STAFF MEMBERS' PERCEPTION TOWARDS CURRICULUM REFORM: IS THERE A DIFFERENCE BETWEEN GOVERNMENTAL AND NON-GOVERNMENTAL DENTAL SCHOOLS IN ALEXANDRIA, EGYPT?

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ABSTRACT

INTRODUCTION: Dental curriculum holds an important place when seeking to promote innovation in the educational field. Challenges and successes of curricular reform may be influenced by the established identity and role of staff members involved, in addition to their perception about the teaching process that may be in conflict with the recommended changes or innovations.

OBJECTIVES: The study aimed at assessing the dental educators' perceptions towards curriculum reform and identifying the barriers in creating an innovative teaching strategy in Alexandria (governmental) versus Pharos (non-governmental) faculties of dentistry (dental schools), Alexandria, Egypt.

MATERIALS AND METHODS: A cross-sectional research design using a self-administered questionnaire was used to fulfill the study aim. A total of 170, full-time faculty members, in all departments, and of different academic degrees (including PhD, Master and Bachelor Degrees) were invited to participate in the study in the period from September 2013 to May 2014.

RESULTS: The response rate was 47.60% in the Faculty of Dentistry, Alexandria University and 71% in the Faculty of Dentistry, Pharos University. The majority of staff members in both universities (99.0% and 94.4, respectively) had a positive perception towards curriculum reform, with a significantly higher percentage detected in Alexandria faculty of dentistry (P=0.048) especially in relation to self-directed learning (P=0.001). Faculty members in both faculties recognized the role of efficient staff member in the educational process. Meanwhile, the Pharos faculty of dentistry teaching staff was significantly more oriented towards the barriers to curriculum reform especially lack of time to adopt new teaching approaches (P=0.005).

CONCLUSIONS: The necessity of curriculum reform was perceived by the majority of dental educators, in both faculties. Lack of time and crowded curriculum were considered as relevant barriers to implement innovative teaching strategies especially problem based learning and community service.

KEYWORDS: Curriculum reform, staff members, dental education, attitude, perception, barriers.

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INTRODUCTION

Curriculum reform should be regarded as an element of the core business of every dental school. Achieving the correct design requires an investment in time, energy and expertise. Such investment is important to maximize the educational experience for each student and to graduate dentists who are able to practice effectively, efficiently and with compassion in a world that is experiencing an evolution in knowledge, technology and cultural norms (1).

The curriculum holds an important place when seeking to promote innovation in the educational field. This change may include new subjects, combinations of old subjects or cross-cutting learning objectives. They may also take a form of new content, concepts, time allocation or pedagogy (2).

For real curriculum change to occur and barriers to be overcome, dental schools must adopt well-developed, comprehensive, faculty staff development programs that clearly define the requisite skills needed for effectiveness in an academic environment, emphasize self-directed learning and enhance students' critical thinking (3). A successful faculty development plan is implemented in three stages that would allow the staff member sufficient time to assimilate the new knowledge and develop new skills. These stages are namely the focus on changing the culture and understanding the need for this change; preparing the faculty member to teach the new curriculum; and finally preparing him/her to assess the learning process in the new curriculum (3).

In 2003-09**,** the current state of dental education in North American and Canadian dental institutions was investigated**.** It was found that there was an increase in the percentage of schools with interdisciplinary courses. They also reported that priorities for future curriculum modification included creating interdisciplinary curricula that are organized around themes, blending the basic and clinical sciences, provision of some elements of core curricula in an online format, developing new techniques for assessing competency, and increasing collaborations with other health professions schools. Respondents identified training for new faculty members in teaching skills, curriculum design, and assessment methods as the most critical need to support future innovation (4). Meanwhile, a number of studies were carried out in medical schools and similarly reported that faculty development was effective at enhancing teaching skills, building colleague relationships, initiating curriculum changes, and contributing to overall academic advancement (5-7).

Dental education has undergone significant curriculum reform in response to the series of white papers reported by the American Dental Education Association named "Commission on Change and Innovation in Dental Education" (ADEA CCI). An important outcome of this reform was the introduction of active learning strategies into academic dentistry (8). The ADEA-CCI outlined definite

pathways for curricular reform. These proposed changes included more emphasis on self-directed learning (SDL), problem based learning (PBL), critical thinking development, and lifelong learning (9). Indeed, critical thinking and using evidence-based dentistry (EBD) are still considered key components in modern dental education and are embraced in the dental literature (10). Meanwhile, several barriers have prevented the widespread adoption of such teaching strategies, especially Problem Based Learning (PBL) as one important curriculum innovation in dental education (11). Those barriers mainly included the overloaded dental curriculum, not allowing adequate time for problem solving that is the heart of PBL; faculty members' concerns about the schedule and resources needed for PBL; as well as the unfamiliarity of the teaching staff with the process itself (12,13).

