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# Graduating students' perception of the educational environment and curriculum in training leading to the award of Bachelor of Dental Surgery

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## ABSTRACT

**Objective:** The aim was to present the graduating students' perception of the training leading to the award of Bachelor of Dental Surgery at Obafemi Awolowo University Ile-Ife Nigeria. **Materials and Methods:** A structured self-administered questionnaire designed to elicit information on basic socio-demographic data, opinions about the various aspects of training program, as well as suggestions for improvement was administered to all graduating dental students at the end of their training between 2006 and 2012. **Results:** Of the 203 graduating students, there were 171 respondents (84.2%) aged 22-34 years mean age (standard deviation) was  $26.87 \pm 2.196$ . A significant male preponderance was observed ( $p = 0.017$ ). About 62% of respondents desired to study medicine at the point of admission. Most respondents encountered delays in years 1-3 attributed mostly to failure and disruptions in the school calendar. Over 70% of the student described their environment in years 1-3 as un-conducive for learning, 59.4% maintained the same view till graduation. Various suggestions for improvement were offered. Experience at lectures and clinical postings were rated high in courses that afforded them greater patient/practice contact. Majority (83.6%) desire specialization whereas 12.3% would not. **Conclusion:** Our findings substantiate some of the alterations made in the ongoing curriculum review. It is hoped that a continuous review process will be upheld.

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## INTRODUCTION

Establishment of every academic program begins with a curriculum development process. A curriculum prescribes the mission, contents, resources, modalities for implementation and all the quality control measures to determine the outcome and ensure success [1]. The initial positions of scholars on curriculum and its development process gave superiority

to outcome-led approach of curriculum development. This approach emphasizes that the curriculum and its development process should rely on learning materials students should be exposed to and their performance as an aftermath of the exposure [2,3].

With improved understanding, scholars began to see the need for a reform. This gave popularity to the process approach to

curriculum development that emphasizes that the weakness of the earlier approach is its mechanistic orientation to learning. It sees the success of learning only in terms of students' ability to behave in conformity with the earlier objectives stipulated. Hence, Bruner's categorical assertion "learning should not only take us somewhere; it should allow us later to go further more easily. The more fundamental or basic is the idea; the greater will be its breadth of applicability to new problems"[4].

Bruner advocated that these fundamental ideas, once identified, should be constantly revisited and reexamined and hence that understanding deepens over time. This notion of revisiting and reexamining fundamental ideas over time is what has become known as a "spiral curriculum"[4].

As time goes on, students return again and again to the basic concepts, building on them, making them more complex, and understanding them more fully.

This approach works on the principles for selecting content, developing teaching strategies, sequencing learning experiences, and assessing student strengths and weaknesses.

This is significant in that the curriculum at a time cannot envisage all learning situations and requirements, so room should be given for some flexibility for students to explore their strengths.

This approach has become acceptable as scholars have continued to promote it [1,2,5].

Over the years, the need to assess an academic program has been proven beyond reasonable doubt. Measurement of the quality of medical education and assessment of students' satisfaction in today world are necessary, and it is of priceless importance [6]. This process is, usually, borne out of a desire for an improvement in the ongoing program. In this era of information technology, technologies change our perception of the world, how we think, and communicate with others.

To obtain improvement in any curriculum, it is necessary to make a serious retrospective analysis and projections for the future [7]. In an assessment in Bosnia participants consisted of managerial staff, teaching staff and students of medical schools, and external expert assessors [8].

An analysis in the Faculty of Medicine University of Sarajevo showed clearly the urgent need to improve and reform the educational system which will bring more practical clinical and preclinical work, patient-student contact and more interaction with educators and tutors, all supported by new, modern technical and informational technologies [9].

Similar surveys have revealed need for various modifications in training strategies that would improve training [6,10].

The Faculty of Dentistry at Obafemi Awolowo University (A Federal University) was established in September 1975 and then the first set of students was admitted. Undergraduate

and postgraduate training in the University until date is highly subsidized. Undergraduate training comprised of an initial 4 year training leading to the award of Bachelor of Science degree (BSc) in Health Sciences and a 3 year clinical training leading to the award of Bachelor of Dental Surgery (BChD) after the West African School leaving Certificate or General Certificate of Education.

At the beginning of 1982/83 session, the curriculum was rescheduled to 6 years, the BSc degree was abolished and more time devoted to clinical dentistry. The school was reorganized into three departments (Oral/Maxillofacial Surgery and Oral Pathology, Preventive Dentistry and Restorative Dentistry) in 1983. The Department of Child Dental Health was created out of the Department of Preventive Dentistry in 2002.

