The Situational Analysis of Teaching-Learning in Clinical Education: Methodological Development in Medical Education Research

Soleiman Ahmady

Shahid Beheshti University of Medical Sciences

Hamed Khani (✉ hkhani95@sbmu.ac.ir)

Shahid Beheshti University of Medical Sciences

Research Article

Keywords: Research in Education, Teaching & learning, Undergraduate Medical Education, Educational Development, Grounded Theory, Situational Analysis

Posted Date: November 23rd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-1054869/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at BMC Medical Education on July 2nd, 2022. See the published version at <https://doi.org/10.1186/s12909-022-03577-3>.

Abstract

Background

Clinical teaching-learning is a context-bound phenomenon. One of the problems related to research in clinical education is the lack of sufficient attention to coherent and context-appropriate methodologies. The clinical learning environment is inherently an integration of teaching and clinical care, which has made the nature of clinical education complicated and multifaceted. Improving and developing clinical teaching-learning requires not only an explanation of the current situation, but also the development of new research methods is necessary to reconstruct the teaching-learning system and, as a result, clinical education reinforcements.

Methods

in this study, the authors used the situational analysis approach as a postmodern version of grounded theory. Situational analysis is an approach for identifying and describing social worlds and action arenas by using maps to represent complexity. The data of this study were collected focusing on triangulation. Thirty-one participants were involved in the web-based qualitative survey, while seven participants took part in the semi-structured phone interview.

Results

the teaching-learning situation in clinical education on general medicine in Iran was represented in three maps; situational, social worlds/arenas, and positional. In addition, the results showed, clinical education of general medicine in Iran in 6 positions has serious problems and challenges. As a result, recommendations were provided to develop and support effective clinical teaching.

Conclusions

The findings of this research revealed key messages that can be explained using Foucault's discourse. In addition, from the methodological point of view, the present study encourages the use of the situational analysis approach to study complex systems and in order to educational excellence and improvement calls for further methodological development in medical education research.

Background

Clinical education plays an important role in medical education since it provides the opportunity for medical students to learn. The clinical practice is an essential and irreplaceable component and resource in preparing medical students for their professional roles (professional identity) [1]. Clinical education can be considered a set of activities that facilitate learning in the clinical environment, which is to make

measurable changes in the students to perform clinical care. Clinical education provides medical students with an opportunity to develop competency and skillsets to function within dynamic and complex settings. The importance of clinical education has been considered throughout the literature as a vital and essential element for the continuous growth of students [2].

Clinical education is the most important and integral part of medical education and the heart of professional education because it is during this phase of training that what has been learned is put into practice, skills are taught, and the realities of the workplace can be explained to students. Students' learning in the clinical environment is essential for clinical education [3, 4]. This training helps students to link theory to clinical practice [5]. In clinical education, students gain the necessary experience through clinical practices and are provided with opportunities to translate theoretical knowledge into mental, psychomotor, and social skills, which are necessary for patient care [6].

Clinical teaching-learning is a phenomenon that is impacted by the context. The student in this learning environment is immersed in the clinical environment's culture and acquiring knowledge, skills, and problem-solving strategies [7]. Therefore, drawing and explaining this special situation using the situational analysis approach is of particular importance. In addition, developing and improving the quality of teaching-learning in clinical education requires explaining the current situation, identifying the challenges and problems (injuries) and its strengths. In this regard, the results of such research can pave the way for future plans. Therefore, in this study, the teaching-learning system was represented in the clinical education of general medicine in Iran with a focus on its pathology.

Aim Of This Study

Using situational analysis as one of the version of grounded theory, this study aimed at explaining the fundamental components and elements of teaching-learning and identifying the challenges and problems (injuries) that stand in the way of effective teaching-learning in clinical education of general medicine in Iran.