There are several variables affecting the faculty members' perception towards curriculum innovation. Literature reported that the more experienced teachers usually tend to follow the traditional approaches to teaching and learning, even when adopting new educational methods (11). On the contrary, it appeared that the younger, inexperienced educators are more amenable to innovative forms of pedagogy such as community based education and problem-based learning (14).

Curriculum reform is being prioritized within and across health disciplines on a national and an international scale. Ongoing efforts at dental curriculum innovation are still continuing, yet there is no clear path for execution (15). Therefore, Egyptian Faculties of Dentistry were all urged, in the last few years, to adopt and implement serious educational reforms to comply with the new quality and accreditation standards in higher education (16-20). The curriculum of any academic dental institution is not, and should not be, a static entity. It must be continually reviewed and modified to meet the changing demands of the profession (21).

Such a study that tackles with the perception of dental educators would spark interest among educators of both faculties and increase their awareness of the needed curricular renovation to cope with the accreditation standards or support the steps towards quality improvements adopted by faculties of dentistry.
The current research aimed at assessing the dental educators' perceptions towards curriculum reform in dental schools belonging to governmental versus non-governmental university, in Alexandria, Egypt, in an attempt to highlight and thus overcome the pitfalls of the current educational process in the future. In addition, the barriers for creating innovative teaching strategies, as perceived by the faculty members, were identified, as well

MATERIALS AND METHODS
The present study adopted a descriptive, cross-sectional design, using a self-administrated, anonymous questionnaire. All available, full-time faculty members, in all departments and of different academic degrees (including PhD Degree, Master Degree and Bachelor Degree) were invited to participate in the study, in the period from September 2013 – May 2014.

Data obtained from the Quality Assurance Units, in Alexandria and Pharos Universities, indicated the presence of 223 and 100 staff members working in both faculties, respectively (22,23). Fifteen staff members from Alexandria faculty of dentistry (9 females and 6 males) have

been already exposed to the questionnaire in the pilot study and, thus, were excluded to prevent biased responses. Hence, a total of 208 and 100 staff members from Alexandria and Pharos faculties of dentistry, respectively, were eligible to participate. However, 109 faculty members of Alexandria faculty of dentistry and 29 of Pharos faculty of dentistry whether refused to respond to the questionnaire or were inaccessible. Therefore, only 170 participants (99 Alexandria faculty of dentistry and 71 Pharos faculty of dentistry) were actually included in the study with a response rate accounting for 47.60% and 71% in Alexandria and Pharos faculties of dentistry, respectively.

Two formal letters were directed to the Deans of Faculty of Dentistry, Alexandria and Pharos University in order to secure their support for the conduction of the study. Approval of the Research Ethics Committee of the Faculty of Dentistry, Alexandria University, was also obtained on 1/6/2013.

The questionnaire was then distributed among the study groups after explaining the purpose and objectives of the research in order to obtain their full cooperation. The researcher distributed the questionnaire, by hand, to all participants who were given about 30 minutes to complete it and the filled in sheets were later collected by the researcher herself. Some participants preferred to give it back the next day at the department's secretary. Although the questionnaire was not long, and the researcher was persistent and waited for all participants to answer the questionnaire, many of the Faculty of Dentistry' staff members, specifically in Alexandria University, were not interested to participate and nothing helped to encourage them which resulted in a low response rate. The questionnaire consisted of three sections A, B and C including 36 close-ended questions that were formulated based on intense literature review (14, 24). It was then pilot tested regarding the questions' clarity and content validity.

The first part (section A) of the questionnaire was concerned with demographic, personal data and work related data which included questions regarding the staff members' gender, university and departments they belonged to, years in academic dentistry, educational level and whether they were members of the school's curriculum development committee or not.

Section B included 20 items to cover the dental educators' perception toward curriculum innovation: Curriculum organization (8 items), Education for capability (2 items), Self-directed learning (2 items), Problem-based learning (2 items), Evidence based education (2 items), Communication and information technology (1 item), Service learning (2 items) and Community orientation (1 item). The participants responded to a single statement on a four-point likert scale ranging from strongly agree to strongly disagree.

