The Examination of the Reasons for the Need to Change and Integrate in the Dental Curriculum in Iran and the World

Maryam Safarnavadeh, Samira Ebrahimpour Koumleh, Soudeh Jafari

Introduction

The depth and expanse of public expectations from the field of dental medicine are enhanced and this led to a considerable increase in the demand for dental services during the last quarter of the twentieth century. Some of these demands are intensified by the available social trends, especially the growth of democracy in many parts of the world and today, both states as well as the public demand for accountability as well as a qualitative change in the healthcare services with a greater emphasis on health promotion and disease prevention.

The growth in technology and life sciences has had a fundamental contribution toward meeting this demand. The demand to apply the changes emerges in various forms, such as the Global Meeting of Medical Education. The fields for changing the dental curriculum in the given meeting, which was held in 1993, were introduced as follows: 1) demographic changes including population aging; 2) strong need for emphasis on prevention; 3) continuously increasing costs of health care; 4) Diverting the path of health care under influencing market pressures and commercialization; 5) Information explosions in various fields of medical sciences, including dental. In addition, it has been stated in this declaration: "The duties of dentists in the new world are to promote oral health and prevent the diseases that are associated with them as well as provide primary care." They should relieve the patients compassionately and based on the morality.

In addition, there should be effective managers in health care groups who can take responsibility for the care and support of the patients and community, communicate effectively, be critical thinkers, have the skill to use information, and apply social sciences and behavioral sciences in their work with good results as well as be intrinsically motivated toward lifelong learning.1 Hence, there is a global need for a change in the educational curriculum of general dental science as well as in Iran.2 The idea of "integration" is used in the education system, in general, and in the dental education system, in particular, to meet this aim.3 Integrating the curriculum means connecting and combining the content of the curriculum to provide solidarity to the student's learning experiences.4 The pattern of the integrated curriculum is from an expert and the guidance provided by her/him (medical education and curriculum planning) to optimally organize and successfully integrate the curriculum.5,6

The distinction between educating "basic sciences" and "clinical sciences" had been made by the curriculum, which is based on the tradition that is most dominant in the field of dental education. According to this tradition, the "theoretical" curriculum is preceded by the "practical" curriculum during the time of education to observe the principle of the sequence. At the same time, this tradition of education has an extensive emphasis on "disciplines" and "social issues" that are often neglected. While the realities dominate, the new scientific and social world indicates that they should be coordinated and associated with the
This method was especially useful for documents. The two fundamental features of this method include the separation between theoretical and practical education and to plan one of them (practical) based on the other one (theoretical) as well as the separation between the theoretical and practical courses is done according to the disciplines and branches of science. These two features have emerged based on the decisions of the dental curriculum planners about applying the two types of "communication" that exist between the components of the curriculum content, which have been included based on the order of two features, namely, "vertical communication" and "horizontal communication". It can be stated that the principles of the integrated curriculum have not been practically followed and followed in this plan by examining the current pattern of dental curriculum, which is implemented in Iran and the other features that govern it, such as the separation of basic sciences from each other as well as from the clinical and subject-oriented sciences while disregarding the creation of the discussions between the horizontal and vertical communications. Therefore, it is must use the adequately integrated approaches in the dental curriculum proportional to the Iranian ecosystem to update it by paying attention to the past effects and consequences experienced while applying the communication process into the dental curriculum. This has been attempted in this research to examine the necessity for change and offers integration in the dental curriculum by examining the integrated approaches in the curriculum of the world's reliable universities. This research aimed to identify the reasons for the need to change and integrate the dental curriculum globally as well as in Iran, according to the mentioned literature. It is hoped that if the integrated cases are correctly used in the design of a particular pattern of the dental curriculum, ground-breaking and essential services will be provided to the population of dentists as well as the public.