Methods

Research approach

This qualitative study was conducted using the situational analysis approach. Clarke [8], developed situational analysis based on Anselm Strauss's legacy. Although grounded theory and situational analysis are fundamentally rooted in social constructionism and seek to explore the diversity of perspectives and the processual and contingency nature of social life by a relational ecological framework, Clarke [8], has critiqued grounded theory and developed situational analysis that is situation-centered (primarily context-driven). She believes it addresses shortcomings in traditional ground theory such as positivist tendencies, a lack of reflexivity, simplicity rather than addressing differences, and a lack of power analysis. One of the key advantages of situational analysis is that it provides a reliable and

rigorous method for resolving complicated issues in research [9]. Also, situational analysis is rooted in symbolic interactionism and pragmatist philosophy. This approach also has new roots, such as analyses of Foucault's discourse that go beyond "the knowing subject," paying special attention to and explicitly acknowledging non-human actors and analyzing implicated actors and actants. The juxtaposition of these cases has led to the transition to the situation as the center of gravity of the analysis and its perception as an analytical unit [9].

Study Context And Participants

Undergraduate Medical Education (UME) in Iran has two courses that include four stages, pre-clinical course (including two stages of basic sciences and physiopathology/semiology) and clinical training (including two stages of clinical clerkship and internship). The focus of this inquiry is the teaching-learning phenomenon of clinical training.

There are two groups of participants in this study; the first category of humans includes; expert clinical teachers, medical education specialists and students, and the second category of non-human beings such as; documents and analysis of the general medicine curriculum (clinical training). Table (1) shows the human participants and the method of their selection.

Table 1
Participants and their selection methods

Sampling method Participants	Maximum variation sampling	Snowball sampling	Convenience sampling
People from different groups including; expert clinical teachers, medical education specialists and students (web-based qualitative survey)	✓		
Semi-structured telephone interview with specialists and key informants (expert clinical teachers and medical education specialists)		✓	
Related documents, literature and analysis of the general medicine curriculum (clinical training)			✓

In Table (2) the number of participants in the web-based qualitative survey and semi-structured telephone interview for the groups of clinical teachers, medical education specialists, and students is reported separately.

Table 2
Number of human participants in the research

Descriptive statistics Participants	N	The sum of each group	Percentage
Expert clinical teachers in web-based qualitative survey	2	6	15/8
Expert clinical teachers in semi-structured telephone interview	4		
Medical education specialists in web-based qualitative survey	7	10	26/3
Medical education specialists in semi-structured telephone interview	3		
Students in web-based qualitative survey	22	22	57/9
Total	38		100/0

In the web-based qualitative survey, 31 people answered questions and returned them. Also, seven key experts and key informants were interviewed in the semi-structured telephone interview.

Data Collection And Triangulation

The data of this study were collected using a combination of multiple methods and sources. In other words, the data were collected through the methods of documents and literature review, analysis of the general medicine curriculum (clinical training), web-based qualitative survey and semi-structured telephone interview. The data of this study were collected from July 10 to August 16, 2021. Thirty-one participants were involved in the web-based qualitative survey, while seven participants took part in the semi-structured phone interview. All interviews were conducted by the second researcher who is qualified in conducting qualitative interviews. Five participants agreed to have their voices recorded during the semi-structured telephone interviews, and the second researcher transcribed their recordings verbatim. The other two refused to have their voices recorded, so the content of their interviews was noted and transcribed during the interview. An introductory question was asked to establish rapport with the interviewees, followed by five key and main open-ended questions. Because new questions developed during telephone interviews, the semi-structured telephone interview was introduced in this study. However, because these questions were delivered via Porsline (web-based) to many medical education professionals, clinical teachers, and students, and they only responded to those five questions, it was termed the web-based qualitative survey. The five recorded interviews lasted 30 minutes on average (between 15 and 40 minutes), while the two immediately noted and transcribed interviews lasted 45 minutes on average (between 30 and 60 minutes).

