



Perspectives of educational sciences experts and nursing professionals on task-based curriculum components

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Abstract

Background: Task-based curriculum is a new educational approach which is accepted in many medical universities as a suitable teaching and learning method. It is a comprehensive system across various disciplines that emphasizes one set of tasks. The objective of this study was to consider educational and nursing professionals' perspectives on task-based curriculum components in the nursing field.

Methods: This qualitative study follows a phenomenological approach and was conducted in the summer of 2018 with 12 educational experts and nursing professionals through purposeful sampling up to saturation of the data; confidentiality of information was observed; and participants could leave the study at any time. The method used for data collection was conducted through in-depth and semi-structured interviews. Data was analyzed using the seven-levels Colaizzi method.

Results: After analyzing and integrating the main components, six main components were identified and 32 subcomponents were extracted. The main components encompass task-based curriculum features, effective factors of task-based curriculum in designing task-based curriculum, procedures of task-based curriculum, and gaps in procedure of task-based curriculum, required skills in curriculum, and effective forces on designing of curriculum

Conclusion: Results showed that the task-based curriculum approach is an active educational method that requires active student participation. It emphasizes the creation of knowledge by the individual. Individuals learn knowledge and gain skills in clinical settings. With this approach, theory and clinical performance are measured together.

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Introduction

We live in an age where change is considered as one of our century's most defining features and our educational systems should be included accordingly.¹ Higher education is one of greatest systems within society and has a close relationship with society's overall development. It is within curriculum educational systems and is considered as the heart and mirror of college centers objectives. The transfer method of information in medical education has always faced changes and new developments. In addition, learning theories have also changed, often moving toward structure and constructivist (active approach) theories. Today, learning is seen as an active process. One curriculum approach that is closely related to development

and innovation is the task-based learning (TBL) approach. TBL is an educational strategy was introduced by Harden et al.² They defined it as an approach that is a combination of problem-based learning and educational methods from different perspectives and fields. In this approach, students learn how to act in different situations.³

This method teaches skills that are similar to tasks that learners face in real world situations. It is an educational approach that can provide students with extraordinary opportunities and experiences, and with exposures in a real or simulated setting students will achieve learning goals, which is the main objective of TBL. TBL helps students learn to solve their field related problems practically while acquiring new knowledge.⁴ In fact, TBL,

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or learning about tasks (roles), encompasses students' attempts to understand not only the task itself but also the mechanisms that underlay the task. In this method, in addition to learning the task, the results of the task are also very important. TBL is not simple, because doing tasks leads to learning and the student may then feel impelled to move on to the next learning. The learning that is achieved through this method is generalizable to different situations, and the acquired skills are usable in many situations. In other hand, from the perspective of the World Health Organization (WHO), the objective of medical education is to train capable people in knowledge, skills, values, and behaviors to achieve to suitable preventive and therapeutic objectives and improve public health in the society.⁵ Failure of traditional methods to meet society's expectations for graduates of the medical education systems has shown a serious need for improvement in the area of medical education. International medical education institutes and WHO encourage all countries to look at medical education from new perspectives and to pay special attention to its relationship with society's real needs, quality improvement, reduction in costs and justice in providing services.⁶ One of the most important principles to achieving such objectives is to design educational programs such that social values can be preserved while earning professional competencies. Today, many medical education centers regard their medical education programs principally as being able to train graduates so that they may be familiar with human beings in their all biological, mental and social dimensions, acquire knowledge about health priorities and problems, achieve independent and lifelong learning, identify health organizations and have information about the role of each type of health care practitioner, be able to have effective communication with others, understand social participation, exercise a caring role, and be up to date and familiar with advanced methods.⁷ Various approaches are suggested to be able to achieve such objectives, including problem-based learning, community-based learning, interdisciplinary education, student-based education, and interchanges among educational programs in which each of them covers some part of a given objective, although it is not possible to achieve all given objectives.⁸ TBL is an educational strategy which emphasizes learning through doing tasks. In this method, a student learns how to act in various situations. TBL provides an education in skills that, in fact, are similar to the same skills that the learner will experience in the real world.⁹ TBL supports a concentrated and structured style to education and learning and suggests that education in the medical arena can be accomplished more effectively. Use of this educational method could reduce concerns related to the existing disconnect between student learnings in different educational courses of medical fields (from basic to clinical sciences) and help ensure that students will learn more competencies through TBL. In addition, they obtain

experience with situations in medical jobs and the ability to provide valuable services to the community.⁷