Section C included nine statements (9) enquiring about the barriers in creating an innovative learning strategy. The participants responded to a single statement on a four-point likert scale ranging from most relevant to least relevant.
Collected data were revised and coded; then, fed to and analyzed by the Statistical Package for Scientific Studies (SPSS 16.0, SPSS, Inc., Chicago, IL, USA.) for Windows. The developed graphs and charts were constructed using Microsoft excel software. All statistical analysis was done using two tailed tests. The significance level was set at 5% (p≤ 0.05).

Frequencies, percentages and chi- square X^2 were used to describe and compare the characteristics of the study participants, study participant's perception towards curriculum reform and barriers in creating an innovative learning strategy.

Data relevant to section B were dichotomized into "Strongly disagree and disagree" (score 1 and 2 on the likert-scale) and "Agree and strongly disagree" (score 3 and 4 on the likert-scale). The overall items score and overall perception in section B was calculated by the following method then chi square X^2 was calculated:

-Section B composed of 20 statements the score of each ranged from 1 for "Strongly disagree" to 4 for "Strongly agree".

The upper limit for disagreement is 2*20=40

The lower limit for agreement is 3-20=60

-So the cut off point for negative (disagreement) or positive perception (agreement) = (40+60)/2=50

- So ≤50 was considered negative perception and > 50 positive perception.

Data relevant to section C were dichotomized into "Least relevant and not relevant" (score 1 and 2 on the likert-scale) and "Relevant and most relevant" (score 3 and 4 on the likert-scale).

RESULTS

Characteristics of the study participants

Significantly higher number of PhD holders, those with 10-20 years and those with more than 20 years educational experience participated from Alexandria faculty of dentistry compared to Pharos faculty of dentistry (p= (0.014 and 0.006, respectively).   Meanwhile, more members of curriculum committee participated from Pharos than Alexandria faculty of dentistry also showing a significant difference, as well (p=0.042). On the other hand, no significant difference was detected between both faculties of dentistry in relation to gender and type of academic departments (p= 0.3610 and 0.634, respectively) **(Table 1).**

Figure (1) shows that most staff members in both Alexandria and Pharos Universities agreed about the need for a curriculum reform (87.9% and 73.2%, respectively) compared to 12.1%, 26.8%**,** respectively**,** who reported that the curriculum does not need any change. The results were statistically significant (P=0.048).

II. Perception towards curriculum reform

The vast majority of the respondents in Alexandria and Pharos universities (99.0% and 94.4%, respectively) had a positive perception towards curriculum reform, showing no overall statistical significant difference between the two universities (0.078) except for only the **Self-directed learning**