In the current curriculum, the 1<sup>st</sup> year is devoted to basic sciences (physics, chemistry, zoology and botany), followed by 2 years of basic medical sciences (anatomy, medical biochemistry, medical physiology/pharmacology and biostatistics), oral anatomy, oral physiology). The subsequent 3 years are dedicated to clinical training. This commences with a phantom head training (pre-phase class) for 3 months. The rest of the year is spent in clinical dentistry postings. The 2<sup>nd</sup> year is scheduled for medicine and surgery postings and the final year devoted to clinical dentistry.

Every review process requires a holistic approach which involves all major stakeholders in line with the performance of the program. Valuable tools in review processes emanate from stakeholders among other sources. Although trainers are recognized stakeholders in such review processes, the trainees are very essential stakeholders whose perception is vital to the review of any academic curriculum.

Having been in existence for three decades, we opine that a review of our students' perception of the training leading to the award of BChD at Obafemi Awolowo University Ile Ife is desirable.

This study was conducted to determine the perception of final year dental students' perception of their entire training and suggestions on what should be changed in the curriculum.

## MATERIALS AND METHODS

A structured self-administered questionnaire designed to gain an insight into the above subject was administered to the graduating students at the Faculty of Dentistry, College of Health Sciences Obafemi Awolowo University between 2006 and 2013. Questionnaires were administered at the end of their last lectures in each academic year. Questionnaires were designed deliberately to conceal respondents' identities, but their basic socio demographic data were required. Furthermore, the choices, of course, made at the entry point and their score at the Joint Admission Matriculation Board Examination.

We sought responses on students' experiences with the campus environment and school/learning environment as well as the outcome of the academic activities in each year of study. We

requested for respondents' suggestions on every limitation identified and ways of improving the current curriculum. In addition, respondents were requested to provide on a likert scale (1 = excellent to 5 very poor) their perception of eight aspects of their postings and seven aspects of lectures in each course taught. Information was obtained on their outlook of future practise.

Data collected over a 6 year period was coded, entered into a computer and analyzed using Statistical Package for Social Science (SPSS Inc Chicago IL) version 17.0. Descriptive statistics was employed, and statistical significance was inferred at  $P \leq 0.05$ .

## RESULTS

There were a total of 171 respondents. We observed a male preponderance (M:F = 110:61) that was statistically significant [Table 1]. Respondents' ages ranged from 22 to 34 years and the mean age (standard deviation [SD]) at graduation was  $26.87 \pm 2.196$ . Medicine and dentistry were the 1<sup>st</sup> choice, of course, in 62% and 29.8% of students, respectively. Second choices were mostly Dentistry 33.9%, Medicine 26.9% and Microbiology 14.0%. Joint admission matriculation board examination scores as recollected ranged from 204 to 306 mean (SD) being  $238.28 \pm 19.73$ . Most students (98.8%) were unmarried on admission, but at graduation, 10 (5.8%) declared their status as married whereas 6 (3.5%) did not disclose their status. The changes in status were attributed to increasing age and the need to settle down in life.

The number of students spending more than a year at each level decreased appreciably toward the final year. Reasons for overstay were mainly failure and disruptions in the school calendar for various reasons [Table 2]. Over 70% of the student described their environment in years 1-3 as un-conducive for learning and 59.4% of them maintained the same view for the rest of their stay in school.

**Table 1: Distribution of respondents' age group by gender**

| Respondents' age group (years) | Females<br>N (%) | Males<br>N (%) | Total<br>N (%) |               |
|--------------------------------|------------------|----------------|----------------|---------------|
| ≤25                            | 25 (16.0)        | 23 (14.7)      | 48 (30.8)      | $\chi^2=8.18$ |
| 26-30                          | 32 (20.5)        | 67 (43.0)      | 99 (63.5)      | df=2          |
| >30                            | 1 (0.6)          | 8 (5.1)        | 9 (5.6)        | $p=0.017$     |
| Total                          | 58 (37.2)        | 98 (52.8)      | 156 (100.0)    |               |

Note: 15 respondents did not complete their ages. They were 3 females and 12 males