Data Analysis (Mapmaking As An Analysis Tool)

In this study, the data analysis process began after the first interview and its transcription. The main strategies of situational analysis are the three maps that researchers perform across the full path of the research project process (from design to report). The first map is a situational map, which analyzes the research situation at a macro level. These maps enable the researcher to articulate the major elements in the situation from their own ontological perspectives. The second map, the social worlds/arenas map, depicts all of the collective actors as well as the arena(s) of commitment in which they are involved in ongoing discourses and negotiations. This map is a meso-level analysis. The third map is the positional map. This map is a micro-level analysis and focuses on the main positions taken and not taken in the data. In general, situational analysis can deeply study research projects individually, collectively, organizationally, temporally, geographically, materially, discursively, culturally, institutionally, visually, symbolically, and historically.

Memos And Memoing

Memoing is an analytical process that ensures the quality of the grounded theory, particularly situational analysis [10]. According to Stern [11], if data are the building blocks of a developing theory, memos are the mortar). In this study, the researcher used theoretical, methodological or operational, and diagrammatic memos to reflect evolutionary analysis of the situation, especially relational analysis on the situational maps. Examples of these are presented in supplementary information file (See supplemental 1, 2, and 3).

Rigor And Trustworthiness

A qualitative inquiry's rigor and trustworthiness are critical components. In fact, if a reader of a study report can audit the data collecting and analysis procedure, the study is likely to be reliable [12]. Lincoln and Guba's criteria were used to increase the trustworthiness of the data in this study [13]. Table (3) presents these criteria and the strategies that guarantee them.

Table 3
Criteria for the trustworthiness of data and them guaranteeing strategies

Criteria	Credibility	Dependability	Confirmability	Transferability
Strategies				
Use of memos and memoing	✓	✓		
Prolonged engagement with data	✓	✓		
Member checking	✓	✓		
Peer checking	✓	✓		
Coding and categorizing of the emerged themes by the researcher, thesis supervisor and a qualitative research expert and reaching a consensus	✓	✓		
Allocating sufficient time to data collection and analysis			✓	
Using the utmost precision in the research process			✓	
Use of audit trail or documentation all stages and procedures of research			✓	
Providing a thick description of the results in the form of discussion about the findings				✓
Validation and quality assessment of data by two medical education specialists and expert clinical teacher				✓
Use of different participants in terms of position				✓

Results (Presenting Maps)

The data of this study, collected through documents and literature review, qualitative survey, interview and analysis of general medicine curriculum (clinical training), analyzed and represented in the form of three maps as follows:

A) Presenting Situational Maps

The fundamental question to be answered in creating the situational maps is: Who and what are in the broader situation?

In this research, the question is: What are the components and elements (human, non-human, material, symbolic and discursive) of the teaching-learning situation in the clinical education of general medicine in Iran?

To answer this question, situational maps were represented in two versions: messy version and ordered version.

Presenting situational map: messy version

According to this map, a situation encompasses all human, nonhuman, material, symbolic, and discursive components and elements and is constructed and represented by the people involved in the situation and the researcher. Figure (1) represents the components and elements of the teaching-learning situation in clinical education of general medicine in Iran.

To represent the messy map of the situation, the researcher asked participants to write down all the components and elements in the situation under study. Also, the researcher wrote down all the components and elements in this situation based on documents and articles. This is precisely what the situational map should be; thus the researcher did not limit himself to providing an organized list and instead invited the participants to think freely, extensively, and with a big picture in mind about the topic under investigation. They were asked to present all the components and elements they have experienced about the situation, no matter how marginal they may seem. This step of situational analysis allowed the researcher to tell stories without removing important aspects of the situation.

Presenting situational map: ordered version

The discourses and themes that emerged in the messy version can be organized and specifically represented using the ordered version of the situational map. Table (4) presents the discourses and themes that emerged in the previous step in an ordered and categorized manner.