domain (0.001). In this domain, a significantly higher percentage of Alexandria staff members agreed that active learning techniques cannot be used among large numbers of students. Meanwhile nearly the same percentage of respondents in both universities (84.8% and 85.9%, respectively) perceived that their education role is to facilitate the process of learning rather than teaching. Although not significant, most of the participants, in both universities, recognized the important role of effective dental educator as emphasized in the curriculum organization domain (p= 0.2281), as well as the importance of problem based learning (0.162) and community service integration in the dental curriculum as innovative teaching techniques (p= 2281), **(Table 2).**
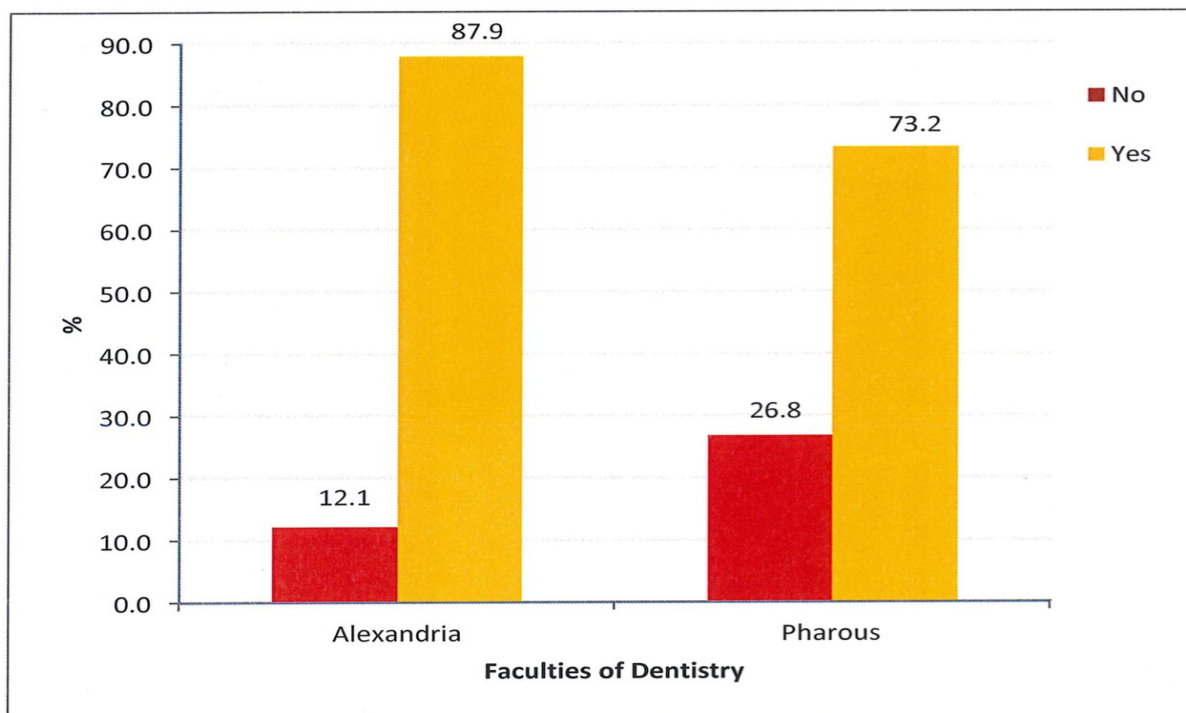

Figure (1): Staff Members' opinion towards the need for a curriculum reform in both faculties of dentistry. (P=0.048)

Table (1): Distribution of the study participants according to the independent variables in the two faculties of dentistry.

Independent variables	Faculties of Dentistry				X^2 (P)
	Alexandria		Pharos		
	N(99)	%	N(71)	%	
Gender					0.83 (0.361)
▪ Male	35	35.4	30	42.3	
▪ Female	64	64.6	41	57.7	
Education level					8.6 (0.014)*
▪ PhD Degree	45	45.5	17	23.9	
▪ Master Degree	28	28.3	25	35.2	
▪ Bachelor Degree	26	26.2	29	40.8	
Departments					6.1 (0.634)
▪ Conservative Dentistry and Biomaterials	21	21.2	15	21.1	
▪ Removable Prosthodontics	14	14.1	10	14.1	
▪ Fixed Prosthodontics	5	5.1	10	14.1	
▪ Oral and Maxillofacial surgery	12	12.1	6	8.5	
▪ Pediatric Dentistry and Community Dentistry	10	10.1	10	14.1	
▪ Orthodontics	8	8.1	5	7.0	
▪ Oral Biology	9	9.1	5	7.0	
▪ Periodontics & Oral Medicine	11	11.1	6	8.5	
▪ Oral Pathology	9	9.1	4	5.6	
Experience in academic dentistry					21.4 (0.006)*
▪ <10	55	55.6	62	87.3	
▪ 10-20	11	11.1	5	7.0	
▪ >20	33	33.3	4	5.6	
Member of curriculum committee					4.1 (0.042)*
▪ No	86	86.9	53	74.6	
▪ Yes	13	13.1	18	25.4	

* P < 0.05 (significant)

III. Barriers

No significant differences were detected between both universities in relation to all the barriers encountered by staff members to create innovative learning strategies except for only two statements "no time to implement new teaching approaches" as reported by Pharos (74.6%) compared to Alexandria staff members (53.6%) and "students need more technical skills" as reported by Alexandria participants (76.8%) compared to Pharos staff members (63.4%; P = 0.050) **(Table 3).**

Table (2): Dental educators' perception towards curriculum reform in the two faculties of dentistry