**Table 2: Respondents' account of years of study lost during their stay**

| Reasons for losing a year             | Number of students affected in each year |           |           |           |          |          | Total       |
|---------------------------------------|--|-----------|-----------|-----------|----------|----------|-------------|
|                                       | Year 1                                   | Year 2    | Year 3    | Year 4    | Year 5   | Year 6   |             |
| Student unrest, school closure etc.,  | 24 (14.3)                                | 27 (16.1) | 14 (8.3)  | 11 (6.5)  | 7 (4.2)  | 7 (4.2)  | 90 (53.6)   |
| Failure                               | 11 (6.5)                                 | 23 (13.7) | 17 (10.1) | 7 (4.2)   | 5 (3.0)  | 5 (3.0)  | 68 (40.5)   |
| Leave of absence/financial challenges | 2 (1.2)                                  | 1 (0.6)   | -         | -         | 1 (0.6)  | -        | 4 (2.4)     |
| Health challenges                     | -  | -         | 1 (0.6)   | -         | -        | -        | 1 (0.6)     |
| Indecision and adjustment             | 2 (1.2)                                  | 1 (0.6)   | -         | -         | -        | -        | 3 (1.8)     |
| Adjustment of school calendar         | 2 (1.2)                                  | -         | -         | -         | -        | -        | 2 (1.2)     |
| Total                                 | 41 (24.4)                                | 52 (31.0) | 32 (19.1) | 18 (10.7) | 13 (7.7) | 12 (7.1) | 168 (100.0) |

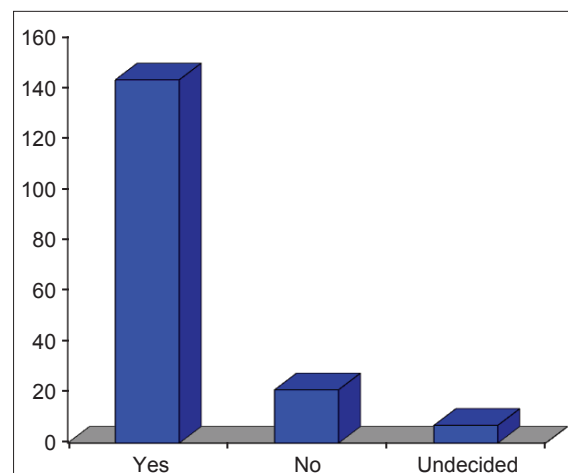
Varying levels of satisfaction was expressed to their lectures and clinical postings [Table 3]. Responses categorized as others in the basic sciences include need for a specified library, distraction from home, lip service; preclinical classes: (no specified library, increased workload). Clinical classes: Prolonged session and no break very hectic.

Mean scores of the student's assessment of their postings and lectures are summarized on Tables 4 and 5.

In spite of these, majority of graduating students (83.6%) see a need for specialization (even in a few fields of specialization that are not available in our setting) whereas 12.3% would not want to specialize in any field, and a few (4.1%) are not clear on desired field of specialization yet [Figures 1 and 2]. The group classified as others include Aesthetic Dentistry (1), Biomedical Engineering (1), General Dental Practice (4), Forensic Dentistry (1), Hospital Administration (1) and Oral Maxillofacial Radiology (1).

## DISCUSSION

The World Health Organization (WHO) [11] has actively advocated reforms and improved Medical/Dental education to meet the challenging needs of health care. Over the past 3-4 decades, WHO has intensified efforts and also collaborated with organizations and institutions at regional and global levels to carry out activities directed at improving human resources for health through better quality Medical/Dental education [11]. Medical/Dental schools in Africa generally and Sub-Saharan



**Figure 1: Response to perception on need for specialization**

**Table 3: Problems identified by respondents in each stage of training**

| Areas of problems identified                    | Basic classes<br>(year 1) | Preclinical classes<br>(years 2 and 3) | Pre-phase and clinical classes<br>(years 4-6) |
|---|---------------------------|--|---|
| Hostel accommodation                            | 51 (43.6)                 | 36 (39.6)                              | 9 (12.2)                                      |
| Classrooms and laboratory capacity              | 41 (35.4)                 | 37 (40.7)                              | 7 (9.5)                                       |
| Disruption in school calendar                   | 6 (5.1)                   | 5 (5.5)                                | -   |
| Curriculum                                      | 5 (4.3)                   | 5 (5.5)                                | -   |
| Financial demands                               | 3 (2.6)                   | 5 (5.5)                                | 12 (16.2)                                     |
| Inadequate patient contact                      | -                         | -                                      | 6 (8.1)                                       |
| Difficult transition/<br>inadequate orientation | 5 (4.3)                   | -                                      | 35 (47.3)                                     |
| Others  | 6 (5.1)                   | 3 (3.3)                                | 5 (6.8)                                       |
| Total   | 117                       | 91                                     | 74  |