In recent decades, the higher education system of our country has reviewed programs of medical education due to technological advances and wide-ranging changes. Since one of the most important tasks of higher education is to train efficient human resource for jobs in different areas of society and since the ultimate goal of all universities is to produce knowledge, to meet community needs and to train experts, medical science education must respond rapidly to changes in the health system and curriculum to meet the increased demand to improve the knowledge base of medical science graduates. TBL is one such approach. As mentioned, TBL is a comprehensive system across different educational and learning disciplines emphasizing one set of tasks that nurses and physicians are faced with in these disciplines. In medical education, TBL sets the tasks of medical team as its basic core. Learning is achieved through students doing tasks in clinical situations.¹⁰ Students learn not only to do a task, but they learn all mechanisms and concepts related to that task.¹¹ This comprehensive system deals with various disciplines in which student is required to gain clinical experiences, skills, and professional competencies and to apply them in different situations and improve general competencies.¹ Today, most authors emphasize a design of blended curriculum and learner-based programs. TBL is a scientific and valid approach for medical education. Therefore, to speed changes and, given the prevailing view of construction, it is necessary for experts to have more emphasis on designing suitable curricula adapted to the situations and conditions of the current time, such as learner-based, rather than content-based curricula and traditional subjects that can lead to the inability of graduates to transfer lessons learned to new skills, jobs, and environments. Curricula in medical education are often criticized due to their lack of ability to adapt to new changes. Therefore, curricula should modified to help train and improve self-directed, independent, and lifetime learning skills.¹² Hence, in this study, the researcher attempted to discover the educational sciences and nursing professors' perspectives related to task-based components in order to design and validate a suitable task-based curriculum model based on our study findings. For this purpose, a phenomenological qualitative research method was used to determine the educational and nursing professors' perspective on TBL components.

Materials and Methods

In our study, we used a phenomenological qualitative research method to examine educational and nursing professors' perspectives. Participants were both female and male. Qualitative research relies on objective-based sampling with researchers selecting the individuals that can best provide information about the issue of interest. According to the research objectives, therefore, the sample

was selected using a purposive sampling method from educational experts and nursing professors at the Tabriz University in 2018; data was saturated at 12 interviews (Table 1). Criteria to select participants in our study were degree (Ph.D.), subject knowledge (writing articles or books related to medical and nursing subjects), having practical experience, and familiarity with curriculum and nursing education problems (Table 2). In this study, a deep semi-structured interview was used to gather data. The main question of this part of our study was: What are your thoughts of TBL components in nursing education? A deep semi-structured interviewing method was used to gather data in which all the questions were open-ended. The interviews begin with a wide, general question and then additional questions are asked using direction and guidance from the responses in order to achieve more description. At the end of each interview, the recorded information and notes are converted to written text. Data is gathered and analyzed simultaneously; this process is continued until the end of the study and data saturation. Data saturation is a criterion in which achieving maximum information related to a phenomenon is considered as the end point. This approach is used in qualitative research to determine sampling sufficiency. The interviews were ended after data saturation and data was analyzed using the Colaizzi method at the final step. To be sure of the validity of the data, we asked participants to review their data and changes were made where indicated (Supplementary file, Table S1).

Since the deep interview method is used to gather data, interviews are conducted exactly and without bias in order to ask sufficient questions. Thus, if another

researcher repeats this process under the same situation and conditions, they should obtain similar answers. Experts were consulted to ask if the final comprehensive description of findings was reflective of their ideas to be sure of data analysis reliability; their improvements (removal or addition of notes) was applied to the final data. The main method to maintain the validity and reliability of data in our study was to record interviews and to confirm final descriptions by participants and experts. It should be noted that since we emphasize confidentiality of the participants' names, names are substituted with letters of the alphabet.

Data was analyzed using the Colaizzi method, which includes: 1) Explanations of participants were studied exactly. To this end, all interviews were recorded and notes were taken. Written interviews were studied several times. 2) The step of extraction of important sentences: in this step, the phrases or sentences related to given phenomena were extracted from interviews (important sentences were underlined). 3) Formulating the known meaning: In this step, the meaning of each sentence was extracted and written in the margin of each interview. Then, such meanings were set as "coded." 4) The step of classifying data: The previous step was repeated for each interview and the extracted meanings were organized and formulated as subject clusters (main themes and subjects). A) These thematic clusters were referred to the primary protocols so their validity could be assessed and confirmed, B) identifying contradictions between and within clusters. Some themes may have not been clustered with similar themes, or they may not be entirely related to other cases. In such cases, we referred to primary protocols and studied the interviews and their meanings in more depth and made decision about their classification. 5) Integrating the results as a comprehensive description: In this step, a comprehensive description was provided based on results and clusters. 6) Providing an explicit statement related to the fundamental structure of the studied phenomena: Finally, a general image was provided through formulating a comprehensive description of the studied phenomena. 7) Final validation of findings: we helped ensure accuracy of the findings through participant review of the results.¹³ The ethical conduct of this study included: informing the participants about the study objectives, providing them with the right to withdraw at any time, keeping their information confidential, including audio files, text, obtaining consent, coordination for the time and place of the interview, and the right to review the results of the study.