Items	Statements		Alexandria		Pharos		X^2 (P)
			N(99)	%	N(71)	%	
1.Curriculum Organization	The current curriculum in my dental school is product of consensus among staff members and students.	*Negative	47	47.5	39	54.9	
		**Positive	52	52.5	32	45.1	
	It is of important to integrate basic sciences with medical and dental clinical sciences.	Negative	0	0.0	0	0.0	
		Positive	99	100	71	100	
	Early clinical contact with patients by our students is beneficial to them.	Negative	12	12.1	15	21.1	
		Positive	87	87.9	56	78.9	
	A good teacher is one who effectively conveys knowledge to students.	Negative	7	7.1	3	4.2	
		Positive	92	92.9	68	95.8	
	Good teaching promotes discovery and construction of knowledge by students.	Negative	6	6.1	2	2.8	0.228!
		Positive	93	93.9	69	97.2	
	My students prefer lectures to interactive classes.	Negative	67	67.7	55	77.5	
		Positive	32	32.3	16	22.5	
	Teaching in my opinion is not a form of scholarship; I would rather spend more of my time doing research.	Negative	34	34.4	36	50.7	
		Positive	65	65.6	35	49.3	
	It is important that student assessment procedures reflect the learning outcomes.	Negative	0	0.0	4	5.6	
		Positive	99	100	67	94.4	

! : P value based on Fisher exact probabi* P < 0.05 (significan
*Negative= Strongly disagree, Disagree - ** Positive= Strongly agree, Agree

Table (2) continued: Dental educators' perception towards curriculum reform in the two faculties of dentistry

Items	Statements		Faculties of dentistry				X^2 (P)
			Alexandria		Pharos		
			N(99)	%	N(71)	%	
2.Education for capability	The learning culture in my dental school is on transferring technological skills to students.	*Negative	26	26.3	24	33.8	0.02 (0.898)
		**Positive	73	73.7	47	66.2	
	The learning culture in my dental school engages and challenges students to critically integrate biomedical sciences into clinical dentistry	Negative	43	43.4	30	42.3	
		Positive	56	56.6	41	57.7	
3.Self-directed learning	Active learning techniques cannot be used among large numbers of students.	Negative	18	18.2	30	42.3	10.6 (0.001)*
		Positive	81	81.8	41	57.7	
	My role as a lecturer is to facilitate the process of learning rather than teach.	Negative	15	15.2	10	14.1	
		Positive	84	84.8	61	85.9	
4.Problem based learning	PBL is an important educational strategy for integrating the various components of a curriculum.	Negative	12	12.1	12	16.9	1.9 (0.162)
		Positive	87	87.9	59	83.1	
	There is no difference in outcomes between the traditional approach to teaching (i.e. lectures) and PBL	Negative	89	89.9	62	87.3	
		Positive	10	10.1	9	12.7	
5.Evidence based education	The curriculum change that has occurred in our faculty/school is a result of evidence gathered from educational research in the literature.	Negative	52	52.5	33	46.5	0.35 (0.552)
		Positive	47	47.5	38	53.5	
	The curriculum change that has occurred in our faculty/school is opinion-based rather than evidence based.	Negative	26	26.3	34	47.9	
		Positive	73	73.7	37	52.1	

! : P value based on Fisher exact probabi* P < 0.05 (significan
*Negative= Strongly disagree, Disagree - ** Positive= Strongly agree, Agree

Table (2) coninued: Dental educators' perception towards curriculum reform in the two faculties of dentistry

Items	Statements		Alexandria		Pharos		X^2 (P)
			N(99)	%	N(71)	%	
6. Communication & Information Technology	Communication and information technology should be used as a resource for encouraging self-directed learning	Negative	3	3.0	2	2.8	0.470!
		Positive	96	97.0	69	97.2	
7. Service learning	Must be integrated into the curriculum with time for student reflection on their expertise.	Negative	4	4.0	5	7.0	0.01 (0.958)
		Positive	95	96.0	66	93.0	
	Service learning is an important form of pedagogy in dental education	Negative	10	10.1	3	4.2	
		Positive	89	89.9	68	95.8	
8. Community orientation	Connecting academic work with community service through structured reflection is beneficial to our students.	Negative	2	2.0	0	0.0	0.228!
		Positive	97	98.0	71	100	
Overall Perception	All 20 statements from 7 to 26 and the eight domains.	Negative	1	1.0	4	5.6	0.078
		Positive	98	99.0	67	94.4	

! : P value based on Fisher exact probabi* P < 0.05 (significan
*Negative= Strongly disagree, Disagree - ** Positive= Strongly agree, Agree

DISCUSSION

Literature supports the need to change traditional dental curricula, whether this change is achieved in a revolutionary way, in a more evolutionary way, or with a combination of strategies to fulfill the needs of individual dental institution (25).