**Table 4: Distribution of mean (SD) median and mode scores students' assesment scores for each posting**

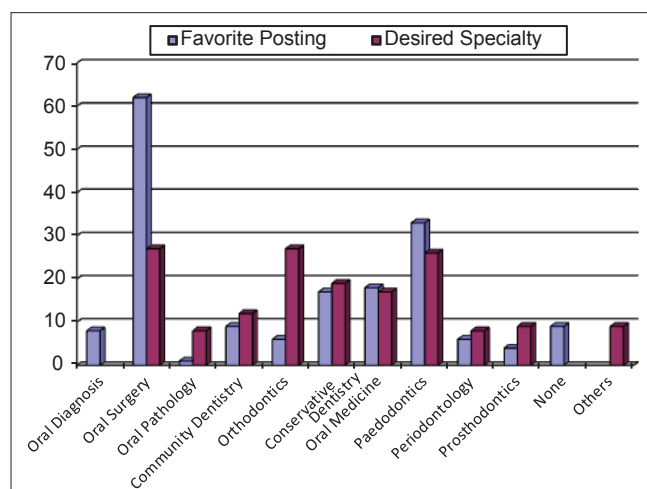
| Postings                             | Mean (SD)    | Median | Mode |
|--------------------------------------|--------------|--------|------|
| Oral diagnosis                       | 23.5 (5.94)  | 24.0   | 25.0 |
| Oral surgery                         | 17.7 (5.54)  | 24.0   | 21   |
| Conservative dentistry               | 23.75 (6.62) | 24.0   | 25   |
| Prosthetics                          | 24.24 (5.64) | 24.0   | 24   |
| Pediatric dentistry/<br>Orthodontics | 19.14 (5.44) | 19     | 16   |
| Community dentistry                  | 25.5 (6.04)  | 25     | 24   |

Range of scores 8 (excellent) to 40 (very poor), SD: Standard deviation

**Table 5: Distribution of mean (SD) median and mode scores students' assesment scores for lectures in each course**

| Courses                | Mean (SD)    | Median | Mode |
|------------------------|--------------|--------|------|
| Oral pathology         | 17.43 (5.13) | 17.0   | 19.0 |
| Oral surgery           | 15.9 (5.06)  | 16.0   | 14.0 |
| Oral medicine          | 15.3 (5.1)   | 15.0   | 14.0 |
| Conservative dentistry | 19.08 (4.73) | 20.0   | 21.0 |
| Prosthodontics         | 17.33 (4.79) | 17.0   | 16.0 |
| Periodontology         | 22.95 (8.68) | 21.0   | 35.0 |
| Pedodontics            | 15.90 (5.79) | 15.0   | 14.0 |
| Orthodontics           | 20.06 (5.20) | 20     | 19.0 |

Range of scores 7 (excellent) to 35 (very poor), SD: Standard deviation

**Figure 2: Respondents' favorite postings and desired specialty**

Africa in particular cannot be left out in this global trend to reposition Medical/Dental education for improved human resource development. Improvement in any existing curriculum commences with a retrospective analysis and then projections for the future [7], hence, student's perception of the existing curriculum is very important.

A significant male preponderance was observed among our respondents. This is at variance with the current trend in schools in the United Kingdom and United States of America. It is however a departure from the earlier picture of (M:F = 84.7%:15.3%) of dental practitioners in Nigeria 1981 reported by Ogunbodede [12]. This also substantiates sustenance of the steady increase observed among Nigerian dentists population [12]. We believe that more female representation is an evolving trend in this group of undergraduates and a near equal ratio may be attained in the nearest future as it is in many developed countries [13].

The first choice of medicine and surgery by most respondents is a true reflection of poor awareness about dental surgery among youths nationally. Less than one-third wanted dentistry as their first choice. Two-thirds of our graduating students did not desire to study dentistry, but most likely got coerced into it when their admission into medicine was not feasible. This revelation is confirmed by the fact that some admitted to being unprepared for what they met in the program and thought they should have had a proper and detailed orientation before the commencement of the course.

The University Matriculation Examination taken to admit candidates into dentistry, usually, comprises of four papers (physics, chemistry, biology and English Language) and the score is rated over 400 marks. Respondents' scores ranged from 51% to 76.5% and mean at  $59.6 \pm 5\%$  may be considered a fair performance compared with the general trend in the examination.

It is important to note that our respondents constitute the "survivors" in a program that is very rigorous. Averagely, a dropout rate of about up to 22% is recorded annually in the program with the highest figures recorded in years 2 and 3 and the least (usually <10%) in parts 1, 4, 5 and 6. This is at variance with a completion rate of 97.6% in the American setting [13].

The predominantly reported reason for lost year during their study was students' unrest leading to school closure reported by 90 (53.6%) respondents. Student unrest over the years has been attributed to many factors such as protest against government policies, issues related to basic infrastructures, among others. At other times, industrial actions are predicated on the expression of grievances by various unions in the university protesting poor remuneration, withheld allowances, dilapidated/outdated equipments and poor funding of education by government among others.

