REVIEW ARTICLE

The differences between dentistry education system in Iran and other countries

Tahereh Ghaffari[1], Fahimeh Hamedirad[2,*], Ehsan Ghadamyari[3]
[1]Prosthodontics Department, Dental Faculty, Tabriz University of Medical Sciences, Tabriz, Iran
[2]Dental Materials Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran
[3]Graduated, Dental Faculty, Tabriz University of Medical Sciences, Tabriz, Iran

[*]Babol University of Medical Sciences,
Felestin Sq.
Babol, 471764333
Iran

Tel: +98 11322991408
Fax: +98 11322991093
Email: F.Hamedirad@mubabol.ac.ir

Background: The current study aimed to evaluating the dentistry education system in Iran and comparing it with selected dental schools in Turkey, the Philippines, Hungary, Ukraine, Russia, Armenia, and Azerbaijan.

Methods: The study was accomplished by the analyses of the documents available on web sites, links correspond to curriculum, the education program of general dentistry, and the transcripts of Iranian dentistry students graduated from foreign schools attending an advance standing program at Tabriz Dental School.

Results: The results of the current study indicated that in all the selected faculties, the course-oriented curriculum is used. The odontology system is used in the dental schools of Iran, Turkey, and the Philippines.

Conclusion: It is suggested offering courses in medical ethics, the principles of law, and the constitution of the Islamic Republic of Iran to all the students graduated from other countries. Specialized lessons offered to the graduated students from Russian and Ukrainian dental schools seem to be sufficient, but students graduated from other countries should pass orthodontics, pediatrics, and diagnosis courses.

Keywords: Dentistry, Educational Curriculum, Graduated Students

الفرق بين نظام التعليم في كليات طب الأسنان في إيران وباقي الدول

مراجعة: الخلفية والهدف: الهدف الرئيسي من هذه الدراسة هو تقييم نظام التعليم في كليات طب الأسنان في إيران ومقارنته مع نظام التعليم في كليات طب الأسنان في تركيا والفلبين والمجر وأوكرانيا وروسيا وأذربيجان.

الطريقة: تم تكميل وتجزئة وتحليل هذا التحقيق من خلال مراجعة الوثائق المتاحة على موقع الويب ، و الروابط المتعلقة بالمنهاج التعليمي ،و المناهج الدراسية لتعليم أطباء الأسنان العامين ، وكذلك علامات الخريجين الإيرانيين من كليات طب الأسنان الأجنبية الذين يدرسون دراسات عليا في كلية طب الأسنان في جامعة تبريز .

النتائج: أظهرت نتائج هذه الدراسة أنه في جميع الكليات المختارة في الدراسة ،كان المنهج العام الكلي متمحوراًعلى الدروس . يستخدم نظام علم الأسنان (ادنتولوژی) في مدارس طب الأسنان في إيران وتركيا والفلبين.

الخلاصة: يقترح عرض الوحدات العامة للأخلاق الطبية وأساس القانون ودستور جمهورية إيران الإسلامية على جميع طلاب الدراسات العليا. أيضاً يبدو أنه فقط الوحدات الخاصة بالدروس الإختصاصية المقدمة للخريجين الإيرانيين من روسيا وأوكرانيا كانت كافية والباقي يجب أن يضاف إليهم وحدات دراسية مثل تقويم الأسنان ، طب الأطفال والتشخيص إضافة إلى الوحدات الدراسية المجتازة .

الكلمات المفتاحية: طب الأسنان ، المناهج التعليمية ، طلاب الدراسات العليا

ایران اور دیگر ملکوں میں ڈینٹل میڈیسن کی تعلیم میں فرق

بیک گراونڈ: اس تحقیق کاهدف ایران میں ڈینٹل میڈیسن اور دیگر ملکوں میں ڈینٹل میڈیسن کی تعلیم کا موازنہ کیا گیا ہے۔جن ملکوں سے موازنہ کیا گیا ہے وہ ترکی، فلیپائین،ہنگری ، یوکرین ، روس اور جمہوریہ آذربائجان ہیں

