



Requirements of Process-Oriented Integration of Soft Skills in Dentistry Basic Science Courses: A Qualitative Study

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Abstract

Introduction: University training for committed and specialized human resources is not provided only through specialized skills training; graduates in any field need high quality soft skills for fulfilling the requirements of the community, so the proper integration of such skills into the curriculum of that profession is essential. Given the significance of soft skills in the success and quality of dentistry and lack of attention to soft skills training in basic sciences courses, the present study aimed to identify the requirements of the process-oriented integration of soft skills training in basic sciences courses of dentistry.

Methods: The present qualitative study employed a semi-structured interviewing technique for data collection. The research population consisted of 39 basic sciences faculty members at Isfahan and Mazandaran Universities of Medical Sciences and education experts selected by a purposive sampling technique. The content analysis method was used to analyze the data.

Results: For the process-oriented integration of soft skills in basic sciences courses, the current study identified four central requirements: providing background conditions (provision of socio-cultural contexts in society; development of educational and evaluation platforms in pre-university courses), providing professionalism (development of professionalism in the doctoral course of basic medical sciences; improvement in the model of faculty members), providing conditions for changing the curriculum (modification of curriculum and objectives in the basic sciences courses in dentistry; development of the attitude and knowledge of basic science faculty members towards soft skills training), and providing conditions for university pedagogy (provision of interactive and communication conditions; benefitting from diverse and appropriate learning activities; development of faculty members' pedagogical abilities).

Conclusion: Medical sciences curriculum planners can integrate the soft skills of dentistry in the basic science courses of the field by providing the conditions for the identified requirements.

Keywords: Skills, Integration, Curriculum, Dentistry

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Introduction

An accountable university considers the development of specialized skills and soft skills together. Today, employers and health leaders have a good understanding of the relationship between soft skills and performance quality and are looking for graduates who have soft skills in addition to specialized skills (1). Soft skills are comprised of a dynamic integration of cognitive and metacognitive skills and interpersonal, intellectual, practical, and moral values (2). Researchers have identified soft skills communication skills, analysis skills, interpersonal skills, positive attitude, work ethics, cultural competence, time management, teamwork and participation, humility and politeness, flexibility, professionalism, responsibility, critical thinking, problem-solving and identified decision-making, good judgment, trust and confidence, critique management, flexibility, initiative and creativity, and leadership (3-5). Most studies have reported that medical students have low levels of soft skills (6, 7). Evidence also indicates that university curricula focus more on developing specialized skills and neglect soft skills training to some extent. Two strategies- the embedded or integrated model and the stand-alone model- have been offered for training soft skills at university (8).

Two forms of integration can be considered: content-oriented integration and process-oriented integration. Content-oriented integration focuses on the subject matter, breaking down the content boundaries of science. In contrast, process-oriented integration shows an integrated organization aiming at strengthening process skills such as critical thinking, communication, and problem-solving. Evidence suggests that the dental school curriculum pays some attention to the independent curriculum strategy. Curriculum planners, however, have overlooked the integration strategy in developing soft skills, relying on the stand-alone curriculum model (medical ethics and communication skills) for teaching soft skills. Most researchers believe that the most proper model for developing soft

skills is the embedded or integrated model (9-12), in which no change occurs in the course content, but soft skills are improved through the students' involvement in learning activities. The curriculum approach in this type of integration changes from teaching-oriented to learning-oriented, and learners participate in learning dynamically.

In process-oriented integration, soft skills are developed through educational processes with no change to courses, making this approach more executable and effective than content-oriented integration. Little research has been done on the process-oriented integration of soft skills in university curricula, the significance of dentistry basic sciences for developing soft skills, or the role of process-oriented integration in the development of soft skills in dental students. Therefore, the present study sought to identify and establish the requirements of the process-oriented integration of soft skills in basic sciences courses of dentistry to provide a model appropriate for teaching soft skills.

