

Students' Perception of New Revised Para-Clinical Sciences Curriculum in a Caribbean Medical School: A 3-year questionnaire based study

By

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Abstract

A new curriculum started in 2009-2010 with the MDSC3311, 3312, 3313 & 3314 courses at Faculty of Medical Sciences; the University of the West Indies; St Augustine Trinidad & Tobago. These courses blended with the semesterisation. Summative Continuous Assessment was conducted by Progressive Disclosure Questions (PDQs). An insight into the impact of changes implemented during the previous three years is essential for future guidance and improvement. Thus this study was conducted with the purpose to explore students' perceptions of quality and integration of course content: semester system, course delivery and new assessment method introduced in Year 3 Para-clinical Sciences. A survey questionnaire was administered on year 3 students of the academic years 2009-2010, 2010-2011 and 2011-2012. Of 609 eligible students in three academic years, 353 responded (58% response rate), 94.7% were first-attempt candidates, mean student age was 22.12 years, and female representation was higher (63.8%, n=225). Overall satisfaction about the content of various courses and their integration were very good. Listing of specific objectives and resource availability was considered above average in three courses and average in MDSC 3314. Students (75%) favor the PDQs as CA and end-of-semester examinations (83.8%). The new semester curriculum in Paraclinical Sciences presented a challenge for integration but students responded favorably. The change alleviated the burden of annual examinations. The semester system is acknowledged as an improvement over the annual examination. Strengthening the PDQs as an evaluation mechanism and introducing clinical based teaching during Para-clinical Phases of the MBBS program are recommended.

Keywords: *Para clinical sciences, Medical Education, Semester System, Progressive Disclosure Questions*

1. Introduction and Background

The University of the West Indies (UWI) was established in 1948 initially as an external College of the University of London and made fully independent in 1962 to serve the educational needs the region. The support comes from fifteen of the Commonwealth Caribbean countries. The University has expanded to four campuses that serve diverse communities across the Caribbean region - Cave Hill (in Barbados), Mona (in Jamaica) and St. Augustine (in Trinidad) and the Open Campus. As a regional institution, the UWI is committed to providing a vibrant climate for students from a variety of cultural, social and intellectual backgrounds. Currently, there are 40,000 students in all academic areas across the UWI system. Of this number, 19,000 will be located at St. Augustine, of whom 4,000 will be engaged in postgraduate work and research. In addition, 5,000 students will be enrolled in the Evening University and another 4,000 in Distance Education programmes.

The St Augustine campus is located in the twin island Republic of Trinidad and Tobago. Trinidad and Tobago is situated at the end of the eastern islands which border the Caribbean Sea. It is northeast of the South American Coast, Venezuela.

The St Augustine campus offered varied a wide range of programs in the Faculties of Engineering, Food and Agriculture, Humanities and Education, Law, Medical Sciences, Science and Technology, Social Sciences. The 5-year MBBS program at the Faculty of Medical Sciences (FMS), UWI, St. Augustine consists of Pre-clinical, Para-Clinical and Clinical Sciences. The Year 3 Para-Clinical Sciences component includes Anatomical Pathology, Chemical Pathology, Haematology, Immunology, Microbiology, Pharmacology, and Public Health and Primary Care. While the erstwhile Year 3 (Course Code MD 3310) program was a heavily weighted 20 week course of 20.2 credits, it disadvantaged students who were faced with the newly implemented (2008-2009 Academic Year) GPA system. The course underwent mandatory semesterization and organ system-based subdivision into three Applied Para-clinical Sciences courses (MDSC3311, MDSC3312 and MDSC3313). These facilitated integrated teaching of various disciplines in the Para-clinical Sciences. A fourth course (MDSC3314) named as Integrated Para-Clinical Sciences spanning two semesters comprised of a Pathology clerkships/laboratory-practical training, Pharmacology seminars and basic training in Clinical Skills learnt during the years 1-3, thus facilitating integration of Para-clinical Sciences with Clinical Medicine. The new curriculum started in 2009-2010 with credits of 5, 5, 4 and 6 for the MDSC3311, 5 credits, MDSC3312, 5 credits, MDSC3313, 4 credits and MDSC3314, 6 credit courses respectively. These courses blended with semesterization that the Faculty now embraced so that in Semester I MDSC3311, MDSC3312 were evaluated and MDSC3313 and MDSC3314 were evaluated in Semester II. For the system based courses Summative Continuous Assessment (SCA) was conducted using the new format of the Progressive Disclosure Questions (PDQs). For a multi-disciplinary integration all disciplines of Paraclinical Sciences were now being evaluated on short answer questions which focused on gradually evolving case-based scenarios. Single best response MCQ's and EMQ's (Extended Matching Questions) were used to evaluate in the final University Examinations.