روش: ویب پر موجود ڈنٹسٹری کا مواد جمع کیا گیا، ڈینٹل فیلڈ میں تعلمی نصاب حاصل کئے گئے،اسکے جنرل دینٹل فزیشین کے نصاب کو بھی مد نظر رکھا گیا اس کے علاوہ بیرون ملک ڈنٹسٹری کی تعلیم حاصل کرنے والے طلباءکی کارکردگي کو بھی دیکھا گیا جنہیں تبریز میڈیکل یونیورسٹی میں پیشرفتہ ڈینٹل کورس کرایا گیآ۔ اس کےبعد ڈیٹا کا تجزیہ کیا گیا ۔

نتیجے: اس تحقیق سے یہ معلوم ہوتا ہے کہ تمام یونیورسٹیوں میں نصاب کلاسیکل تعلیم پر زور دیتا ہے، اوڈونٹولوجی سسٹم ایران، ترکی اور فلیپائین میں لاگو ہے۔

سفارش: یہ سفارش کی جاتی ہےکہ ڈینٹل اسٹوڈنٹس کو طبیبوں کے اخلاق اور اسلامی جمہوریہ ایران کے آئین نیز ایک دوسرے کے حقوق سے آگاہ کیا جائے ۔ روس اور یوکرین سے فارغ التحصیل ہونے والے اسٹوڈنٹس کےلئے ایران میں مزید امتحان دینے کی ضرورت نہیں بلکہ دوسرے ملکوں سے ڈگری لے کرآنے والوں کوایران میں آرتھوڈونٹکس ، پیڈیاٹرکس اور تشخیصی کورس پڑھہ کرامتحان دینا پڑے گا ۔

کلیدی الفاظ: ڈینٹل ،نصاب تعلیم ، اسٹوڈنٹس

تفاوت بین سیستم آموزش دندانپزشکی در ایران و سایر کشورها

زمینه و هدف: هدف اصلی از این تحقیق بررسی سیستم آموزشی دندانپزشکی ایران و مقایسهٔ آن با دانشکده های دندانپزشکی منتخب در کشورهای ترکیه، فیلیپین، مجارستان، اوکراین، روسیه و جمهوری آذربایجان می باشد.

روش: با استفاده از مرور مستندات موجود در پایگاه وب، لینک‌های مرتبط با کوریکولوم آموزشی، همچنین برنامه های درسی در تربیت دندانپزشکان عمومی و نیز ریز نمرات فارغ التحصیلان ایرانی رشته دندانپزشکی دانشکده های خارجی که به عنوان دانشجویان تکمیلی در دانشکده دندانپزشکی تبریز مشغول به تحصیل شده اند، پژوهش تکمیل و تجزیه و تحلیل شد.

یافته ها: نتایج حاصل از این بررسی نشان می دهد که در همه دانشکده های منتخب، کوریکولوم کلی از نوع درس- محور است. از سیستم ادنتولوژی در دانشکده های دندانپزشکی کشورهای ایران، ترکیه و فیلیپین استفاده می شود.

نتیجه گیری: پیشنهاد می شود که واحدهای عمومی اخلاق پزشکی و اساس حقوق و قانون اساسی جمهوری اسلامی ایران به همه دانشجویان تکمیلی ارائه شود. همچنین تنها واحدهای اختصاصی مورد ارائه به فارغ التحصیلان ایرانی از کشورهای روسیه و اکراین کافی به نظر می رسد و بقیه باید واحدهایی مثل ارتودنسی، اطفال و تشخیص را علاوه بر واحدهای ارائه شده بگذرانند.

واژه های کلیدی: دانشجویان تکمیلی، دندانپزشکی، کوریکولوم آموزشی

INTRODUCTION

Globalization is a widespread term owing to economic, social, technological, cultural, and political interactions. This is due to human migration, international trade, rapid movement of capital and the integration of financial markets across national borders (1).

Globalization was effective in the survival of many professions and businesses, including dentistry, around the world. But the unclear point is the impact of globalization on the dentistry at higher education. Dental education has not been fully and formally recognized to date and not benefited from globalization advantages (2).

An ideal approach to globalize dental education is to collaborate, identify, and cope with common challenges, and share experiences and rational available resources. However, changes in dental education are going to be stopped across the world. Hence, dental education standards, theoretically and clinically, vary among countries, which threaten the development of dental education. It also makes it difficult to reach a set of globally acceptable standards in order to develop acompiled unique curriculum (3).

