their knowledge of the subjects may be inadequate, they may not be able to recall facts during the examinations since some of them learn by memorization [22], therefore making it difficult for them to organise their points logically and present them as well-written essays.

The observed failures in most of the assessment parameters also leave a doubt in the traditional methods of teaching used in Nigerian medical schools. Problem-based learning method has replaced the traditional method in most medical schools all over the world [25-29] and their beneficial effects on the students' performance in the Professional MBBS degrees examinations are well documented [26-29]. When students learned basic science for the first two years of medical school before proceeding to the clinical years, they failed to see the relevance of the basic sciences to medicine [30]. Teaching with the traditional method was frequently unstructured; students were less monitored, given less feedback and frequently resorted to "cramming" before examinations [26].

This study has highlighted Pharmacology as the most failed subject by the medical students in LASUCOM. It is hoped that the newly introduced clinical exposure of the medical students before completing the preclinical years would enhance their understanding of the lecture topics in the 400 level subjects with a better performance in the 2nd Professional MBBS degrees examinations. A trend towards replacing the usual traditional curriculum with problem-based learning curriculum, as practised globally in many medical schools, should be considered at LASUCOM; an option with numerous benefits.

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