Table 4

Ordered situational map: components and elements of the teaching-learning situation in clinical education of general medicine in Iran

Individual human elements/ actors (such as; key individuals and important [unorganized] people in situation, etc.)	Non-human elements actors/ actants (such as; technologies, material infrastructures, specialized information and/ or knowledges, material things, etc.)
<ul style="list-style-type: none"> • Clinical teacher • Student • Patient • Physicians • Nurses • Non-educational staff and personnel • Teaching assistant • peers 	<ul style="list-style-type: none"> • Technology • Physical resources and infrastructures • Specialized visible knowledge and information • Assessment of learning • Simulation • Clinical assessment (clinical Performance) • Learning theories • Curriculum • Portfolio • Educational aid tools and materials • Documentation of students' experiences (logbook) • Learning at the Clinical Skills Center • Invisible knowledge and skills • Visible skills • Information gathering instead of PBL • Students' learning experiences • Teachers' educational experiences
Collective human elements/ actors (such as; particular groups, specific organizations, etc.)	Implicated/ silent actors/ actants (as found in the situation)
<ul style="list-style-type: none"> • Hospital • Student' associations and discourses • Large-group learning • Family • Morning report • Journal club • Clinical rounds 	<ul style="list-style-type: none"> • Patient • Family

Table 4
Continued

Discursive constructions of individual and/ or collective human actors (as found in the situation)	Discursive constructions of non-human actants (as found in the situation)
<ul style="list-style-type: none"> • Patient (only) as subject for teaching-learning • Incompetence of the clinical teacher • Lack of attention to student needs • Lack of motivation in student • Observations vs student participation • Lack of student readiness • Lack of motivation in clinical teacher • Lack of reflection in teaching and learning • Blended learning 	<ul style="list-style-type: none"> • Technology • Simulation • Evidence Based Medicine • Subject-based learning (discipline based) • Task-based learning • Learning at the Clinical Skills Center
Political/ economic elements (such as; the state, local/ regional/ global orders and institutions, political parties, non-governmental organizations [NGOs], politicized issues, etc.)	Sociocultural/ symbolic elements (such as; religion, race, sexuality, gender, ethnicity, nationality, logos, icons, other visual and /or aural symbols, etc.)
<ul style="list-style-type: none"> • Educational policies (in the clinical education) • Expand services and ambulatory and outpatient educational environments • Blended learning 	<ul style="list-style-type: none"> • Gender • Race and ethnicity • Clinical learning environment culture • The culture of educational institution (medical school, etc.) • Role Modeling • Professionalism (Professional Behavior) • Visible skills
Temporal elements (such as; historical, seasonal, crisis, and/or trajectory aspects, etc.)	Spatial elements (such as; spaces in the situation, geographical aspects, local, regional, national, global spatial issues, etc.)

Discursive constructions of individual and/ or collective human actors (as found in the situation)	Discursive constructions of non-human actants (as found in the situation)
<ul style="list-style-type: none"> • Training time • Clinical education • Assessment of learning • Lack of feedback • Invisible knowledge and skills • Clinical placement • Imbalance between roles of teaching and clinical care • Students' learning experiences • Clinical teachers' educational experiences 	<ul style="list-style-type: none"> • Ward • Inpatient educational environment • ambulatory educational environment • outpatient educational environment • Bedside teaching • Educational Climate • Teaching-learning situation • Clinical education • Invisible knowledge and skills • Clinical Skills Learning Center (CSLC) • Clinical placement • Students' learning experiences • Clinical teachers' educational experiences • Experiential learning (workplace learning/ reflection in action) • Inadequate and inefficient supervision • Lack of feedback

Table 4. **Continued**

Major issues/ debates [usually contested] (as found in the situation)	Related discourses (historical, narrative, and/or visual) (such as; normative expectations of actors, actants, and/or other specified elements; mass media and other popular cultural discourses; situation-specific discourses, etc.)
<ul style="list-style-type: none"> • Applying e-learning and online in clinical education • Opportunistic strategy (lack of a systematic program in clinical education) • Imbalance between roles of teaching and clinical care • Information gathering instead of PBL • Patient (only) as subject for teaching-learning 	<ul style="list-style-type: none"> • Learning theories • Subject-based learning (discipline based) • Task-based learning • Experiential learning (workplace learning/ reflection in action) • Students' expectations of clinical teachers • Clinical teacher' expectations of student • Teacher and student-centered education (simultaneously)
Other kinds of elements (as found in the situation)	
<ul style="list-style-type: none"> • Teaching style and method of clinical teacher • Student learning style • Self-study 	

