

# Assessing Learning Barriers among Dental and Nursing Undergraduates: A Qualitative Study, Students' Perspective

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## Abstract

**Background:** Learning barriers have an impact of the quality of teaching process. The aim of this study was to determine learning barriers among dental and nursing students at a private college in Saudi Arabia.

**Materials and Methods:** A cross-sectional survey of 227 dental and 191 nursing undergraduate students from academic years 1-4 was undertaken. Thirty one questions included information on the potential causes of learning barriers in terms of administrative, academic and environmental variables were sought.

**Results:** The overall response rate was 100% (418/418). At the academic level, larger number of the respondents identified limited examination time (61.0%), inadequate or inappropriate training in the laboratories and hospital (55.3%) and inadequate English language training courses (50.2%) as learning barriers with "high impact" on them. Moreover, at the environmental category, 80.1% of the respondents had an impression that the unavailability of entertainment facilities that motivate the learning process hinders their academic experience and approximately more than half (54.8%) reported that poor infrastructure is a factor causing hurdle.

**Conclusion:** Our findings support that teaching and learning occurs not only to impart the knowledge that educators have but to make the students' learning experience worthwhile and fruitful. Consequently, learning barriers can change student's perception and feelings towards attaining their goal of fulfilling their education. Further research is required to study learning barriers in other educational institutions and to understand how it affects students.

*Key Words: Dentistry, Nursing, Learning barriers, Undergraduate, Survey*

## Introduction

Educational institutions evolve their plans in improving higher standards and expectations as well as accountability. One way to fulfill this is to meet the beliefs and hopes of the learners who will be provided with the knowledge and skills they need in the execution of their profession in the future. Hence, each college or university has an obligation to consistently evaluate and monitor their academic status particularly factors that may affect the learning process. This includes barriers to learning such as classroom management, teachers' expectations, language barriers and cultural differences [1].

Learning barriers are not easily recognized as it needs learners to miss their classes and "drop out" from the course due to the difficulty in focusing, learning and/or the feeling that the education system is either lacking or incapable of meeting their needs, demands and expectations [2].

Learning barriers don't appear abruptly. It only means that it has roots that may start affecting even from early stages and continue throughout the educational processes [1].

In order to fully understand and be able to intervene with the problems or situations the learners are experiencing, members of the education system must determine any existing barriers to learning that may adversely influence the learner [1].

Furthermore, the awareness of the occurrence of learning barriers and how they interfere in the learning process will provide a better understanding of the learners' experience for personal growth and reflection [3].

Education and training of health care professionals are pivoted to ensure quality patient-centered health care through preparation of qualified and competent health professionals [4]. The challenge for health professional education is to provide a model of clinical education that meets not only the needs of university and clinical staff, but most importantly, the needs of the students. Such needs include the students' ability to translate the knowledge learned in the university setting into practice in the clinical workplace which enriches the working experiences [5].

Despite the fact that health professional education continue to improve the teaching and learning process, learning barriers still exist. In this case, it is essential to develop strategies to identify and understand the nature of the barriers which cause learning breakdown and lead to exclusion.

The aim of this study was to determine learning barriers among dental and nursing students at Al-Farabi College, Saudi Arabia and the impact of some factors on the learning process. This study was also conducted to increase the awareness of the learning barriers in order to formulate proposed recommendations to enhance the learning process and provide ultimately competent graduates.

## Materials and Methods

This research utilized analytical, cross-sectional survey conducted among dental and nursing students enrolled at Al-Farabi College for Dentistry and Nursing, Riyadh, Saudi Arabia. The study was ethically approved by the Institutional Review Board of Al-Farabi College (IRB 13- 085).

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## Study Population

The source of data was 227 dental and 191 nursing students from academic years 1-4 who were enrolled as full-time students in the college. Students were randomly approached and asked to participate. Respondents were asked to complete a special questionnaire after explaining the purpose of the study and securing their consent.