Objectives

To explore students' perceptions of: new curriculum, quality and integration of course content; semester system and new assessment method introduced in the Year 3 Para-clinical sciences

2. Methods

Using an anonymous questionnaire, a survey was conducted at the end of Year 3 for the academic years 2009-2010, 2010-2011 and 2011-2012.

The domains of the questionnaire included

- Course content
- Course integration
- Learning objective specificity and clarity
- Learning resources facilities and availability
- Semester System
- Modes of assessment methodology

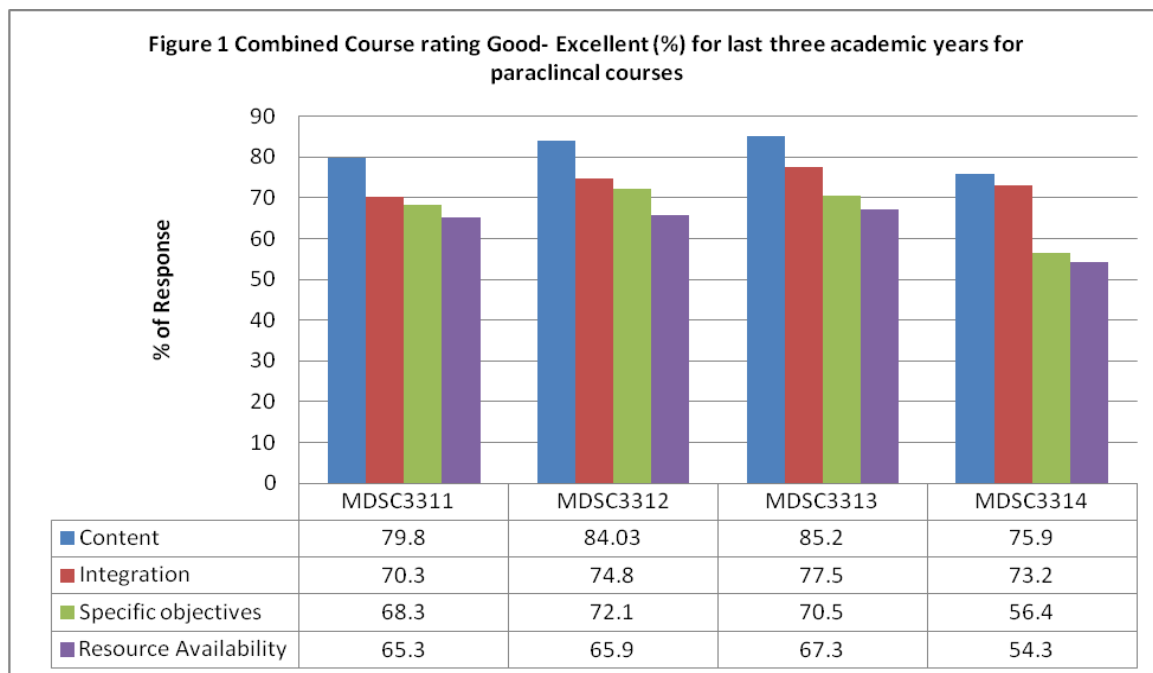
The questionnaire contained both qualitative and quantitative information. Descriptive statistics were applied to the data and presented as histograms. Qualitative information was thematically analyzed and selected representative views are presented.

3. Results

Table 1: Response rate from each academic year and combined three years

Year	Eligible students	Response rate %	First attempt	Mean age in years	Gender (M/F)
2009-2010	198	54.04	96.2%	22.3	66.4%F
2010-2011	190	60	94%	21.73	60% F
2011-2012	221	60	94%	22.35	65%F
2009-2012	609	58%	94.7%	22.12	63.8% F

As shown in Table 1 Of 609 eligible students in three academic years, 353 responded (58% response rate), 94.7% were first-attempt candidates, mean student age was 22.12 years, and female representation was higher (63.8%, n=225).



As Shown in Figure 1 overall satisfaction about the content of various courses and their integration were very good. Listing of specific objectives and resource availability was considered above average in three courses and average in MDSC 3314.

Table 2: Combined Three Academic Year Students' Response in % on the Year 3 curriculum