Results

Based on review literature, the sentences with special importance are selected, so that, data was analyzed using Colaizzi method. At last, 30 key sentences are selected through considering those sentences and then 6 main components are identified and accordingly, 32 sub-main

Table 1. Population and sample

Question	Population	Sample and sampling method
Identifying the TBL curriculum components	Medical and educational sciences professors	6 educational professors 6 nursing professors Selected using purposive sampling method for semi-structured interviews

Table 2. Frequency of demographic features of participants

Row	Participants	Age	Gender	Education
1	Faculty member	39	Male	Ph.D.
2	Faculty member	38	Male	Ph.D.
3	Faculty member	40	Male	Ph.D.
4	Faculty member	39	Male	Ph.D.
5	Faculty member	40	Male	Ph.D.
6	Faculty member	43	Male	Ph.D.
7	Faculty member	45	Female	Ph.D.
8	Faculty member	40	Female	Ph.D.
9	Faculty member	44	Male	Ph.D.
10	Faculty member	40	Male	Ph.D.
11	Faculty member	43	Male	Ph.D.
12	Faculty member	42	Male	Ph.D.

components are extracted. As seen in Table S1, the most important challenge related to the implementation of task-based learning is the unpredictability of clinical settings. In addition to, interviewees perspective (19 frequency), the best method to implement this approach is clinical setting. Main and sub-themes are provided in Table 3.

Discussion

According to results, the most important features of task-based curriculum components included: Being pragmatic, problem-based, learner-based, task-based, use of knowledge, skill-centered, coordination, changeable, considering individual differences, flexibility, decentralized and situational implementation, comprehensiveness, being specialized, structuralism and experimentalism. One of the advantages of the TBL curriculum is that it combines classical and practical experiences related to job settings which are often ignored in traditional curricula. In a TBL curriculum, however, the linear, static and predetermined features of a traditional curriculum are converted into non-linear, dynamic and fostering characteristics as a result of linking the classroom setting to a real job setting. As a result of such linkage, this curriculum can encompass traditional information resources including codified knowledge, learner, and society.¹¹ Mehrmohammadi¹⁴ specified the theoretical justifications for TBL curriculum as follows: professionalism is not teaching of common technological and professional materials, but interpreting such knowledge within the framework of rules and thought basics provided by Dewey,¹⁵ i.e., pragmatism (being suitable and applicable). Pragmatism should be considered as a main orientation and validity criteria for each learning. On other hand, this idea receives more attention among authors with the advent of structuralism. From a structuralist perspective, suitable knowledge is different from dead knowledge, which can be attributed to John Dewey's philosophy¹² which addresses the fundamental goals of education and training.¹² Suitable knowledge increases the adaptable capacity of learners and helps them to do their tasks more rationally outside of lessons in the classroom.¹⁴ Innes¹⁶ suggested that suitable knowledge is defined as learning and knowledge that is used for problem-solving beyond the classroom, while rote knowledge is only used for related tests on the subject. It is abstract from real world and is constrained to the school or university. Dewey showed that theoretical knowledge (dead, or rote) could not be applied in real situations in a simple fashion, because the process of "applying" is a reflection and assessment of a problem that has arisen from problematic and unstructured situations and has a unique solution without a pre-determined process.¹⁵ In TBL, the curriculum is centered on the problem and task, not on the discipline, or organized and abstract knowledge. Bruner suggested that social problems (real) should be at the center of the curriculum.¹⁷ One of the most important