There are two curriculum models in all around the world: course oriented and research oriented. Based on the results of a study, on 28 world's leading universities, the educational model for PhD educations is research-oriented in 22 of them and in other universities is course-oriented model. Passing the minimum theoretical lessons is an indicator of the course-oriented model, and the role of the teacher in guiding the student to choose and attend theoretical lessons is critically (4). Although the tendency towards research-oriented courses among PhD students is increasing worldwide, in Iran most universities still use course-oriented models. In this model, the student should pass lessons based on the curriculum per semester, although the lessons maybe repeated in the courses or some lessons that are essential may never be offered. However, at the end of the academic years, the topic of thesis is determined (5). In research-oriented programs, student passes a six-year education program after choosing supervisor and determining the thesis topic. During this time, according to supervisor's discretion or the student needs, the student attends some lesson courses scattered and unorganized based on the thesis topic, and finally defends the dissertation (4).

There are two models for dentistry education all around the world: odontology and stomatology. Each one has its own strengths and weaknesses points (6-8).

In stomatological system, dentistry is a subdivision of medicine, while according to odontological system, dentistry is an independent scientificfield.

Average hours of subjects related to orodental in stomatological and odontological systems are 2417 and 3321 hours respectively. Average hours of subjects related tobasic sciences and medical subjects get 2206 and 1416 hours respectively in both systems (7).

Eastern and Central European countries use stomatology model. The odontology model is used in North and South America, Northern and Western Europe, Japan, India, Australia, Iran, China, maybe North Korea (due to the restrictions on the academic sites of this country) and some of Eastern European countries (including Ukraine, Bulgaria, Hungary, Russia, and Romania) (7).

In most dentistry education systems all around the world, a four-year pre-dental education (basic sciences and pre-clinical education) is offered and then it will be completed in the next step by clinical education. Clinical and preclinicalcurriculum at leasttake four years in such dental schools (6, 9).

Sadeghirad et al. in 2009, discussed the educational models of PhD educationsoffered in the world leading medical sciences universities and Iran universities. At the end, they suggested using a wide range of educational models in PhD programs like world's leading universities (4).

In spite of the variety of educational models used in PhD programs, there is a global consensus that a PhD degree originally indicates that the holder has adequate skills and abilities to design and conduct an original research. And is capable to open newwindows to knowledge creation and sciences advancement (4,5).

In Iran, a dentist graduated from aforementioned countries is introduced to the Secretariat of the Council for Dental Education and post Graduate. They evaluate and qualify the student. Upon the result of exam and the student's scores, he or she should be attended an advance standing program. The courses offered to the graduated students depend on their obtained scores and it will be 44 or 34 or 24 courses of lessons or only they have to pass their thesis in Iranian dental schools (10).

As the average hours of subjects related to orodental in stomatological are less than odontological systems (7), the graduated students from these systems need more specialized practical courses.

Considering the high number of graduates from foreign dentistry schools that are admitted to Iranian dental schools as the graduated students, the current study conducted to compare the Iranian education system with those of the countries, in order to more specifically evaluate the differences in education systems and appropriately synchronize the Iranian dental schools' graduates.

METHODS

The current descriptive study aimed to comparing the dental education system of Iran with those of Ukraine, Armenia, Hungary, the Philippines, Turkey, Azerbaijan and Russia in terms of differences in dentistry educational systems.

The current study was designed by studying and evaluating dentistry schools' official websites (or the websites of medical sciences universities) in Iran (11), Ukraine (12), Armenia (13), Hungary (14), the Philippines (15), Turkey (16), Azerbaijan (17), Russia (18) and using data collected by the self-report health status questionnaire, provided bythe World Health Organization (WHO), in these countries as reference (19,20). Almost all of graduated students were from mentioned countries. Since graduated students from the dental schools of the mentioned countries should attend an advance standing program in dental schools of Iran, the transcripts of the students graduated from the same original university (Five students from each country) were also used

that were reliable to some extent. As the main part of information were gathered from websites, the students' confirmed transcripts were used only for synchronization of data.

The following data were collected: educational period, the dental education model, the general curriculum, and the type and hours of offered courses.

In order to compare the model of dental education used in Iranian universities and selected countries, the total number of courses and hours in general, basic, and specializedlessons were calculated for each country. In the specialized lessons, all the lessons included in 16 different lessons (Oral and Maxillofacial Pathology, Orthodontics, Oral diseases and diagnosis, Periodontics, Pediatrics dentistry, Prosthodontics , Endodontics, Oral and maxillofacial surgery, Restorative dentistry, Comprehensive Dentistry, Oral radiology, ENT, Pharmacology, Dental materials, Dental anatomy, Community Dentistry) offered in the mentioned countries were categorized in order to descriptively compare the total number of courses and hours of them. Since the total courses and hours ofthem in each country were used separately, statistical tests were not applicable (due to lack of repetition) and only the existing conditions were described (4).