Materials and Methods

This is a historical research which is considered a qualitative research. In its implementation, it has been tried to study the integration of the dental curriculum with an analytical perspective using available resources and documents. Historical research examines certain issues at a specified time, and the researcher evaluates the integrity of the material to interpret and analyze the information. Given the theoretical nature of the research, the data gathering tool was taking notes through the study of documents. The notes were taken by researchers who were faculty members at School of Dentistry of Shahid Beheshti University of Medical Sciences and Member of Academic Board of Education Department Ministry of Health, Treatment and Training and Ph.D. curriculum. For this purpose, the literature on the integrated curriculum was studied and the documents were used to collect information about the general dental curriculum in Iran and other reputable universities in the world. This review has been limited to a specific time frame: it was limited to examining the status of Iran during the period covering the current program and foreign universities from 2000, which are among the newest examples. In order to access resources, in addition to referring to prestigious universities in Iran (Faculty of Dentistry of Shahid Beheshti University of Medical Sciences, Faculty of Dentistry of Tehran University of Medical Sciences, Faculty of Dentistry of Islamic Azad University, Shahed University, Kerman, Isfahan, and Tabriz Universities of Medical Sciences), the study of scientific and research documents was also carried out using the "Spider’s Web" method. In this method, each source can provide clues from other sources and lead the research to new information. This method was especially used to obtain information about sources outside of Iran. To collect information, a targeted, organized search was used. To access a wide range of scientific texts, Google Scholar and Alta Vista search engines were used. Also, medical databases such as PubMed and MEDLINE were used, and to access bibliographies, databases such as ERIC and RDRB were used. In these databases, keywords such as integration, integrative curriculum, dental school, dental curriculum, higher education, the basics and elements of dentistry syllabus, types of integration, and other related terms were used to search for theoretical literature and research backgrounds since 2000. It was also visited on the website of dental schools to reach the dental curriculum of the reputable universities of the world. Therefore, methods such as document analysis, comparative study, and review of documentation were used during the study. In general, in this method, the initial plan of information is compiled based on the main questions and is being sought in the resources. To analyze the data, the method of theoretical analysis focused on the questionnaire was used. In this method, the data are combined to form a comprehensive and logical answer, and their defensible organization is the basis for determining the validity of the method.

Results

Considering the changes in the field of knowledge and socio-economic changes of societies, the need for revision and changing the curriculum of universities and higher education institutions is even more evident. Such factors are more evident in certain disciplines such as dentistry with greater speed and strength, as in the field of dentistry, the level of services is introduced globally, and because these services have "general" and "quantitative" aspects, the general public is applying for it. Accordingly, the discussion of "global necessities" and "indigenous
necessities” of curriculum change was put on the agenda to provide a "need assessment" for curriculum change and provide the necessary infrastructure for "drawing a favorable situation". Indigenous necessities are derived from the current realities of the current Iranian society and the status of its universities and the “global necessities” of the international experiences of the world's major universities on the revision of dentistry curricula, which are discussed below.

A) Indigenous necessities of dental curriculum modification

In the study of indigenous needs, the need for a change in Iran's dental curriculum was found by studying the existing sources and documentation (Table 1).

B) Global experiences in dental curriculum reform

Global experiences in dental curriculum reform showed that integration in dental education is undoubtedly needed, and most dental schools have switched to academic dentistry in their curriculum. Therefore, integration has been accepted as an essential educational strategy in dental education. The integration is generally divided into horizontal and vertical categories:

A) Horizontal integration: The integration between parallel disciplines is called horizontal integration; however, it has been defined mainly with dental education to define the integration of the basic sciences with each other or the integration of clinical sciences with each other. This kind of integration has already been implemented in about ten percent of the universities in North America (such as Pennsylvania, Maryland, and Ohio) and is considered as one of the fundamental measures in the new reforms plan of most universities around the world.

B) Vertical integration: Integrating the disciplines that are taught in the usual state in different courses. Usually, this kind of integration is defined regarding dental education as the integration of the basic sciences, pre-clinical, and clinical sciences (pre-clinical and clinical sciences into basic sciences, and basic sciences in pre-clinical and clinical sciences).

There may be both horizontal and vertical integration in an educational program. Integrating both, in addition to creating a more understandable meaning on the different concepts, usually increases the effectiveness of the system and this is known to be a critical factor in providing an effective educational program. The experiences of the world’s dental universities, summarized in Table 2.

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Table 1: Indigenous Needs of Oral Health in Iran