Table (4) shows the components and elements of the teaching-learning situation in clinical education of general medicine in Iran using the ordered version of the situational map in different categories. It should be emphasized that, despite their fixed appearance, these maps are not static and can include a great deal of dynamism and fluidity. When categorized into an ordered map, however, each of the components, elements, discourses, and themes that emerged in the Messy form of the situational map can exist in more than one category, as shown in Table (4). In general, the representation of these components and elements in the ordered version is important to reveal the complex conditions in the situation (here, teaching-learning in clinical education of general medicine in Iran).

Presenting Relational Analysis With Situational Maps

After creating messy and orderly versions of the situational map, the next step is to pose the question based on these maps and the researcher's memos. In fact, in this step, the researcher pondered the situational map and represented important relationships. These relational maps assist the researcher in

deciding which stories and relations to explore as an analyst. In the present study, relational analysis was represented for clinical education (Supplemental 4) as well as teaching-learning in clinical education (Supplemental 5). (See supplementary information file).

B) Presenting Social Worlds/arenas Map

Figure (2) represents the social worlds in arenas of teaching-learning in clinical education of general medicine in Iran.

Teaching-learning in clinical education of general medicine in Iran has arenas and sub-arenas. In fact, arenas such as hospitals, health centers (comprehensive health services), and universities and medical schools can be represented for clinical training in general medicine (see Figure 2). One of the arenas of teaching-learning in clinical education of general medicine in Iran is the hospital, which includes sub-arenas such as; hospital wards (education in inpatient settings and bedside teaching) and ambulatory education (education in the outpatient clinics), the clinical skills learning center. Another arena of teaching-learning in the clinical education of general medicine in Iran is the health centers/ comprehensive health services (which include outpatient education and [to some extent] community-based education). Finally, other arenas of teaching-learning in clinical education of general medicine in Iran are the universities and medical schools (which include the clinical skills learning center and classrooms).

In addition, as shown in schematic Figure (2), different social worlds are identified in the arenas of teaching-learning of clinical education. In the hospital arena and its sub-arenas, there are social worlds such as the clinical teachers and educators' social world, students' social world, hospital physicians' social world (specialist and attending physicians), residents' social world, nurses' social world, the social world of non-educational staff and personnel and simulation and technology world. In the health centers arena (comprehensive health services) and its sub-arenas, there are social worlds such as the clinical teachers and educators' social world, students' social world and family physicians' social world. Finally, there are social worlds in the universities and medical school arenas and their sub-arenas, such as the clinical teachers and educators' social world, students' social world, and simulation and technology world.

C) Presenting Positional Map

The positional map is the final category of map used to chart data. It shows various positions within major discursive issues arising in the data (Figure 3).

The positional map illustrates positions of clinical training of general medicine in Iran with a pathological view (see Figure 3). The vertical axis shows the challenges and problems (injuries) related to the clinical education of general medicine in Iran in 6 positions, including challenges and problems of curriculum

(position 1), challenges and problems related to culture, behavior and attitude in clinical education (position 2), challenges and problems of management and leadership in clinical education (position 3), challenges and problems related to the environment, space and time in clinical education (position 4), challenges and problems of financial and economical in clinical education (position 5) and challenges and problems related to equipment and technology in clinical education (position 6). The horizontal axis also shows the components and elements for developing the effective clinical teaching. Finally, both the vertical and horizontal axes help in the organization of the items on the map, allowing the range of possible places to be explored.

In Supplemental (6) the challenges and problems (injuries) obstacles to effective teaching-learning in clinical education are presented based on six positions (See supplementary material).