RESULTS

After evaluation the data, results showed that in Iran, Turkey and the Philippines odontology systems used and in other countries stomatology system is used. Dental education prolongs 6 years in Iran and 4 years in the Philippines. In other evaluated countries it takes 5 years. In all studied countries type of curriculums are is course-oriented system.

The comparison of theoretical and practical courses and hours in general, basic, and specialized lessons of dental education system in Iran and other selected countries is shown in table 1.

Evaluation of details of curriculums separately shows that: Azerbaijan has the most and Hungary has the least course's units in theorical general subjects; and in practical general subjects Hungary has the most and Turkey has the least course's units. Iran has the third rank of theoretical and sixth of practical course's units (Figure 1).

Ukraine has the most and Iran has the least course's units in theorical basic subjects and in practical basic subjects Azerbaijan has the most and Turkey has the least course's units. Iran has the eighth rank of theoretical and seventh of practical course's units (Figure 2).

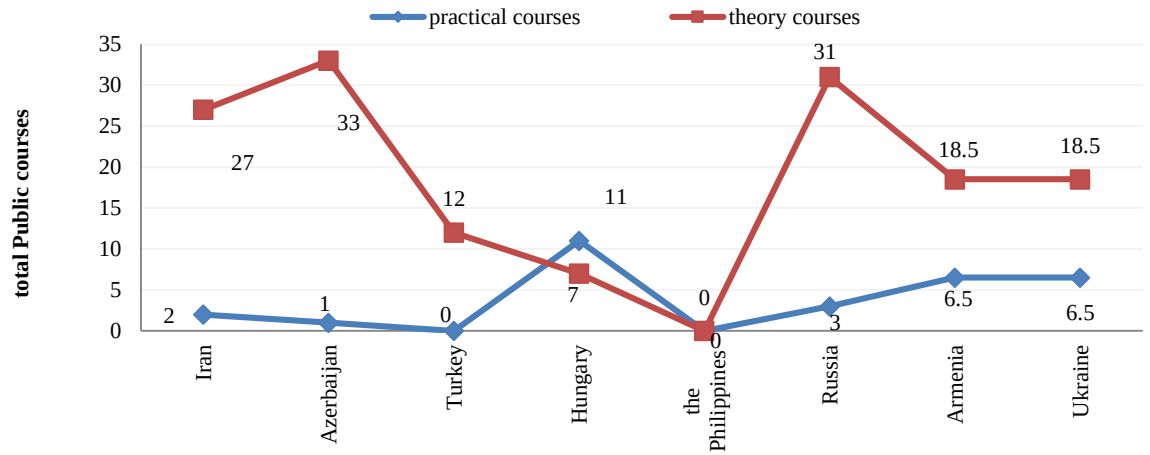

Figure 1. Comparison of units of general lessons in selected countries

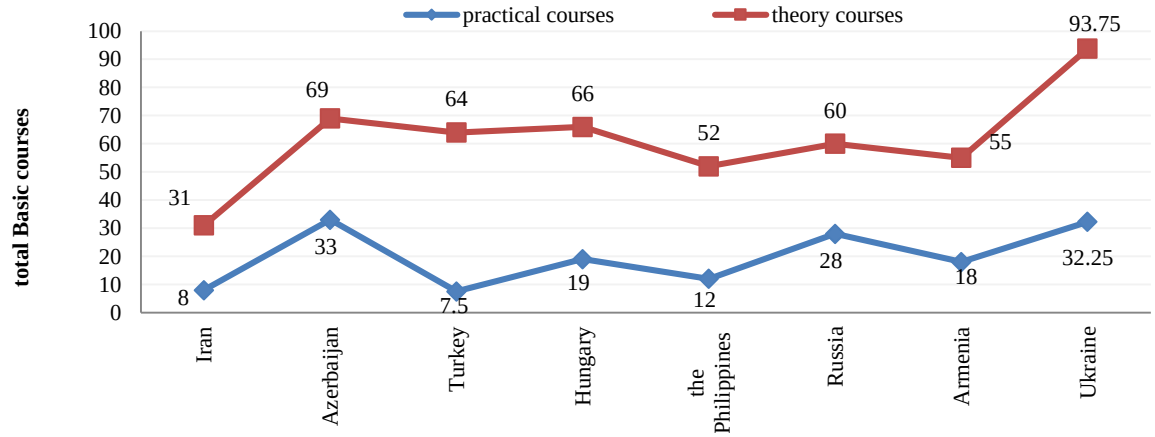

Figure 2. Comparison of units of basic lessons in selected countries

Table 1. Comparison of theoretical and practical courses and hours in general, basic, and specialized lessons of dental education system in Iran and other selected countries

Country	Lessons	Total practical courses	Total theory courses	Total subject hours
Iran	General courses	2	27	442
	Basic courses	8	31	797
	Special courses (compulsory & optional)	48	90	4405
	Total	68	154	5644
Azerbaijan	General lessons	1	33	517
	Basic lessons	33	69	1976
	Special lessons	60	50	2197
	Total	94	152	4690
Turkey	General lessons	0	12	204
	Basic lessons	7.5	64	1248
	Special lessons	44.5	91	2333