Items	Not well enough	Adequately	Well	No Resp.	Total	
How well were you informed about the year 3 program?	27.4	55.1	12.3	5.2	100	
Were you informed of the examination process?	Yes 82.4	No 11.5		8.2	100	
Were you informed of the methods of assessment?	82.6	13.2		5.9	100	
Rate usefulness of PBL sessions in learning	Excellent 23.3	Good 44.5	Fair 16.3	Poor 9.4	No. Resp. 6.5	Total 100
How do you rate the PDQ method of assessment?	11.3	41.2	32.9	10.6	4.0	100
	Yes	No	No. Resp.		Total	
Would you like to see the PDQ model stay as a tool for continuous assessment?	75.0	15.7	9.3		100	
Do you think the Essay questions are a good method of assessment	76.0	13	11		100	
Do you think the examinations were good representation of the learning objectives?	75.9	14.3	9.8		100	
Would you like the examinations to continue at the end of the Semester?	83.8	16.2	0.0		100	
Do you think the Pharmacology Seminars were sufficiently interactive?	73.5	17.7	8.8		100	
Do you think the seminars allow you to apply your knowledge practically to the clinical setting?	71.2	16.4	12.4		100	
Do you think you have attained an adequate level of knowledge to enter the Clinical Courses?	71.0	12.8	16.2		100	

Table 3: Key qualitative data presented as under:

Category	Issues	Comments
PBL	Tutor training and dedication Standardize assessment	Need for more trained and dedicated tutors Current assessment method is subjective and NOT uniform
Course integration and structure	Integrate with preclinical Integrate with clinical Integration of Para-clinical Sciences	Some consider that integration with preclinical would make them better understand relevance of preclinical knowledge to pathology and disease Many consider that clinical training in wards during Para-Clinical phase of study would be more meaningful in understanding disease association Well integrated and best understood closer to the end of semester and upon completion of clerkships
Assessments/Examinations	Timing PDQ's Overall Format	Preferred semester exams, which also forced them to study all along Considered comfortable and very good method Excellent, cover wide areas and comprehensive
Skills Training	Enhanced exposure Smaller groups Hands-on	Identified deficiency in the amount of training sessions Smaller groups would enhance learning Expressed requirement for more Hands –on experience

Selected representative students' comments:

"All courses are integrated with each other. Best understood at the end; all clerkships done by then"

"At the end of the semester... helps with integrating all the material learnt as we go along".

"End of semester... although you have more exams they are more focused and forces you to study continually".

"Semester- forces continuous studying...".

"A fair mode of assessment, although may be difficult to guess level of detail requested".

"Not as bad as expected but still too much preparation is required in so little time".

"Good way of assessing... Put the student in a hospital setting".

"They were good because they tested more than one topic and subject".

"I think this is an excellent method of examining".

4. Discussion

This paper is a platform to attain vertical integration advocated by the Liaison Committee on Medical Education (Liaison Committee on Medical Education, n.d.). The initiative to launch organ-based learning was employed earlier by Case Western Reserve Medical schools following which most medical schools in the United States adopted the structure (McGaghie, Miller, Sajid & Telder, 1978). Students appreciate the courses in the new curriculum as an adequate integration of all disciplines in the Paraclinical sciences. They also perform better with integrated curricula as opposed to discipline oriented learning (Schmidt et al., 1996). At this level horizontal integration appears to have been achieved. The use of multiple assessment instruments enhances both validity and reliability of results. Multi-assessment modes as better indices of evaluation of learning prompted the PDQs to be adopted as an instrument of SCA (van der Vleuten, 1996). For integrated learning and evaluation the PDQ method afforded a strategy whereby several disciplines were assessed using clinical scenarios which expanded to present each discipline. Students stated that PDQs *'made me think'* indicating they were tool of assessing higher order learning (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956).

Semesterisation of teaching, learning and evaluation of the Paraclinical Sciences was favored by students. It provided an opportunity for students to be continuous learners and timely assessment/feedback, and hence, a better paced understanding of the subject. It inculcates continuous study as opposed to cramming for an annual evaluation system. The new system encourages students all year round study and are not burdened with accumulated work at the end of the year. In the semester system, students have more time to integrate knowledge and skills within and across disciplines resulting in better learning outcomes (The California State University, n.d.). Division of the academic year into 2 semesters provides upward mobility-students can clear the backlog in one or many subjects even after going forward to the next semester, hence students have reported a high approval rating for the new system.

PBL presents some unique challenges for assessment. Because the focus of this pedagogy is primarily on learning to learn and less on mastery of a particular body of knowledge, traditional methods of course assessment such as examinations may not be very effective (Major & Palmer, 2001). The weakness of assessment of PBL reported by students requires revision and strengthening

5. Conclusion

The new curriculum in Paraclinical Sciences presented a challenge for integration and was received favorably by the students, who until now had a traditional educational approach for examinations. Semester based teaching and learning alleviated the burden of annual examinations and focuses students to prepare for the imminent academic diary. The PDQs are an instrument of higher order evaluation and offer the opportunity to present integrated multi-disciplinary assessment. Computer based testing is suggested to make the PDQ evaluation precise and quick. PBL and Skills training needs to be revised and strengthened. This paper acknowledges the semester system as an improvement over the annual

examination, recommends strengthening the PDQs as an evaluation mechanism and introduction of clinical based teaching during Para-clinical Phase of the MBBS program thus providing expanded clinical training.

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