The response rate of the present study was only 47.60% in Alexandria faculty of dentistry compared to 71% in Pharos faculty of dentistry. This was, indeed, expected due to the fact that faculty members in Alexandria faculty of dentistry are usually not interested in questionnaires and have no enough time to respond to this kind of surveys. This could be probably attributed to the Egyptian culture that has no much endurance for questionnaire surveys whether on the professional level, like in educational institutions, or on the public level in day to day life events. Similar to the current results, South African Dental Schools (14) reported

a response rate of 76%, whereas only 24% responded to the questionnaire at the University of Pittsburgh School Of Dental Medicine probably because it was an on-line survey (24).

The majority of Alexandria faculty of dentistry dental educators had a significantly more positive perception regarding the need for a curriculum reform **(Figure 1)**. In fact, many of those staff members thought that the curriculum is not consistent with recent research, should be reformed regarding the content, needs to be less specialized, new subjects must be added and should be linked with clinical experience and evidence-based dentistry. Similarly, around 87% of the respondents, at the North American dental schools, also believed that effective curriculum reform needs meticulous internal review, as well as thorough investigation of the students' and administration dissatisfaction with the curriculum (26).

Table (3): Barriers at creating an innovative teaching strategy at Alexandria and Pharos faculties of dentistry.

Barriers	Alexandria N(99)				Pharos N(71)				X^2 (P)
	Not relevant		Relevant		Not relevant		Relevant		
	No	%	No	%	No	%	No	%	
#1 Students only want to know what will be on the final.	13	13.1	86	86.9	12	16.9	59	83.1	0.46 (0.494)
#2 Students are too lazy to participate in lectures; they would rather sit and listen.	31	31.3	68	68.7	21	29.6	50	70.4	0.05 (0.809)
#3 Students are too scared to participate in lectures.	50	50.5	49	49.5	44	62.0	27	38.0	2.2 (0.138)
#4 Students learn only what is on the handout, not what we explain	17	17.5	80	82.5	16	22.5	55	77.5	0.65 (0.419)
#5 No support from the school's administration	55	55.6	44	44.4	44	62.9	26	37.1	0.90 (0.343)
#6 No support from department chair	67	67.7	32	32.3	46	65.7	24	34.3	0.07 (0.789)
#7 No time to experiment with new teaching approaches	45	46.4	52	53.6	18	25.4	53	74.6	7.7 (0.005)*
#8 Students need more technical skills	23	23.2	76	76.8	26	36.6	45	63.4	3.7 (0.050)*
#9 Students have barely enough time to learn all the facts (crowded curriculum).	25	25.3	74	74.7	13	18.3	58	81.7	1.1 (0.284)

* P < 0.05 (significant)

Nearly all dental educators, in both universities, had a positive overall perception regarding curriculum reform (**Table 2**), in spite the significant difference in academic education and years of experience **(Table 1)** which is mainly attributed to the fact that Faculty of Dentistry, Alexandria faculty of dentistry started in 1945(22), while Pharos faculty of dentistry was recently established in 2006 (24).

Over half of the respondents in Alexandria faculty of dentistry and less than half of Pharos dental educators perceived the curriculum in their dental school as a product of consensus among staff and students **(Table 2).** These results are implying that dental educators are not sure by whom the curriculum was prepared in their faculties. This could be attributed to the low awareness as well as low percentage of staff members who are part of the curriculum committee in both universities **(Table 1)**.   However, in order for a curriculum to be successful, it must have ownership by all stakeholders within a dental school (26).

The majority of dental educators, in both universities, had a positive perception regarding the importance of integrating basic sciences with medical and dental clinical sciences, the role of good teacher and the meaning of good teaching as well as the value of students' assessment (**Table 2).** A logic explanation could be the fact that almost all staff members in Pharos faculty of dentistry are graduated from Alexandria faculty of dentistry, so they all share similar perceptions regarding dental education. Contrary to the present findings, Gugushe (14) reported that only 7.2% of the study participants, in South Africa, had a positive perception regarding the importance of integrating basic sciences with medical and dental clinical sciences. This is mainly because most educators in South Africa do not apply vertical integration in their courses or modules. Meanwhile, this same study revealed close findings regarding the educators' opinion about a good teacher, good teaching and proper students' assessment, thus, supporting the current results. In fact, the present research reflects the importance of an effective staff member in maintaining the balance between teacher-center and learner-center education as well as emphasizes what is expected from students to have achieved when they complete the course (14). Indeed, a vast majority of the study participants had a positive perception regarding the importance of PBL as an innovative educational strategy, regardless the challenges in adopting such pedagogy, compared to a minor percentage who perceived no difference in outcomes between the traditional teaching and PBL approach (**Table 2).** However, our results are inconsistent with those of Gugushe (14) who found that only 14.4 % had a positive perception with regards to PBL, in South Africa, despite its well-known usefulness for encouraging deep and lifelong learning. Licari (3) also reported that PBL is not commonly used as a medium for integration in most dental schools in the United States of America, as well.