Discussion

According to results of this study, when it comes to situational maps, it can be noted that because the data for this study was collected from a variety of sources and methodologies, there were some interesting findings in terms of the components and themes that emerged. Human, non-human, symbolic, and discursive components and elements such as community-based medical education, small groups learning, problem-based learning, attention and focus on learners' needs, systematic approach in clinical education, and others have been considered in the clinical training of general medicine curriculum, while the results of the semi-structured telephone interview and web-based qualitative survey do not indicate this. As a result, there is no alignment or conformance between the planned and intended curriculum, what teachers teach (the delivered curriculum), and what the students learn (the experienced curriculum). In fact, according to research by Kiguli et al. [14], sometimes, what is expected of a curriculum is not reflected in practice.

The data of this study showed that teaching-learning situations in clinical education of general medicine in Iran has arenas such as hospitals, universities and medical schools and health centers (comprehensive health services). The hospital arena includes sub-arenas such as hospital wards (education in inpatient settings and bedside teaching), ambulatory education (education in outpatient clinics), and the clinical skills learning center. Other arenas of teaching-learning in clinical education of general medicine in Iran are the universities and medical schools (which include the clinical skills learning center and classrooms). Health centers (comprehensive health services) are almost like other arenas of teaching-learning, which include outpatient education and [to some extent] community-based education. Although the findings of previous research shows that clinical education has shifted from bedside teaching to classrooms and corridors [15], clinical education in general medicine in Iran remains primarily hospital-based, despite the findings of this study and the identification of three main arenas.

Another finding based on multiple data sources and methods is that the community-based education arena has been considered as one of the arenas of clinical education in general medicine in the curriculum analysis and literature review. Still, the data collected from the interview and qualitative

surveys do not support this. Furthermore, many expert clinical teachers, medical education specialists, and students believe that health centers were originally designed for this purpose. In interviews, several professional clinical teachers and medical education specialists stated that the COVID-19 pandemic gave an outstanding and remarkable chance for general medicine clinical training that would be continuous from hospital to community-based education.

Another finding based on multiple data sources and techniques is that there is a gap between expert clinical teachers and medical education specialists in Iran regarding teaching-learning arenas in general medicine clinical education. According to several medical education specialists. Clinical teachers who teach believe that, despite these arenas being the curriculum's focus, clinical education in general medicine in Iran is primarily hospital-based (inpatient, outpatient and based on clinical skills learning center). This paradox, in general, conveys the notion of the divide between medical education professionals and clinical teachers or the gap between theory and practice.

Furthermore, the social worlds in the arenas of teaching-learning in the clinical education of general medicine in Iran were represented on the second map. In the hospital arena and its sub-arenas, there are social worlds such as the clinical teachers and educators' social world, students' social world, hospital physicians' social world (specialist and attending physicians), residents' social world, nurses' social world, the social world of non-educational staff and personnel and simulation and technology world. There are social worlds in the health centers arena and its sub-arenas, such as the clinical teachers and educators' social world, students' social world, and family physicians' social world. Finally, there are social worlds in the universities and medical school arenas and their sub-arenas, such as the clinical teachers and educators' social world, students' social world, and simulation and technology world.

In reality, in the teaching-learning situation in general medicine clinical education in Iran, some persons and groups have more connection and become closer to each other's social worlds, such as clinical teachers and educators' social worlds and students' social worlds. Also, some of these worlds participate in more than one arena, such as the clinical teachers and educators' social world and students' social world participating in all three arenas of hospitals, universities, medical schools, and health centers. The important point about the social worlds/arenas map is that no patients' social world is represented in the arenas for clinical education. In general medicine clinical education in Iran, patients are only treated as "subjects for teaching-learning." They are not allowed to participate in clinical teaching, curriculum design, or evaluation. In other words, they are present in these arenas, but not as collective actors in education, but as implicated/ silent actors/ actants, as explained by Foucault's discourse, which indicates that the patient's voice is not heard in relation to educational involvement. According to Foucault's book "The Birth of the Clinic," patients are only examined medically in the new era. Therefore, it demands that clinical education be humanistic in both education and service delivery and care.