## Study Instrument

The authors of this work used a structured questionnaire as an instrument in collecting data. The questionnaire was formulated based on related studies and literature [1-3,6]. A pilot study was conducted on a group of nursing students who were excluded in the actual research project. The questionnaire was modified for clarity, accuracy and concreteness prior to its actual distribution.

The questionnaire comprised of respondent's demographic characteristics and 31 items of administrative, academic and environmental factors that are accounted as a learning barriers. The questionnaire was distributed personally after securing consent from the subjects themselves at the end of lectures. The final response rate was 100%.

## Data analysis

The data collected were tabulated and statistically analyzed. Frequency counts and percentage were used to examine the distribution of responses for all the variables and to describe sample demographics. Wilcoxon rank-sum tests and Chi-squared tests were used to assess statistical significance. A p-value < 0.05 was considered significant.

## Results

### Demographic characteristics of subjects

The general characteristics of participants are illustrated in *Table 1*. Among the respondents, 227 (54.3%) were enrolled in the dentistry program and 191 (45.7%) were enrolled in the nursing program number of students (39.2%) earned a GPA of "A" while a slight lower percentage (32.8%) with GPA of "B". It shows that more than 50% of the learner respondents performed well in their academic subjects.

*Table 2. Shows the frequency of administrative items in relation to learning barriers.*

Administrative factors	Degree of impact		
	Low Number (%)	Intermediate Number (%)	High Number (%)
Lack of web based facilities to communicate with student affairs	59 (14.1)	84 (20.1)	275 (65.8)
No comprehensive orientation provided to the new students about policies, tasks, duties and regulations of the college	79 (18.9)	135 (32.3)	204 (48.8)
Poor academic guidance for the students during courses registration	63 (15.1)	130 (31.1)	225 (53.8)
Inadequate extracurricular activities for the students such as conferences, workshops and seminars	54 (12.9)	87 (20.8)	277 (66.3)
Lack of attention provided for students' questions or concerns	45 (10.8)	86 (20.6)	287 (68.7)
The tasks and duties of each administrative department aren't clear to the students	52 (12.4)	129 (30.9)	237 (56.7)

## Administrative Variables

*Table 2* shows the frequency of the nine items on learning barriers related to administrative factors that participants have commented on. Interestingly, 68.7% of the student respondents reported that lack of attention provided for students' questions and concerns is of "high impact" to their learning. A slightly lower percentage of dental and nursing students also reported that inadequate extracurricular activities for the students such as conferences, workshops and seminars (66.3%) and lack of web-based facilities to communicate with student affairs (65.8%) also influence them highly.

*Table 1. Shows the distribution of respondents in terms of demographic profile.*

Characteristics	Number	Percentage (%)
Total	418	100
Gender		
Male	153	36.6
Female	265	63.4
Specialization		
Dentistry	227	54.3
Nursing	191	45.7
Academic level		
First Year	95	22.8
Second Year	173	41.4
Third Year	97	23.2
Fourth Year	53	12.7
Grade Point Average (GPA)		
F (failed)	7	1.7
D (acceptable)	16	3.8
C (good)	94	22.5
B (very good)	137	32.8
A (excellent)	164	39.2

Lack of strict rules and regulations to monitor learning process	107 (25.6)	143 (34.2)	168 (40.2)
Academic advisers don't cooperate with students nor answer their questions	59 (14.1)	101 (24.2)	258 (61.7)
Academic advisers aren't familiar with academic curricula	84 (20.1)	148 (35.4)	186 (44.5)

### Academic Variables

Table 3 shows the frequency of the thirteen items on learning barriers related to academic factors that participants have commented on. In fact, larger number of the respondents

identified limited examination time (61.0%), inadequate or inappropriate training in the laboratories and hospital (55.3%) and inadequate English language training courses (50.2%) as learning barriers with “high impact” on them.

Table 3. Shows the frequency of academic items in relation to learning barriers.