Methods

The present qualitative study employed a content analysis technique to investigate a statistical population consisting of the faculty members of basic sciences courses in Isfahan and Mazandaran Universities of Medical Sciences and education experts selected through the convenient sampling method. Semi-structured interviewing techniques were used to collect the data. After obtaining informed consent, we conducted face-to-face interviews at times set in the faculty members' offices. The interviewer first explained the research objectives and the list of soft skills of dentistry identified by Valipour Khajeghyasi et al. (13) to the participants; then, the interviews were conducted (Table 1). The interviews started with the researcher asking the main questions and then took on a more structured form based on the participants' answers. Each interview lasted about 25-60 minutes. A chain-referral sampling method was employed during the interviews to access other participants. The interviews were

Table 1: The main soft skills in dentistry

| Component | Soft skills |
|--|--|
| Professional ethics | Conscience at work, responsibility, patients' respect, honesty and truth |
| Cognitive skills | Reasoning and decision-making, high precision, visual thinking |
| Personal characteristics | Stress management, self-confidence, psychological sense |
| Management skills | Time management |
| Artistic skills | Handicrafts |
| Communication and interpersonal skills | Communication (verbal, non-verbal, and listening) Patience |

Resource: Valipour Khajeghyasi (2021)

recorded with the participants' permission to observe ethical principles. They were assured that all information was confidential. Data collection continued until data saturation.

Table 1 shows that to improve the performance quality, the dental profession needs to consider soft skills in six categories: professional ethics (conscience at work, responsibility, patients' respect, honesty and truth), artistic skills (handicrafts), cognitive skills (decision-making ability, high precision, spatial thinking), communication skills (verbal/nonverbal communication, listening, patience), individual characteristics (stress management, self-confidence, psychological sense), and finally management skills (time management) are the most significant soft skills in dentistry.

A content analysis technique based on Krippendorff's opinion (14) was used to qualitatively analyze the data. The text of all interviews was literally recorded, transcribed, and typed to be coded. Each interview transcript was considered a unit of analysis, and data analysis began with repeated reading of all textual data. After obtaining an overview of each interview, we examined the interview transcripts line by line, and meaningful sentences related to each of the research questions were extracted as codes. After coding was completed, the classification of codes began, and similar codes with a common meaning were placed in a category (main category). In the next stage, similar categories were placed in the main category. Then, after consulting with the supervisors, consultants, and two peers who had experience in analyzing qualitative data, we revised the categorization and coding of categories. The revision and main categorization continued until the researchers reached the saturation point.

Strategies adopted to ensure the accuracy and robustness of the study included continuous engagement with the data content and sequential review of data, allocation of sufficient time and long-term participation in the research process, good communication with participants and emphasis on the confidentiality of information, use of data from two groups (faculty members of basic sciences and education experts), supervisor and peer reviews, confirmation of information by participants, and a complete description of the research report for readers.

Ethical Consideration

This study was extracted from a doctoral dissertation in the Faculty of Educational Sciences, University of Isfahan, and it has been approved by the ethics committee of this

university (code: 97/4264).

Results

Thirty-nine faculty members participated in this study, 10 of whom were female and 29 were male. The academic ranks of 12, 21, and 6 participants were professor, associate professor, and assistant professor, respectively. Twenty-five and 14 participants were from Isfahan and Mazandaran Universities of Medical Sciences, respectively. The research results are based on the participants' experiences and perceptions of the four main themes, i.e. "providing background conditions," "providing professionalism," "providing conditions for curriculum change," and "providing university pedagogy."

Subcategories were established in each category, as shown in Table 2.

Providing socio-cultural grounds in society: One of the requirements of soft skills training based on process-oriented integration is to provide social and cultural grounds in society. Participants in this subcategory have three requirements: valuing the teaching profession in society, institutionalizing a culture of respect for human dignity, and being soft skill role models for the community and university officials. One of the requirements for developing soft skills in students is to value the teaching profession in the community. One of the interviewees stated, "*When professors are considered valuable in society, they can develop soft skills in students; thus, the necessary conditions are provided for developing soft skills in the university curriculum*" (P9).

Interviewees also referred to the culture of a society as influential in developing soft skills in universities to institutionalize a culture of respect for human dignity in society. Interviewee No. 15 put it as follows: "*Do you have to respect me as a PhD holder and not the one who is a taxi driver?*" Interviewees in this subcategory also mentioned the role of society and university officials in developing soft skills. They believe that the university officials and individuals at the top of the education system play an essential role model in this regard: "*When university officials are impatient and do not have anger control, then they have not yet realized the concepts of soft skills and do not have these skills*" (P31).