Another important factor to consider is that, in the hospital arena, providing clinical care takes precedence over teaching because of the presence of hospital physicians' discursive and social worlds (specialist and attending physicians), nurses' discursive and social worlds, residents' discursive and social worlds,

and the social world and discursive of non-educational staff and personnel. This important finding can also be explained by Foucault's discourse; it may be stated that the power of specialists and attendings, residents, and nurses in the hospital arena has dominated education in this context. Thus, this has led to the imbalance between the dual roles of education and clinical care in the clinical education system of general medicine.

Finally, the final map was plotted challenges and problems (injuries) related to clinical education that are obstacles to effective teaching-learning (vertical axis) and components and elements to construct and support effective clinical teaching (horizontal axis), both based on research data.). The challenges and problems that obstruct successful teaching-learning were conceptualized and categorized according to this Biaxial diagram in six positions as (curriculum/ culture, behavior and attitude in clinical education/ management and leadership in clinical education/ environment, space and time in clinical education/ financial and economical in clinical education and/ equipment and technology in clinical education).

Conclusions

The results of this study contained important messages that was explained through Foucault's discourse. Although in this study observation was not used (as one of the important techniques of data collection in situation analysis method) due to the critical conditions caused by the Covid-19 pandemic and the urgent need for social distancing, we attempted to overcome this research problem as much as possible through triangulation and the use of multiple data collection methods, we attempted to overcome this research problem as much as possible through triangulation and the use of multiple data collection methods. Based on the present study results, while considering the horizontal axis of the positional map (components and elements to develop effective clinical teaching), the authors recommend other items to support effective clinical teaching, achieve the goals and outcome of clinical education and preparation competent graduates. These include; monitoring the implementation of the curriculum to increase the alignment and conformity between the planned curriculum and the delivered curriculum and the curriculum experienced by students, developing symbiotic relationships at the macro-level, at the meso-level and at the micro-level, recruiting educational specialists (medical education specialists) to consult individual and collective, and optimizing clinical teachers' educational efforts in medical schools, focusing on systematic training in clinical education, adapting and aligning the student's job description to the learning objectives, developing the attitude of teachers and students towards clinical education as a career pathway, promoting and developing students' autonomy in clinical learning. Finally, from the methodological point of view, the present study promotes the use of the situational analysis approach to study complex systems and encourages medical education researchers to continue to improve methodological development in medical education research.

Declarations

Ethics approval and consent to participate

This article is extracted from the second sub-study of the Ph.D. dissertation of Mr. Hamed Khani from the Department of Medical Education of Shahid Beheshti University of Medical Sciences and has received ethics approval with the number IR.SBMU.SME.REC.1399.097 on 2021-01-13 from the university's ethics committee. In addition, participants were given verbal and written information about the study and its purpose during telephone interviews and a qualitative survey. All the participants were assured that participation in the interviews and qualitative survey was voluntary. Data confidentiality and anonymity of participants were guaranteed both in the qualitative survey (in writing) and in telephone interviews (verbally). The interviewees were informed that their voices would be recorded in telephone interviews (Two participants did not consent to the recording of their voices, so the content of the telephone interview was completely noted during the interview). We also assured the participants of the telephone interviews that their recorded voices would be deleted after the telephone interview transcription. Finally, we requested that the participants read and sign the research informed consent form and that they be presented with the inquiry results if they desired.

Consent for publication

Not applicable.

Availability of data and material

All data generated or analyzed during this study are included in this published article (and its supplementary information file).

Competing interests

The authors declare that they have no conflicts of interest.

Funding

There was no special funding required to undertake this research.

Authors' contributions

HK and SA conceptualized and formulated the research question. SA and HK contributed to the design and methodology of the study. HK analyzed the collected data and represent them in the form of situational maps, social worlds/arenas map and positional map. SA contributed to the critical revision of the manuscript. HK and SA assisted in writing and editing the final report. Finally, all authors read and approved the final manuscript.