Academic factors	Degree of impact		
	Low Number (%)	Intermediate Number (%)	High Number (%)
Curricula are incompatible with student's precognitive ability	120 (28.7)	168 (40.2)	130 (31.1)
Excessive amount of information in major courses	77 (18.4)	161 (38.5)	180 (43.1)
Excessive amount of information in minor courses	84 (20.1)	173 (41.4)	161 (38.5)
Inadequate time plans for courses	122 (29.2)	125 (29.9)	171 (40.9)
Facing Difficulties in studying major courses in English	116 (27.8)	160 (38.3)	142 (34)
Inadequate English language training courses	83 (19.6)	125 (29.9)	210 (50.2)
Inadequate or inappropriate training in the laboratories and hospital	54 (12.9)	133 (31.8)	231 (55.3)
Questions in the exams are depending on memorizing rather than understanding and analyzing	74 (17.7)	159 (38)	185 (44.3)
No feedback provided after examination	61 (14.6)	154 (36.8)	203 (48.6)
Limited examination time	59 (14.1)	104 (24.9)	255 (61)
Final exam questions are almost similar to previous year's questions	242 (57.9)	115 (27.5)	60 (14.4)
Lack of knowledge and poor performance level of the lecturers	109 (26.1)	180 (43.1)	129 (30.9)
Lack of appropriate teaching strategies of the lecturers	88 (21.1)	179 (42.8)	151 (36.1)

### Environmental Variables

Table 4 shows the frequency of the nine items on learning barriers related to environmental factors that participants have commented on. Interestingly enough, 82.1% believed that the unavailability of internet connection for students affected them highly. However, about 80.1% of the respondents had an impression that unavailability of entertainment facilities that motivate the learning process hinders their academic experience.

Among the assessed variables, a statistical difference in the response between dental and nursing students was found

(Table 5). Specifically, nursing students thought that “facing difficulties in studying major course in English” and “inadequate English language training course” have a higher impact compared to their dental colleagues. On contrary, dental students expressed that the following variables: “laboratories aren't equipped in terms of space and equipments for training”, “inadequate computers for the students” and “inadequate time plans for course” have a higher impact on learning barriers.

Table 4. Shows the frequency of environmental items in relation to learning barriers.

Environmental factors	Degree of impact		
	Low Number (%)	Intermediate Number (%)	High Number (%)
Lack of appropriate learning environment (classroom design, lighting, ventilation, restrooms, seats and cafeteria)	79 (18.9)	210 (50.2)	129 (30.9)
Poor material technologies in classrooms or laboratories	118 (28.2)	203 (48.6)	97 (23.2)

Poor building arrangement	84 (20.1)	105 (25.1)	229 (54.8)
Unavailability of reference materials in college's library	92 (22)	157 (37.6)	169 (40.4)
Inadequate computers for the students	98 (23.4)	118 (28.2)	202 (48.3)
Unavailability of internet connection for the students	25 (6)	49 (11.7)	343 (82.1)
Unavailability of useful printed and electronic resources in college's library	172 (41.1)	136 (32.5)	110 (26.3)
Laboratories aren't equipped in terms of space and equipments for training	83 (19.9)	141 (33.7)	194 (46.4)
Unavailability of entertainment facilities that motivate the learning process	30 (7.2)	53 (12.7)	335 (80.1)

Table 5. Shows the discrepancies between dental and nursing students for the assessed variables. Impact scale: 1 = High impact, 2 = Moderate impact, 3 = Little impact.

Type of Variables	Factors	Mean impact score* (Dental students)	Mean impact score* (Nursing students)	P value
Environmental	Inadequate computers for the students	1.64 (0.79)	1.87 (0.81)	0.003
	Laboratories aren't equipped in terms of space and equipments for training	1.62 (0.74)	1.86 (0.78)	0.002
Administrative	Inadequate extracurricular activities for the students such as conferences, workshops and seminars	1.39 (0.68)	1.54 (0.73)	0.019
Academic	Excessive amount of information in major courses	1.83 (0.74)	1.65 (0.73)	0.014
	Inadequate time plans for courses	1.71 (0.79)	2.08 (0.82)	0.000
	Facing Difficulties in studying major courses in English	2.16 (0.77)	1.66 (0.71)	0.000
	Inadequate English language training courses	1.88 (0.98)	1.51 (0.74)	0.000

## Discussion

Educating students is a complex task. It requires comprehensive preparation as well as continuous monitoring of the academic and administrative functions to provide whatever is needed in enhancing the education system of an educational institution [7].