	Total	52	167	3785
Hungary	General lessons	11	7	540
	Basic lessons	19	66	2520
	Special lessons	49	61	3337
	Total	79	134	6397
the Philippines	General lessons	0	0	0
	Basic lessons	12	52	1088
	Special lessons	36	61	1629
	Total	48	113	2717
Russia	General lessons	4	22	506
	Basic lessons	28	60	2060
	Special lessons	75	39	2313
	Total	107	121	4879
Armenia	General lessons	3	31	680
	Basic lessons	18	55	1555
	Special lessons	52	47	2167
	Total	73	133	4402
Ukraine	General lessons	6.5	18.5	754
	Basic lessons	32.25	93.75	3539
	Special lessons	45.6	48.5	2867
	Total	84.35	160.75	7160

Turkey has the most and Russia has the least course's units in theorical special subjects. And in practical special subjects Russia has the most and the Philippines has the least course's units. Iran has the second rank of theoretical and forth of practical course's units (Figure 3).

In comparison of hours related to each categories of subjects we found that: The most hours of general lessons are for Ukraine, and the least ones are for the Philippines. The most hours of basic lessons are for Ukraine, and the least ones are for Iran. The most hours of special lessons are for Iran, and the least ones are related to the Philippines. From this point view Iran has the first rank in special lessons, last rank in basic lessons and sixth rank of general lessons (Figure 4).

DISCUSSION

The dental education system in Russia, Azerbaijan, Ukraine, and Hungary is roughly the same and relied on stomatology model. While the education system in Iran, the Philippines, and Turkey use odontology model (the system used in Turkey has some similarities to stomatology model). In countries using stomatology model in the dental education system (ie, Ukraine, Armenia, Hungary, Azerbaijan, and Russia), the course of principles and basics of dentistry is offered instead of restoration, periodontics, and endodontics courses but in other countries these courses are offered separately.