Lost year due to failure at one point or the other was another major reason after school closure. This occurred majorly in the 2<sup>nd</sup> year of training. Unlike the 1<sup>st</sup> year which is devoted to basic

science courses, part 2 is the period of introduction to core basic medical courses like anatomy, physiology, biochemistry, oral anatomy and oral physiology. This obviously is quite different from basic sciences chemistry, physics and biology and botany/zoology in parenthesis. In addition, failure in one or two of these courses will attract participation in resit examinations, but failure in three will lead to a repeat of the year (candidates can only repeat once). Failure in more than three courses in year 2 or failure in all courses taken in any academic year results into withdrawal from the program.

Various problems were identified by the students at each phase of the study with poor hostel accommodation and crowded classrooms and laboratories having the highest score. Hostel facilities in the university are always inadequate, and most of the students either squat with their friends or stay off campus. Staying off campus will not give the student the opportunity to interact and discuss with other students and also they may miss lectures and tutorials leading to failure. Crowded classrooms and laboratories will not give all the students opportunity to learn adequately, and majority of them may not fully participate. This will eventually lead to failure. Masic [9] identified the urgent need to improve and reform the educational system that will bring more practical clinical and pre-clinical work and more patient-student contact.

Community dentistry posting was rated lowest by the students with mean score 25.5 (6.04) and oral surgery posting highest with mean score 17.7 (5.54). We opine that this may be a result of a more elaborate students-patient interaction in the oral surgery postings. These include exposure to the patient at the out-patient and in-patient facilities (including bedside and operating room experiences). Furthermore, surgeries done under general anesthesia may have exposed students to more practical sessions and afforded them a better understanding of the theoretical knowledge. This nature of exposure is not typically available in other postings, especially community dentistry. Pediatric/orthodontic postings recorded a similar high score possibly for the same reason propounded for outpatient experience in oral surgery.

Pediatric dentistry, Oral Surgery and Oral Medicine lectures were rated high (15.9 [5.8], 15.9 [5.1] and 15.3 [5.1] respectively). It may be assumed that good student-patient contact in Pediatric dentistry and Oral Surgery, allowing lectures to be translated into practice is responsible for this response.

Majority of the students expressed the need for specialization 140 (81.9%) while 11 (6.4%) of the students were undecided. These responses showed that most of the students are aspiring to be a specialist in various fields of dentistry that will overall bring about more trainers for future dentist. It is however surprising that students' favorite postings did not dictate their desired field of specialization in this study as oral surgery posting which had the overall best rating did not translate to the most desired area of specialization [Figure 2]. One may speculate that extra workload, especially in terms of in-patients care like admissions, getting laboratory results, midnight calls, and ward rounds characteristic of oral and maxillofacial surgery may be responsible for its avoidance. This extra workload is not associated with other postings.

**Table 6: Recommendations for improvement at each aspect of study**

| Stage of study                 | Recommendations by the students   |
|--------------------------------|---|
| Basic science classes          | Audio visual aids, construct hostels for medical students, build large lecture rooms or reduce student intake, divide classes into smaller groups, build and equip more laboratories. Introduce external funders system, make medical schools autonomous  |
| Preclinical classes            | Revise curriculum and take MB exam in part 3 only, move oral biology courses to later years, Reduce workload of the part 2 students, Improve all infrastructures, Improve accommodation, More cadavers for dissection classes, Provide conducive dissection room, make lectures more practical and interesting  |
| Pre-phase and clinical classes | Construct more hostels, make training materials available including more phantom heads, keep to the time table, detailed orientation before the commencement of program, Subsidize the cost of required materials, provide scholarships for students, allow students to bear out their minds, Restructure curriculum, make dental laboratory materials accessible |

Various recommendations for improvement at the different phases of their study were highlighted in Table 6. Since holistic approach to curriculum modification should not be from the trainers alone, the students input is also very important as reported by Simunovic *et al.* [8] in a Bosnia/Herzegovina study.

In conclusion, Student's perception of their program was expressed from this study, and a number of problems to be addressed were mentioned. An early detailed orientation to the profession is desirable. There is a need to continue to improve on the learning environment (both school and hostel facilities). Perhaps paying more fee than what obtains now would enhance a rapid improvement in the system. Since there is always room for improvement, all units (particularly those which naturally afford little patient contact) could improve on curriculum to bridge this gap. Good student-patients relationship is very important in the overall success of dental training; therefore, early exposure of students to patient's handling will go a long way to improving training.

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