features of content in TBL is its comprehensive content from curriculum experts' perspective. The content covers the subsequent goals of knowledge, including skills and orientation; that is, it integrates tasks, theory, and learning activities. Flexibility is another feature of TBL that garners the attention of experts. The purpose of flexibility is the ability to change the teaching method based on objectives, content and educational conditions, etc. Because clinical settings have unpredictable features, their curricula should be flexible and we cannot determine a linear and fixed procedure in medical and nursing curricula. Among other TBL components, we can refer to effective factors in such curricula that experts pointed out for two cases including individual and environmental factors. If we define education and training as a tool to provide a growth platform for individuals across different dimensions, we should consider that such growth is not accessible without understanding the nature of individuals, including their individual differences. Altogether, curricula should be planned with regard to environmental conditions. A curriculum that is planned for urban students may not be applicable in rural schools. In addition, theoretical curricula may not be as applicable in medical fields, because medical fields deal with unpredictable clinical settings that any pre-determined curriculum may fail to anticipate. In addition, there can be outbreaks in some regions that may be specific to that area. Therefore, curricula should be planned in accordance with environmental conditions and require decentralized implementation. From experts and professors' perspectives, other effective factors in planning medical and nursing curricula include such TBL components as sociology and psychology, which are specified as determining forces. Curriculum decision-makers are individuals and groups who could make important decisions about curricular elements based on their expertise and skills. The necessity of a flexible curriculum that is compatible with social settings has been recognized from the second half of the 20th century, especially given our world's rapid political, economic and social developments. How to integrate the curriculum decision-makers, teachers, and faculty members' ability to use the flexibility feature of such a curriculum could determine the degree of centralization or decentralization.¹⁴ Medical and nursing curricula should make use of decentralization feature due to changeable clinical conditions. In such settings, curriculum planners, sociologists, psychologists and subject experts should all be used in combination. Another component of TBL is the way in which the educational program should be administered. Learning and teaching methods are the main elements of curricula and they play an obvious role in the educational process. Educational goals are achieved using learning-teaching methods. In teaching-learning methods, some issues should be considered, including how to provide knowledge, changes of orientation of given skills from

professor to student, how a professor communicates with students, how to use facilities in the educational process, the level of student participation in learning process, and how students communicate with each other and their educational environment.¹⁸ In this study, experts and professors pointed to experimental, clinical, simulated, and integrated methods as well as modeling and participatory patterns in which integrated and clinical methods have received much attention. Dynamic and increasing environmental developments have highlighted the necessity of planning to deal with such developments for social institutions, educational institutions in particular. Medical education has experienced more changes in recent decades as one of the most important social institutions that should be considered to improve creativity, capability and comprehensive development of the greater society. Institutions of medical education need to plan strategically, to improve processes, and to examine and adopt suitable methods to be able to retain their dynamism.¹⁷ Historically, integrity is considered a twin of curriculum in both practice and theory areas. Evidence shows that integrated ideas have been provided and integrated curriculum programs and teaching-learning methods have been planned and administered from the beginning of the 20th century when curriculum scope became obvious. Although integrated curricula have been an exclusive focus of primary school curricula in the first decades, higher education courses have also experienced integrated curriculums from about 1940 with some delay. Many discussions from different dimensions have been had about the necessity and logic of integrated methods in curricula. The injection of agility and dynamic features into school curricula and the ability to react rapidly to modern problems can be considered as one of the most important motives in adopting an integrated approach in curriculum. In other hand, 20th century theories related to learning and teaching take more attention to learning processes and required conditions to flexible learning. Creating opportunities for clinical curricula allows the teachers to organize activities in order to facilitate clinical learnings. Clinical settings create opportunities to integrate theoretical and practical materials. Therefore, clinical educational methods have received most of the emphasis. However, the last extracted component from nursing experts and professors' views is existing gaps in TBL curricula in the nursing field, including the unpredictability of clinical settings, the multidimensional nature of tasks, the variety and diversity of diseases, and the ability to assess nursing programs. Literature suggests that there is a particularly deep gap in scientific education in the nursing and midwifery fields and in the clinical performance of students, so that available clinical education do not necessarily empower students to practice clinical skills. Because clinical settings are unpredictable, any linear and predetermined planning to prepare students for real situations tends to result in failure. Argyris and