Al-Farabi College is a private college located in Riyadh city and work under the supervision of Ministry of Higher Education in Saudi Arabia. The college offers dental and nursing undergraduate programs and adopts traditional teaching curricula. The dental program extends over 6 years and the student has to complete one more year internship training program to obtain a Bachelor degree in Dental Sciences. The nursing program is 5 years program including a one year internship.

In pursuit of the teaching and learning process and despite the existence of educational framework, obstacles still arise [1]. Thus, understanding the judgments, point of views and feelings of the students engaged in health-related courses is needed in order to assess the effectiveness of every college or university and to develop strategies that are able to resolve the existing problems.

The vast majority of participants indicated the existence of learning barriers in the administrative, academic and environmental aspects. They rated the items in various degree of impact based on their own beliefs and experiences. It only shows that along their education, individual learners

encountered or observed situations which may or may not be noticed by the respective departments or administrators as barriers to students' learning process.

Hence, it is essential to verify the existing learning barriers which will lead to possible evolution of some feasible and compatible teaching-learning strategies in order to maximize the education output.

In this study, both the dental and nursing students' rating for the administrative items showed that the attention provided to students' questions and concerns were lacking. They also reported that extracurricular activities for students and the web-based facilities to communicate with student affairs were inadequate. It is likely that dental and nursing students are interested in becoming aware in updating whatever knowledge they have in order to be in the right track of their learning.

Similarly, research conducted in the United Kingdom, wherein some barriers and constraints in learning were identified and the possible causes of either leaving or dropping-out from their course were revealed [6]. About 43% who left the course had concerns on the access of information and guidance. However, common reasons for drop-out were attributed to perceived poor standard of teaching, health reasons and work commitments [6].

Participation in extracurricular activities such as athletics and community service improve academic performance. Thus, students, college administrators, teachers and parents need to

be aware of the effect of participation in the extracurricular activities [8]. Extracurricular opportunity is one of the factors that can significantly influence students' perception and experience during their educational process [9].

On the contrary, too much involvement can also hinder academic and social aspects for college life. Zachermana & Foubert stated that a low amount of extracurricular activities was beneficial to grades, while a high amount can potentially hurt academic performance in college students [10]. Each student must be able to balance the extracurricular activities, academics and social involvement in order to maintain high scholastics in their field of education [10].

Table 3 reveals that almost 50% of the students determined the three items, that is, 1) limited examination time, 2) inadequate or inappropriate training in the laboratories and hospital and 3) inadequate English language training courses are of "high impact" in affecting students' academic learning. The findings were consistent with a number of recent studies [8,11-13].

Trifoni & Shahini reported that most of the students worry during test taking (80%) and nearly 70% of them usually feel pressured by time limits [13]. The respondents believed that time limitation and stress cause anxiety during test administration because they are not sure if the time given to them is enough to finish the examination. In addition, the study of Ohata's findings justified that learners experienced pressure in organizing their ideas in just short period of time during examination [14]. It also supported the fact that the validity of the test, limitation of time, test techniques, test format, length and testing environment influence students' reactions to tests.

On the other hand, the nature of learning environment enhances participation of students in the care of the patients. Students report a preference for learning both procedural and conceptual knowledge through observation and engagement. It further revealed that in health professional clinical education, barriers to learning exist as to lack of authenticity of clinical laboratories, lack of learning opportunities available in clinical setting and influence of individual teachers on student learning [5].

In a critical review of simulation-based medical education (SBME), McGaghie et al. found out that simulation technology can produce substantial educational benefits [15]. Transfer to practice demonstrates that skills acquired in SBME laboratory settings generalize to real clinical settings [15].

Kapucu et al. determined in a study conducted among Turkish nursing student that the clinic nurses, educators and patients influence students in the area of clinical practice [12]. A supportive clinical environment is important in achieving the required teaching and learning process goals.