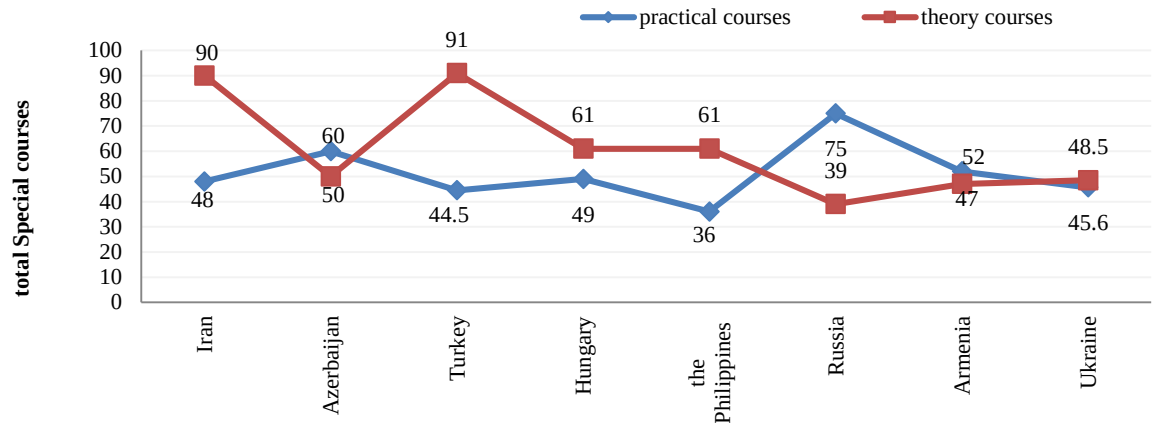

Figure 3. Comparison of units of special lessons in selected countries

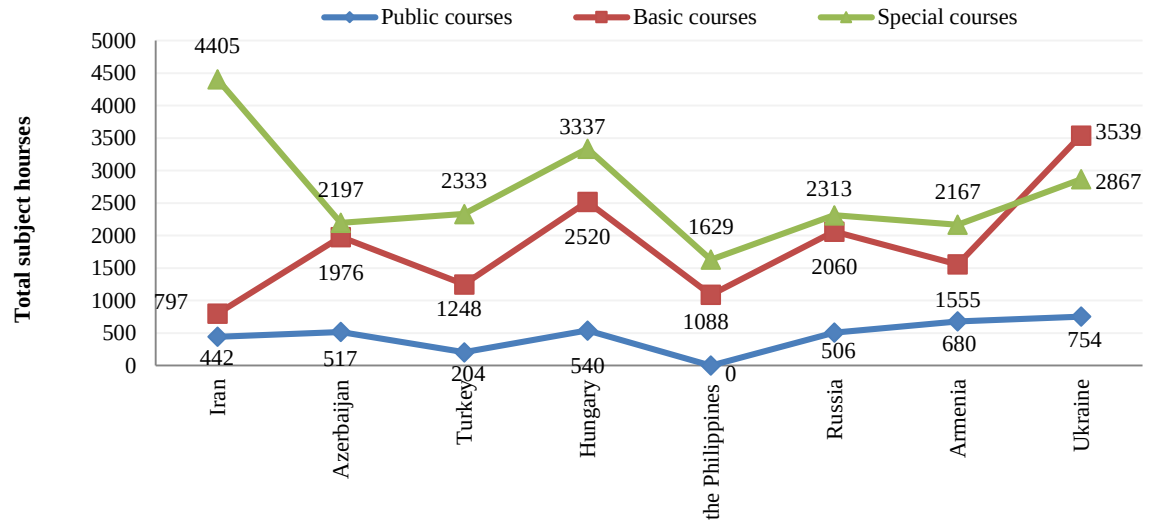

Figure 4. Comparison of total subject hours in selected countries

In all studied countries type of curriculums is course-oriented system. Although the tendency towards research-oriented courses is increasing among PhD students worldwide, the shortcomings of this model should not be neglected; for example, training graduates rapidly with limited abilities and low job access, poor basic knowledge, lack of appropriate foundations for having PhD programs, and lack of constructive communication between industry and university. Such defects and related complications are more common or feasible in Iran compared with other countries (4,5).

Given the integration of the world in globalization phenomena, it is possible to minimize the differences in the quality of dental schools, academic dental institutions, and trained educators between the developing and developed countries (3).

There are differences between the models in the years of study, and hours and types of offered courses; so, dentists in the Philippines graduate after a 4-year educational period (they have the least total hours (2717) in comparison to other evaluated countries also they have more theorical lessons than practical). In this way in Iran dentist graduate after 6-years and its due to a lot of hours of special lessons (4405). In spite that the educational system in the Philippines and in Iran are both odontology model, but there are big differences in offered courses to dental students. The hours related to special lessons in Iran are more than 2.5 times than the Philippines. Ukraine's universities have the most hours related to general and basic lessons vs special ones and it's because of stomatological concept of their educational systems.

The thesis is the course, which is only offered by Iran's general dentistry curriculum in eight units of course. However, in the selected foreign schools defending the thesis is necessary for graduation from post graduated dentistry not general.

According to our study, it seems the following lessons should be included to the advance standing program:

✓ In part of general lessons: Medical ethics, the principles of law, the Islamic Republic of Iran constitution should be offered to all graduated students.

✓ The specialized lessons should be determined based on the original university; for example, the specialized lessons have been offered to graduated students from Ukraine and Russia dental schools seem sufficient. But for the rest of the universities, practical and theoretical lessons in orthodontist, theoretical lessons in pediatrics, and practical and theoretical lessonsin the diagnosis of mouth diseases are recommended to be added to current advance standing curriculum.