Schon¹⁹ suggested that learning and professional practice needs a kind of "knowing" which is beyond proof-based science. The situations in which experts practice are often without structure (professional issues are ambiguous structurally). Experts do not use supposed ideas to solve real and professional problems, but they use examined opinions. Applied knowledge is one of the common works of Argyris et al.²⁰ This concentrates on a research method so that its result is knowledge suitable to solve applied problems.²¹ Lyotard²² suggested that creating development in a university setting is an "epistemological development" in which knowledge is assessed based on its suitability and application but not on its power, ability, or accuracy in representation of realities of the world. Knowledge should be implemented and applied in order for its effectiveness to be assessed in today's world. Eraut,²³ pointed out that creating and applying knowledge is very different in professional education. The role of higher education is beyond of that in that it only produces and transfers knowledge. But it should also enhance the capacity of knowledge production in individuals and professional communities. Therefore, the exchange between higher education and professional education must be enhanced.²⁴ Today, universities and their tasks have been criticized by researchers and policy-makers. One of the advantages of a TBL curriculum is to integrate classroom experiences with clinical experiences related to job settings that were often ignored in traditional curricula. In a TBL curriculum, however, the linear, static and predetermined features of this curriculum have been converted into non-linear, dynamic and fostering ones as a result of linking the classroom setting to a real job setting. More suitable patterns for curricula are the ones that involve students in real activities and real settings, not simulated ones. Therefore, it is not necessary for curriculum planners think beyond the real world. The real world, as an integrated situation with multidisciplinary and interdisciplinary positions, is full of problems, projects and challenges¹⁰ (Table 3).

Conclusion

The task-based approach facilitates the full centrality of the curriculum before graduation, creates communication between theory and practice, and provides practical grounds of implementing theoretically-learned materials and practical skills learned in the early years of studying for the following years. It also provides the grounds for student-centered and problem-solving. The task-centered method increases the value of a job following graduation, enables graduates to understand concepts concerning diseases and health, helps resolve conflicts between academic education and reality existing in the workplace, results in the formation of a store of skills and knowledge in continuous education, creates the grounds for understanding on the basis of continuous performance (practice), and updates knowledge and

Table 3. Frequency of General themes, main components, subcomponents, frequency, percentage and the rank of the optimal pattern of task-based curriculum from the viewpoint of education specialists and nursing professionals

Row	Main themes	Subthemes	Frequency	Percentage	Rank
1		Pragmatic	16	5.61	4
2		Problem-based	14	4.91	5
3		Learner-based	12	4.21	7
4		Task-based	9	3.15	9
5		Implementing knowledge	16	5.61	4
6		Skill-based	10	3.50	8
7		Cooperation	4	1.40	13
8	The features of task-based program	Principle of change	6	2.10	11
9		Individual differences	4	1.40	13
10		Flexibility	13	4.56	6
11		Decentralized implementation	10	3.50	8
12		Situational implementation	16	5.61	4
13		Comprehensiveness	4	1.40	13
14		Speciality	9	3.15	9
15		Constructivism and experimentalism	6	2.10	11
16	Factors affecting the task-based program	Personal	4	1.40	13
17		Environmental and family	4	1.40	13
18		Curriculum planning	5	1.75	12
19	Forces affecting the program design	Sociologist	3	1.05	14
20		Psychologist	3	1.05	14
21		Laboratory methods	6	2.10	11
22		Clinical methods	19	6.66	1
23	Implementation methods of this program	Simulation	4	1.40	13
24		Compound methods	14	4.91	5
25		Modeling	8	2.80	10
26		Participatory modeling	8	2.80	10
27	Required skills	Communication skills	17	5.96	3
28		Creative and critical thinking	8	2.80	10
29		Unpredictability of clinical environment	18	6.31	2
30	Gaps of implementing task-based program	Being multidimensional and multiple duties	6	2.10	11
31		Diversity of illnesses and environment	6	2.10	11
32		Evaluation	4	1.40	13

skills. Therefore, education professionals play a vital role in this field. Consequently, it is necessary that relevant professionals and authorities take steps to design desired and applicable curricula through identifying the gaps that currently exist in the implementation of task-centered curricula. "Curriculum designers do not need to look beyond the real world".¹⁰ The real world is a combination of multidisciplinary and interdisciplinary issues, and is abundant with issues, projects, and challenges. In designing an optimal approach, steps should be taken to address the weaknesses and criticisms of a task-centered approach to help the curriculum designers and planners in the future. Previous mistakes should not be repeated when adopting the approaches of problem- or task-centered curriculum. The principal concern about this approach in medical education programs in Iran is a lack of attention to the research and lack of skills in compiling curricula, overemphasizing theoretical subjects, lack of attention to educational quality, and lack of flexibility in

the curriculum. Disorder and weakness of the quality of texts and educational methods is the result.

Ethical approval

To meet ethical approval, the present experts in the sessions were informed that their interview results were used in a study without mention of their names. In addition to, this paper was confirmed by Marand University with ethical code, No: 1.181152, in 2019.3.2.

Competing interests

The authors declare that there is no conflict of interest.

Authors' contributions

Nursing professionals of Tabriz Medical Science University helped us to complete this paper.

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Supplementary Materials

Supplementary file 1 contains Table S1.

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