Developing educational and evaluation platforms in the pre-university period: In this subcategory, three requirements were identified: selecting the best for the teaching profession, developing soft skills from the preschool period, and setting criteria for placing the soft skills of the dental profession in the admission of applicants to

Table 2: Themes, categories, and codes related to content analysis findings

| No. | Categories | Subcategories | Codes |
|-----|--|--|--|
| 1 | Providing background conditions | Providing socio-cultural contexts in society | - Institutionalizing the culture of respect for human dignity - Valuing the teaching profession in society - Being a model for the community and university officials in soft skills |
| | | Developing educational and evaluation platforms in pre-university courses | - Selecting the best for the teaching profession (loving and capable teachers) and training competent teachers - Developing soft skills in preschool - Setting criteria for placing the soft skills in dentistry in accepting applicants to this field |
| 2 | Providing professionalism | Developing professionalism in the PhD course in medical basic sciences | - Admitting education-oriented Ph.D. students in the medical basic sciences - Setting criteria for interest in teaching in the admission requirements of Ph.D. students in basic medical sciences - Combining training courses in the curriculum of the Ph.D. of medical basic sciences and training specialists in medical basic sciences as teachers |
| | | Improving the model of faculty members | - Setting criteria for placing the soft skills of applicants in the admission requirements of Ph.D. students in medical basic sciences - Setting criteria for applying the soft skills of applicants in attracting faculty members - Promoting professionalism among faculty members |
| 3 | Providing conditions for curriculum change | Modifying curriculum and objectives in basic sciences courses of dentistry | - Eliminating general courses related to soft skills in the dental curriculum - Incorporating flexibility in basic sciences course topics and reducing their volume - Incorporating the development of soft skills in the educational goals of dentistry basic sciences courses - Determining a clear and codified job description for faculty members to develop soft skills in basic sciences courses |
| | | Developing the attitude and knowledge of basic sciences faculty members regarding soft skills training | - Creating a positive attitude and emphasizing the educational role of faculty members - Promoting knowledge of soft skills components in faculty members |
| 4 | Providing university pedagogy | Providing interactive and communication conditions | - Establishing the appropriate number of students in the classroom - Improving the physical environment and educational equipment |
| | | Benefitting from diverse and appropriate learning activities | - Applying biological experiences in education - Applying the storytelling teaching method - Using art and literature to develop soft skills - Scientific camps - Designing learning tasks and assignments - Using an interactive teaching method - Using active teaching methods and new educational technology |
| | | Developing faculty members' pedagogical abilities | - Ability of educational psychology - Literary and artistic ability (Rumi, Sa'adi, Hafez, etc.) - Ability to teach cognitive skills - Ability to use active teaching methods and new technology |

this field. Interviewees referred to selecting the best for the teaching profession. They believed that soft skills training was done by selecting the best for the teaching profession and training capable teachers for pre-university education, and the necessary platforms for developing soft skills at the university level are provided: “*Soft skills should start from primary school. We can complete these at the university*” (P32). The criterion of placing the soft skills of the dental profession in the admission of applicants to enter this field was another requirement mentioned by the participants. They believed that clinical disciplines, such as medicine and dentistry, were concerned with the health of individuals and that it was necessary to select competent

and ethical individuals in these professions: “*In clinical disciplines, the soft skills required for that discipline should be evaluated separately from the grade they obtained in the entrance examination*” (P27).

Developing professionalism in the PhD program of basic medical sciences: In this subcategory, three requirements were identified: selecting PhD students interested in the teaching profession in the basic sciences course, admitting education-oriented PhD students to the medical basic sciences course, and integrating training courses in the curriculum of the PhD program in medical basic sciences and training specialists in medical basic sciences as teachers. Interviewees considered the lack of attention to training

medical basic sciences professionals as professors to be one of the main challenges of soft skills training. They stated that the requirements for integrating process-oriented soft skills in basic sciences courses are to train medical basic sciences specialists as teachers and to include education units in the doctoral course in medical basic sciences: *"A professor must be the one who can teach soft skills. It is essential that he/she likes this profession"* (P4). *"Educational systems have not paid attention to teaching educational skills. I spent four or five years studying for a PhD in physiology and two years before that for a master's program. The university did not teach these skills"* (P28). Interviewees also pointed out that to integrate the soft skills process-oriented approach, admissions for PhD students in basic sciences should be done with an education-oriented approach: *"There are also problems with the methods in which PhD students are trained. We have to take the direction leading to two types of PhD students from the beginning: PhD students to be university lecturers, and those to be trained for external institutions"* (P35).