|---|---|---|---|---|---|---|

Table 2: Global experiences in the integration of different dentistry curriculum

<table>
<thead>
<tr>
<th>No.</th>
<th>Universities which have completed Integration</th>
<th>Integration issue</th>
<th>Reasons</th>
<th>Type</th>
<th>Compliance with the current status of Iran's current program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Toronto, UK</td>
<td>Basic sciences together (basic science education packages)</td>
<td>1. Raise the student's motivation</td>
<td>Horizontal</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>2</td>
<td>Harvard, Japan</td>
<td>Basic science in clinical sciences</td>
<td>2. Integration of practical courses with theoretical courses</td>
<td>Horizontal</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>3</td>
<td>Baylor Louisiana, Wales</td>
<td>Oral hygiene with public health; creating a unit called dental care</td>
<td>3. Enabling students to do the best and most of the tasks</td>
<td>Vertical</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>4</td>
<td>Ankara Sheffield</td>
<td>Pediatric dentistry emergency department in pediatric dentistry unit</td>
<td>4. Integration of basic sciences and clinical skills and treatment of the first patient</td>
<td>Horizontal</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>5</td>
<td>Connecticut</td>
<td>Dental preventive and pediatric dentistry unit</td>
<td>5. More durable information and more useful</td>
<td>Horizontal</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>6</td>
<td>Germany, Netherlands</td>
<td>Microbiology course with periodontitis</td>
<td>6. Familiarity with systemic diseases and their association with oral and dental diseases</td>
<td>Horizontal</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>7</td>
<td>Pennsylvania Toronto</td>
<td>System organs based on basic medical sciences and clinical communication of topics</td>
<td>7. Rising patient satisfaction level in the community</td>
<td>Vertical</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>8</td>
<td>Virginia Harvard Boston</td>
<td>Oral disease unit, oral pathology and oral &amp;Maxillofacial Surgery</td>
<td>8. Rising efficiency of students in the clinic</td>
<td>Horizontal</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>9</td>
<td>Sweden Switzerland Indonesia</td>
<td>Pre-clinic in the department of pediatric dentistry with pre-Clinic of the restoration &amp; endodontics department</td>
<td>9. Strengthening the disciplined approach and encouraging students to communicate between oral diseases and comprehensive therapy</td>
<td>Vertical</td>
<td>Available in the current program</td>
</tr>
<tr>
<td>10</td>
<td>Sydney Pennsylvania</td>
<td>Research design, advanced &amp; applied critical statistics into dentistry</td>
<td>10. Available but require an overview</td>
<td>Vertical</td>
<td>Available but require an overview</td>
</tr>
</tbody>
</table>
The trends of the changes in the dental curriculum were noted at Iran and colleges from the countries of North America, Europe, Asia, and Australia, especially in the universities of Marquette, Texas, and Connecticut (North America) and then, the reasons for the changes and reforms introduced into the dental curriculum as well as the introduction of the integrated dental curriculum were specified. Many healthcare crises and dissatisfactions of the dental students were the main reasons for introducing changes to the dental curriculum. The findings of this study showed that the following cases are some of the most important reasons for the need to change and integrate the dental curriculum in Iran and the world:

1. **Convoluted**: Extremely busy, unmanageable, inflexible, out-of-the-subject, discrete dental curriculum, and basic science materials are not related to the behavioral and clinical sciences. Meanwhile, the educational system is based on the principle of knowledge preservation rather than providing emphasis on reason, logic, critical thinking, and evidence.

2. **Costs**: The cost of dental education is high and students usually have financial debt and this issue negatively affects their learning. This problem results in a decrease in the occupational ability of the new graduated people and, in spite of the demand and the need of people, engage in primary dental/dental care.

3. **Dissatisfying to consumers (dental students)**: Inactive learning and learning based on memorization leads students to stray far away from being a critical thinker and a permanent learner.

4. **Acquiring the abilities that are approved by the American Dental Education Association (ADEA)**: These abilities include critical thinking, professionalism, communication and interpersonal skills, health promotion, performance and information management, patient care, and creation and maintenance of oral health care.

5. **Scientific discoveries and the integration of knowledge with each other**: The entry of modern and up-to-date sciences including educational and psychological sciences in the dental curriculum seems necessary since behavioral and social sciences help to establish a scientific, spiritual, and humanistic climate in dental education.

6. **The need for evidence-based oral health education**: Professors should present medical strategies based on the evidence and criticize them academically (in practice to students); patient care should be done based on a critique and the evaluation of the best scientific evidence, and should be the focus of patient care in dental education.

7. **The entry of new knowledge in dental education**: The entry of new sciences into the field of dental medicine is a fundamental requirement. These new sciences are from the fields of molecular biology,
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The integration, in addition to creating a more understandable meaning regarding the different concepts, usually increases the effectiveness of the system and this is known to be a key factor in providing an effective educational program. In the traditional educational system, unnecessary repetitions are common. Besides, the different teaching approaches available in the program, sometimes the concepts are not compatible with each other, which creates mental disturbance for the student. Integrating the educational curriculum by avoiding unnecessary repetitions and saving time leads to an increase in the effectiveness of the educational system. In addition, integration provides the possibility of allocating educational resources in a better and more logical method. However, integration helps in reducing fragmented knowledge and effectively increases the probability of transferring the conceptual map of the unit which will enhance the efficiency of students.

Conflict of Interests

None Declared

References

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