It is vital that nursing and medical students should value the opportunities for interprofessional communication. A realistic environment produced through high-fidelity simulation enhances the opportunities for the optimal learning process.

A further area of barriers arising from the curriculum, are those which result from the medium of teaching and learning.

Teaching and learning for many learners take place through a language which is not their first language. This not only places these learners at a disadvantage, but it also leads to linguistic difficulties which contribute to learning breakdown.

Furthermore, language barriers can minimize the degree of motivation from the educators to students which may result to diminished ability of learning [16]. There are ways on how to manage language barriers such as design the teaching devices in a way that make, available language switching and translation of keywords, collaborate over the tasks that were given by the teacher and let the learners map out their thoughts [16].

Interestingly, more than three-fourths of the total respondents reported that the unavailability of internet connection for students is a learning barrier with high impact on them. As expected, about 335 (80.1%) students thought that the unavailability of entertainment facilities that motivate the learning process and poor building arrangement (54.8%) are rated highly among the environmental factors suggesting that physical set-up and aesthetic surroundings can stimulate the young minds interest and psychosocial atmosphere as well.

In a study conducted in Pakistan, it was evident that students were satisfied with the higher education in the country. It was also concluded that teachers' expertise (39%), courses offered (21%), learning environment (25%) and classroom facilities (14%) enhance students' satisfaction [17].

Similar to other surveys respondents use computer for various reasons [18-20]. Significant findings of 40.8% use computer for general purpose, 28.5% for entertainment and 22.8% for research purpose. Dental students used internet 2-3times/week (45.3%) and preferred internet for getting information (48.8%). Almost (95.3%) preferred to have computer based learning program in the curriculum. Better equipped computer laboratories with continuous and free access to the internet will enable students to improve quality care [18].

Sait et al. investigated the use and effect of internet on instructors and students in Saudi Arabia [20]. It was revealed that most instructors realized the potential of the internet for education and understand the effort involved in utilizing the valuable resources effectively.

Teachers, students, administrators and the management have joint responsibility in promoting the quality of education [6]. Effective communication, eliminating doubts and differences, cooperation and supporting one another ensure quality of education [21]. The satisfaction of customers demand is primarily the basis for curriculum development [17]. However, the process of teaching should also be considered while modifying and adopting strategies in teachings to meet the demands of the customers.

The student learning experience is a joint responsibility of both the students and the institutional environment. It is not merely the way a faculty will deliver her lecture but to ensure motivation and inspiration among the students for educationally-purposeful activities.

To strengthen the results and minimize bias on part of the administration, participation of the faculty is also recommended in order to reveal their points of view [22].

We recommend that this study can be replicated, to determine the existence of learning barriers in other Saudi colleges and universities and how such barriers may affect the students using different population group. Also, the administration can improve the academic advising in the higher education through the establishment of a systematic program comprises preparing and developing of advisor, conduction of orientation on the start of each semester or academic year and continuous monitoring and evaluation of the program [23]. Proper guidance and keeping the door open in answering queries of the students can minimize problems in the future. A regular contact between the lecturers and students can help the latter to have access or linkage with organizations for extracurricular activities (e.g. sports, electronics, participation in community and environmental programs) to enhance their skills and talents as well as their psychosocial well-being. The colleges should hire, prepare, and retain qualified and expert lecturers for enhancing the quality of education [17]. Improvement and updating of the curriculum is also recommended to all colleges in order to provide the learners with the best education system. Curriculum material should include e- learning resources not only focusing on the traditional textbooks [1,24]. Furthermore, increasing English courses can lessen the barriers to communication and sustain production of competitive professionals who can easily communicate and comprehend especially for those in the health professional fields.

## Conclusions

Based on the findings of the study, learning barriers do exist and may either affect the dental and nursing students positively or negatively. Proper communication between students and administration can address the students' issues and concerns. It also helps to further a makeover in the respective department, facilities or educational programs. Teaching and learning occurs not only to impart the knowledge that educators have but to make the student learning experience worthwhile and fruitful.

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