Improving the role model of faculty members: In this subcategory, three requirements were identified: setting criteria for soft skills of applicants for admission to the PhD program in medical basic sciences, setting criteria for the applicants' soft skills in attracting faculty members, and promoting professionalism for promoting faculty members. Most interviewees believed that most soft skills were more successfully taught by role model professors: *"A professor is a perfect model from his appearance to his words, his work conscience, his honesty, and his responsibility. I believe that a teacher transfers these qualities in his hidden teaching"* (P20). Another identified requirement is integrating process-oriented soft skills into the curriculum to include soft skills in attracting the faculty members. The interviewees believed that soft skills were given less attention in the faculty selection system. *"This faculty recruitment system cannot evaluate soft skills; none of these soft skills is a criterion in choosing a professor but should be a criterion in the recruitment system"* (P20). Improving the professors' professionalism in promoting faculty members was another requirement that participants mentioned in integrating the process-oriented soft skills in the basic sciences curriculum. Interviewee No. 5, referring to one of the professors who was not promoted due to more focus on educational activities and lack of research activities, stated, *"Education should be valued more than research. A professor who teaches and does not do research*

has been an assistant professor for 21 years and has not been promoted. Why? Therefore, the first requirement for developing soft skills is to value education."

Modification of curriculum and objectives in the basic sciences training course: One of the process-oriented integration conditions of soft skills in basic sciences courses is modifying the curriculum and objectives of the dentistry basic sciences curriculum. This subcategory requires eliminating general soft skills courses in the dental curriculum, including soft skills development in the objectives of dentistry basic sciences courses, assignment of clear and codified job descriptions for faculty members to develop soft skills in basic sciences courses, and flexibility in the syllabuses of basic sciences courses as well as a reduction in their volume.

Most of the interviewees believed that developing soft skills was not one of the educational goals of basic sciences courses. They believed that including soft skills in the educational goals of basic dental sciences courses was a basic requirement for developing them. The voluminous syllabuses of basic sciences courses were also among the challenges most interviewees mentioned: *"The voluminous syllabuses of basic sciences courses prevent us from engaging in soft skills"* (P26). Interviewees further noted the lack of a clear and concise job description for faculty members for soft skills training: *"Job descriptions are not given to faculty members for soft skills training; each professor teaches it based on his/her personality and what he/she has learned from his/her professors"* (P35).

Developing the attitude and knowledge of basic sciences faculty members towards soft skills training: Most interviewees considered changing faculty members' attitudes toward education to be a requirement for integrating process-oriented soft skills in the dentistry basic sciences curriculum. Most faculty members consider specialized skills training as part of the teacher's duties and believe less in the educational role and developing soft skills in students: *"Professors resist teaching these skills"* (P25). *"From a personal viewpoint, soft skills seem to be simple concepts, and it is thought that these skills are not teachable"* (P23). Another major challenge of soft skills training mentioned by the interviewees is that professors have little knowledge of soft skills development: *"Professors have little knowledge of soft skills training. A series of information should be given to us in this field"* (P8). From the interviewees' perspectives, developing the attitude and knowledge of basic sciences faculty members toward soft skills is one

of the basic requirements for integrating process-oriented soft skills into the curriculum.

Providing interactive and communication conditions: In this subcategory, reducing the number of students in basic sciences classes and improving the physical environment and educational equipment were considered necessary. Most interviewees regarded large numbers of students in classrooms as an obstacle to integrating process-oriented soft skills in basic sciences courses. *“Maybe if the number of students was small, soft skills could be introduced, but too many students are attending a course”* (P8). From their perspectives, improving the physical environment and educational equipment is another requirement for developing soft skills. Currently, training classes are not suitable for teaching with the active approaches necessary for developing soft skills: *“First, we must prepare the environment in terms of hardware (space and facilities), and then, soft skills should be taught. The teaching methods we have are the most disadvantaged ones”* (P25).

Benefitting from diverse and appropriate learning activities: As to teaching soft skills, interviewees referred to a variety of educational methods: application of biological experiences in education, storytelling teaching methods, use of art and literature to develop soft skills, science camps, design of learning tasks and assignments, and interactive and active teaching methods. *“Professors can use the students’ artistic abilities, for example, painting and composing poetry, in the classroom. Professors can use all aspects of art”* (P34). *“Some of these soft skills should be taught in non-academic contexts to be a little more effective, for example, in science camps”* (P25). *“I express the ethical issues of their field based on my experience”* (P19).