Around three-quarter of Alexandria dental educators perceived that curriculum change in their faculty is opinion-based rather than evidence-based compared to nearly half of the participants in Pharos faculty of dentistry **(Table 2).** This is mainly due to the fact that one third of Alexandria dental educators had academic experience of more than 20 years **(Table 1),** so they might not be really acquainted with the role of evidence based dentistry (EBD) in the educational field. Moreover, it could be associated with the very little or no involvement of most staff members with the debates and discussions associated with curriculum development within their faculty. Similar observations were made by Kassebaum et al (26) who found that the number of years in academic dentistry seems to have an influence on the teachers' perceptions of evidence based health sciences methodology.

Both Alexandria and Pharos staff members positively perceived communication and information technology as a resource for encouraging self-directed learning **(Table 2)** which is also supported by Gugushe (14), in South Africa. This is not surprising due to the ongoing use of technology within dental schools all over the world to strengthen the learning process, particularly self-directed learning. According to Kassebaum et al. (26), one of the many proposed dental education reforms is to "use the capacities of information technology to enrich and diversify students' learning experiences".

Most of the barriers to creating an innovative teaching strategy were related to students as reported by the study participants, at both faculties of dentistry **(Table 3)**. Many explanations could justify this finding, the most prominent of which is the lack of faculty facilities; the old clinics and labs that need to be renewed and the high number of students per section. Similar results were found at the University of Pittsburgh School of Dental Medicine (24), where half of the dental educators also reported that most students only want to know what will be on the final exam as a relevant barrier. On the other hand, **"**students are too lazy to participate in lectures**",** "students learn only what is on the handout" and "students need more technical skills" were contradictory to the findings at Pittsburgh University. This may be attributed to the wide discrepancy in the early school educational system, in Egypt, where students are mostly spoon fed as reflected in the results of the high school certificate on the national level (thanaweya el amma) compared to the United States which enhances self learning.

More than half of the dental educators in both faculties of dentistry did not consider **"**no support from school administration and **"**no support from department chair**",** as relevant barriers **(Table 3).** Comparable results were reported at Pittsburgh University (23). The current findings indicate the staff members' perception regarding the administration's willingness to introduce and support innovative teaching strategies to fulfill the requirements of accreditation standards, as well as to consist with the bench marking.

Challenges and successes of curricular reform may be influenced by the established identity and actual role of staff members, as well as their perceptions about the teaching process that might be in conflict with the recommended innovations (14). Indeed, one limitation of the current research was the relatively low response rate revealing a serious drawback in the Egyptian culture that seems to have no endurance for questionnaires survey which is a major tool to detect participants' feedback, analyze responses and plan for the needed changes. Faculty members are, thus, the prime responsible for creating and managing a curriculum that provides the necessary learning opportunities for students to achieve the intended programmatic goals and the other desired outcomes during their academic education (27).

The educational curriculum should promote self learning, provide students with the necessary evidence-

based knowledge they will use in their professional life, be flexible and varied enough. More time is also needed to give the faculty members a chance to bring their newly acquired knowledge and skills together for the benefit of the educational process. Dental educators must improve their teaching by asking for more preparation time as well as further training in education field. the course content must be reviewed to eliminate any redundant materials or contents to have more time for innovative teaching strategies and to eliminate any overlaps between different courses.

Pharos faaculty of dentistry should depend on more experienced dental educators with higher educational levels.

CONCLUSIONS

Results revealed that the majority of dental educators in both faculties of dentistry had an overall positive perception towards curriculum reform especially using information technology to promote self directed learning, service learning and community orientation.

Lack of time was the most common barrier to implement an innovative teaching strategy, followed by lack of cooperation, instructors and facilities as well as the crowded curriculum. No support from the school's administration and no support from department chair were not considered as barriers in both faculties of dentistry.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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