ACKNOWLEDGEMENT

We extend our gratitude to Ms. Haji Hasani for doing the statistical work of this study, also graduated students who helped us collect data with offering their transcripts.

Conflict of interest: None declared.

Financial support: This paper is built upon number 1369 thesis that done in dental faculty of Tabriz University of Medical Sciences

REFERENCES

1. Friedman TL. The world is flat: a brief history of the twenty- first centry.3 rded, 2006, Picador / Farrar, Straus & Giroux, New York, US.

2. Berry J. Globalization and its implication for dentistry. ADA News (2006). [Internet]. [cited Aug 10, 2011]. Available from: www.ada.org/prof/resources/pubs/adanews /adanewasarticle.asp?articleid=1883.

3. Donaldson ME, Gadbury-Amyot CC, Khajotia SS, Nattestad A, Norton NS, Zubiaurre LA, Turner SP. Dental education in a flat world: advocating for increased global collaboration and standardization. J Dent Educ. 2008; 72(4):408-21.

4. Sadeghirad B, Haghdoost AA, FasihiHarandi M, Roholamini A. An evolutionary approach towards Ph.D. Educational system in medical sciences in Iran: a systematic review of educational models in the world's leading universities. Strides in Development of Medical Education 2009;6(1):10-20. (Persian).

5. Haghdoost AA, Sadeghirad B, FasihiHarandi M, Roholamini A. PhD education model in medical fields in Iran and the application of research based curriculum. Hakim Research Journal 2009; 11(4): 8-15. (Persian).

6. Scott J. Dental education in Europe: the challenges of variety. J Dent Educ. 2003 ;67(1):69-78.

7. Bucur MV, Shanley DB, Claffey N. Contents of stomatological curricula in Europe. Eur J Dent Educ. 2006;10(2):61-6.

8. Huang C, Bian Z, Tai B, Fan M, Kwan CY. Dental education in Wuhan, China: challenges and changes. J Dent Educ. 2007;71(2):304-11.

9. Winning T, Needleman I, Rohlin M, Carrassi A, Chadwick B, Eaton K, et al. The first five years: a framework for undergraduate dental education. 2002, 2nded. London: General Dental Council.

10. Graduated Students Assessment System. [Internet]. [updated 2017 Feb 2; cited 2018 Nov 25]. Available from: http://mohed.behdasht.gov.ir/educationservi ceportal.

11. Educational curriculum after 2012. [Internet]. [updated 2017 Feb 2; cited 2018 Nov 25]. Available from: http://dental.sums.ac.ir/vice chancellor /omoreamozesh /undergarduate.html.

12. Offers post graduate courses for Stomatology. [Internet]. [updated 2015; cited 2018 Nov 25]. Available from: http://www.knmu-edu.com.ua/faculty-of stomatology.php.

13. Faculty of stomatology. [Internet]. [updated 2018; cited 2018 Nov 25]. Available from: http://ysmu.am/en/faculty/stomatologiakan.

14. Academic Programs of Dentistry. [Internet]. [updated 2018; cited 2018 Nov 25]. Available from: http://semmelweis.hu/english/faculties/denti stry/academic-programmes-of-dentistry/

15. Dentistry program objectives. [Internet]. [updated 2015; cited 2018 Nov 25]. Available from: https://www.ceu.edu.ph/program-offerings.

16. Students guide. [Internet]. [updated 2017; cited 2018 Nov 25]. Available from: http://www.tip.hacettepe.edu.tr/ekler/pdf/201 6-2017_112.pdf.

17. Azerbaijan Medical University Faculty of Dentistry. [Internet]. [updated 2015; cited 2018 Nov 25]. Available from: http://www.amu.edu.az/en/cafedra/33.

18. PG in medicine. [Internet]. [updated 2018; cited 2018 Nov 25]. Available from: https://recas.ru/en/admission-en/pg-clinical-residency-in-medicine-en.

19. Kravitz AS, Bullock A, Cowpe J, Barnes E. Council of European Dentists: Manual of Dental Practice 2015. 5.1 ed, council of European dentists.

20. Peterson PE. The World Oral Health Report 2003 (Continuous improvement of oral health in the 21 st century - the approach of the WHO Global Oral Health Programme), 1 st ed, Geneve.