Developing faculty members’ pedagogical competence: Educational psychology competence, artistic and literary competence, teaching cognitive skills competence, competence to use active teaching methods, and new technology were the requirements that most interviewees considered necessary for integrating process-oriented soft skills in this subcategory. *“Basically, morality is not a kind of direct transmission into a subtle, pleasant, and interesting context like art, because it has more softness”* (P23). *“They did not teach us the methods that psychology has designed for education; they must teach them”* (P19). The interviewees believed that the professors’ mastery and competence of educational pedagogies provided the necessary context for integrating process-oriented soft skills.

Discussion

Four pivotal requirements for the process-oriented integration of soft skills in dentistry basic sciences courses were identified, i.e. providing background conditions, providing professionalism ideology, changing the curriculum, and providing university pedagogy. Providing the conditions for the development of soft skills of dental students is a crucial context. Students learn many soft skills from the environment and behavior of faculty members and university officials. In this regard, we can refer to Ghazali’s “principle of environmental monitoring” (15). Developing soft skills training platforms and their evaluation in pre-university courses may provide the necessary bases for developing soft skills in universities. In this regard, research also indicates a broad consensus on evaluating soft skills in selecting students for healthcare professions (16-18).

Providing professional development with teacher professionalism in the PhD program in basic medical sciences and improving faculty member role models are the requirements for the process-oriented integration of soft skills. In this regard, education experts also consider that the most obvious educational aspect of a teacher is his or her ability to be a role model. From Rumi’s point of view, this method is one of the most effective objectives and practical methods of education (19). Referring to the two types of models, i.e. live and symbolic, Bandura introduced one of the methods of moral education as modeling (15), which is consistent with the current results.

Individuals selected as faculty members must have good morals, inspiring traits and characteristics, good behavior, and good character to properly deal with the important matter of education (20). Therefore, setting criteria for the applicants’ soft skills in attracting faculty members is one of the basic requirements for improving the faculty members’ roles as role models. The criteria for faculty recruitment in Iran include research, education, and belief criteria; however, the characteristics necessary in a faculty member to play a teacher’s role in the faculty recruitment system have been neglected. Therefore, it is essential for faculty members to have three qualifications: cognitive competencies (basics of education, learners’ mental ability, and principles and methods of education), emotional competencies (eagerness to teach and interest in issues and topics of education), and skill competencies (practical abilities and skills in teaching and student assessment methods) (21) in the PhD basic medical sciences curriculum which should be considered formally and informally to

provide the necessary grounds for integrating soft skills in the dentistry basic sciences curriculum.

It is also necessary to provide conditions for change in the curriculum for the process-oriented integration of soft skills. One requirement for changing the curriculum is to develop the attitude and knowledge of medical basic sciences faculty members towards soft skills training. Faculty members seem to have little knowledge about soft skills and training in them. Moreover, as soft skills training is not clearly defined as part of the faculty members' responsibilities, managing this issue in a process-oriented integration of soft skills is very important in basic sciences courses. Hassen et al. (2014) state that faculty members are interested and ready for the process-oriented integration of soft skills into specialized courses but have never paid attention to teaching soft skills related to courses and have no formal knowledge in this field (22). The process-oriented integration of soft skills training requires faculty members who are fully aware of and understand soft skills. Therefore, it is necessary to design a professional development program to modify the faculty members' attitudes and skills (23). To teach soft skills in facing challenges, Murdoch-Eaton et al. (2012) referred to issues such as the lack of understanding of the nature and extent of soft skills and lack of experience or self-confidence for teaching these skills by faculty members (24).

Other requirements of the process-oriented integration of soft skills in basic sciences courses of dentistry are the modification of curriculum and the specification of objectives. One such modification is the inclusion of soft skills training in the educational objectives of dentistry basic sciences courses. Accordingly, Brad et al. (2008) state that if general and specific goals are not clearly defined for soft skills training; if no program, activity, or method to achieve those goals are specified; and if there is no system for evaluating and measuring their learning outcomes, the inclusion of soft skills in courses may attain positive results (25). Furthermore, eliminating general courses related to soft skills in the dentistry curriculum, establishing flexibility in dentistry basic sciences courses and reducing their volume, and assigning job descriptions to faculty members are the other requirements for integrating the soft skills process in basic sciences courses. It is necessary to include the input of medical curriculum planners in executive strategies.