Acknowledgements

The authors are grateful to all the participants (clinical teachers, medical education specialists and students) who sincerely cooperated in this research.

Author' information

SA (MD, PhD) is Associate Professor and Head of Department of Medical Education, Virtual School of Medical Education & Management, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Second affiliation, Research Affiliated Faculty at Department of LIME, Karolinska Institute, Sweden. <https://orcid.org/0000-0003-0551-6068>

HK is PhD Candidate in Medical Education, Department of Medical Education, Virtual School of Medical Education & Management, Shahid Beheshti University of Medical Sciences, Tehran, Iran. <https://orcid.org/0000-0002-6636-3395>

References

1. Midgley, K. (2006). Pre-registration student nurses perception of the hospital-learning environment during clinical placements. *Nurse Education Today*, 26(4): 338–45. doi: 10.1016/j.nedt.2005.10.015
2. Pollard, C., Ellis, L., Stringer, E., and Cockayne, D., (2007). Clinical education: a review of the literature. *Nurse Education in Practice* 7 (5), 315–322 <http://dx.doi.org/10.1016/j.nepr.2006.10.001>.
3. Henderson, A. Cooke, M. Creedy, D., K. and Walker, R. (2012). Nursing students' perceptions of learning in practice environments: A review. *Nurse Education Today*, 32(3):299–302. doi: 10.1016/j.nedt.2011.03.010
4. Chan, D., S. and Ip, W., Y. (2007). Perception of hospital learning environment: a survey of Hong Kong nursing students. *Nurse Education Today*, 27(7):677–684. doi: 10.1016/j.nedt.2006.09.015
5. Vallant, S. and Neville, S. (2006). The Relationships between Student Nurse and Nurse Clinician: Impact on Student Learning. *Nursing Praxis New Zealand*; 22(3):23. PMID: 17375485.
6. Bartz, C. and Dean-Baar, S. (2003). Reshaping clinical nursing education: an academic-service partnership. *Journal of Professional Nursing*; 19(4):216–22. doi: 10.1016/s8755-7223(03)00090-5
7. Hoffman, K., Donaldson, J., (2004). Contextual tensions of the clinical environment and their influence on teaching and learning. *Medical Education* 38, 448–454. doi: 10.1046/j.1365-2923.2004.01799.x
8. Clarke AE (2005) *Situational Analysis: Grounded Theory after the Postmodern Turn*. Thousand Oaks: Sage.
9. Clarke, A., E. Friese, C. & Washburn, R. (2015). *Situational Analysis in practice*. Routledge Press.
10. Birks, M. & Mills, J. (2015). *Grounded theory: a practical guide*. 2nd ed. London: SAGE.
11. Stern, P., N. (2007). On solid ground: essential properties for growing grounded theory. In: Bryant A and Charmaz K (eds) *The Sage handbook of grounded theory*. Los Angeles, CA: SAGE, pp. 114–126.
12. Koch, T., (2006). Establishing rigour in qualitative research: the decision trail. *J. Adv. Nurs.* 53, 91e103.
13. LincolnYS,GubaEG. (1985).*Naturalistic inquiry*.Newbury Park, CA:Sage Publications Inc;417p.

14. Kiguli,S.,Baingana,R.,Paina,L.et al. (2011).Situational analysis of teaching and learning of medicine and nursing students at Makerere University College of Health Sciences.BMC Int Health Hum Rights11,S3. doi:10.1186/1472-698X-11-S1-S3
15. LaCombe, MA. (1997). On bedside teaching. Annals of Internal Medicine. 126(3):217–220.

Figures

Figure 1

Messy situational map: components and elements of the teaching-learning situation in clinical education of general medicine in Iran

Figure 2

Social worlds/arenas map: social worlds in arenas of teaching-learning in clinical education of general medicine in Iran

Figure 3

Positional map: Positions of clinical education of general medicine in Iran with a pathological view

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Supplementaryinformationfile.docx](#)