By providing university pedagogy, improving communication and interaction conditions in the classroom, using diverse and appropriate learning

activities, and developing the pedagogical abilities of faculty members, the process-oriented integration of soft skills is possible. One way to achieve communication and interaction conditions in basic sciences classrooms is to reduce the number of students in basic sciences classes using one of the two methods: increasing the rate of faculty members per student in the dentistry basic sciences courses, or reducing the number of students admitted to dentistry. Murdoch-Eaton et al. (2012) identified class size as one of the key points in soft skills development. Smaller class size also provides interaction in dentistry basic sciences courses by changing traditional and less effective structures to dynamic and active ones.

Applying active teaching methods is another requirement of process-oriented integration of soft skills in dentistry basic sciences courses. Ghazali's principles in moral education called the "principle of activity" can be mentioned in this regard; this principle states that the learner must be actively involved in the process of moral education (15). Awada (2014) reported that the active learning approach and students' involvement in the learning process helped them acquire communication, critical thinking, lifelong learning, and teamwork skills. These results are consistent with the findings of the current study (26). Modifying the curriculum from a teaching-oriented to a learning-oriented approach (project-based learning, flipped classroom, cooperative learning) is essential for soft skills training (27-30). Domask (2007) argued that a lecture-based approach alone could not guide the students into the world around them. It is necessary to create a variety of learning opportunities.

Storytelling is another diverse and suitable learning activity for integrating process-oriented soft skills in dentistry basic sciences courses. The Qur'an and most Islamic scholars such as Rumi, Avicenna, and Shaikh-i-Ishraq employed the storytelling method for education (19). Tamimi et al. (2013) reported that storytelling of clinical experiences affected the students' clinical competencies. They recommended that storytelling of individual experiences should be considered an effective promotion of professional communication. Utilizing art in education is an effective learning activity to develop the students' soft skills (31). Educational philosophers believe that one dimension of education that human societies have always considered is education through art. Art programs lead to intellectual, cognitive, and moral development because they unite reason and emotion, stimulate the imagination, and change the environment (32). One essential function of art and beauty

is moral education and training. Many artists have created works of art solely for moral education (33). The use of literature and cultural heritage (Bustan, Golestan, Masnavi Manavi, etc.) is another appropriate learning activity to develop the students' soft skills. A beautiful and meaningful poem can affect a person's emotions, awaken his dormant conscience, and create and strengthen a particular tendency in him (32). The success and effectiveness of the content of educational messages are multiplied by the literary attractions. Therefore, it is necessary to strengthen the academic capabilities of the basic medical sciences faculty members to provide a platform for integrating the process-oriented soft skills training in the basic sciences courses of dentistry.

The present study also identified the development of pedagogical abilities of faculty members as a primary requirement for the process-oriented integration of soft skills in dentistry basic sciences courses. The main responsibility of teaching soft skills based on process-based integration lies with the faculty members of the medical sciences. Osman et al. (2012) state that faculty members are at the center of soft skills development. Therefore, to integrate the process, it is necessary to increase the pedagogical capabilities of the faculty members in this field, while increasing the faculty members' awareness of the importance of soft skills, because teaching many soft skills empowers the faculty members in applying the science and art of education.

Limitations

One of the limitations of the present study was the wide range of soft skills; therefore, the authors could not examine each soft skill in depth. It is suggested that in future researchers specifically examine the requirements of integrating soft skills in each of the basic sciences courses.

Conclusion

Psychologically, development of the students' soft skills generally follows a linear approach; therefore, the process-oriented integration of soft skills in the basic sciences curriculum of dentistry includes requirements dictated by the society, educational system, Ministry of Health and Medical Education, universities, and classrooms. Providing the requirements identified in this study makes it possible for the process-oriented integration of soft skills into the basic medical sciences curriculum. The advantage of the present study is that the development of soft skills is not considered separately; it is included in the courses of dentistry. Also, soft skills training

starts as a longitudinal theme of basic sciences, includes basic sciences courses (theoretical courses), and is completed in the clinical course. Other strengths of this study are the process-oriented integration, creation of a new attitude in teaching basic sciences, and increase in the attractiveness of this course for students with creative approaches, including the use of art in teaching soft skills.

Authors' Contribution

R.V.KH, M.J.L and MR.N designed the study, then R.V.KH and M.J.L wrote the search strategy and R.V.KH performed the literature search. Data acquisition and Data analysis were done by R.V.KH and then revised by R.V.KH, M.J.L and MR.N finally categorized the articles and prepared the manuscript. All authors contributed to the discussion, read, and approved the manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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