

Factors affecting medical students' hidden and null experiences (Hidden and Null Curriculums)

العوامل التي تؤثر على طلاب الطب: التجارب الخفية و الباطلة. (مناهج خفية و باطلة)



Sara Sabouri¹, Alaeedin Etamad Ahari^{2*}, Badiozaman Maki Ale Agha², Ali Emadzadeh³

¹PhD student, Department of Curriculum, Islamic Azad University, Roudehen Branch, Roudehen, Iran

²Department of Curriculum, Islamic Azad University, Roudehen Branch, Roudehen, Iran

³Department of Medical Education, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

*Islamic Azad University, Roudehen Branch Daneshgah St. Roudehen, 3973188981 Iran

Tel: +98 2176505015-24
Fax: +98 2176507665
Email: ahari@ria.u.ac.ir

Background: Living in a university just through attending the academic environment has always been full of different experiences that play a significant and unseen role in the formation of a formal and predetermined curriculum. The purpose of this study is to narrate the seven-year lived experiences of medical students in Mashhad University of Medical Sciences about the factors constituting the hidden and null forms of their curriculum.

Methods: This research was conducted with the qualitative method of content analysis through 1- Semi-structured personal interview with students of different basic and clinical levels of medicine, 2- Performing two-group interviews (Focus Group) 3- Reviewing and analyzing the content of all medical students' logbooks, the section which is about the expression of experiences, criticisms and suggestions from attending different wards of the hospital and clinical training by using Graneheim and Lundman method in data analysis.

Results: After analyzing individual and group interviews as well as analyzing students' logbooks, 942 initial codes were obtained. The codes were classified in 11 main classes with the following titles: Existence of specific educational plan, content materials and educational resources, master's pattern model, student role, teaching method, assessment method, teaching and learning strategies in the environment, the role of area, location, equipment and infrastructures, teaching time, gender composition and mixing, and the atmosphere governing relationships and the environment.

Conclusion: In this study the factors that formed the hidden and null experiences of medical students were examined. The students expressed their experiences and their role in learning 11 dimensions. This demonstrated that attention by politicians, policy makers, and managers can create an environment full of dynamism and education. **Keywords:** Factors shaping the curriculum, Lived experiences, Hidden curriculum, Null curriculum, Medical faculty

الخلفية والهدف: العيش في بيئة جامعية كان دائماً مليئاً بالعديد من التجارب التي لعبت دوراً مهماً ولكن غير مرئي في تكوين منهج رسمي محدد مسبقاً. الغرض من هذه الدراسة هو تعبير التجربة التي استمرت سبع سنوات لطلاب الطب في جامعة مشهد من العوامل الخفية و المهملة لتشكيل مناهجهم..

المواد والطرق: هذا البحث هو طريقة نوعية لتحليل المحتوى منجز على طرق ثلاث: ١- مقابلات فردية شبه منظمة مع طلاب من مختلف المستويات الأساسية و السريرية للطب ، ٢- إجراء مقابلاتين جماعيتين مركزيتين ٣- مراجعة و تحليل محتوى محاضرات جميع طلاب الطب (السجل). تم طرح تجارب الطلاب و انتقاداتهم و اقتراحاتهم من خلال الحضور إلى المستشفى و الأجنحة السريرية المختلفة و استخدمت طريقة Landman و Granheim في تحليل البيانات .

النتائج: بعد تحليل المقابلات الفردية و الجماعية و تحليل نصوص الطلاب ، تم الحصول على ٩٤٢ رمزاً أولياً في ١١ فئة رئيسية بالعناوين التالية: وجود برنامج تعليمي محدد، مواد المحتوى و الموارد التعليمية ، دور المعلم قديماً، دور الطلاب ، طريقة التدريس ، طرق التقييم، استراتيجيات التدريس و التعلم في البيئة، دور المكان، دور الأبنية و المعدات و الامكانيات الاساسيه، وقت التدريب، الاختلاط بين الجنسين و الجو الذي يحكم العلاقات و البيئة.

الخلاصة: في هذه الدراسة تم فحص العوامل التي شكلت التجارب الخفية و الباطلة لطلاب الطب. عبر الطلاب عن تجاربهم و دورهم في التعلم ١١ بعداً. أظهر هذا أن اهتمام السياسيين و صانعي السياسات و المديرين يمكن أن يخلق بيئة مليئة بالحياة و التعليم.

الكلمات المفتاحية: عوامل تشكيل المنهج ، الخبرات ، المنهج الخفي ، المنهج المهمل ، كلية الطب

عوامل شكل دهنده تجارب پنهان و مغفول دانشجویان دوره پزشکی (روایت مسیبرهای پنهان و مغفول تجارب دانشجویی)

طبی تعلیم کے دوران لاشعوری طور پر حاصل ہونے والے تجربے

زمینه و هدف: زندگی در دانشگاه به صرف حضور در محیط دانشگاهی همواره پر بوده از تجارب بسیاری که در شکل گیری برنامه درسی رسمی و از پیش تعیین و ابلاغ شده نیز نقش پررنگ اما دیده نشده ای داشته است. هدف این پژوهش روایت تجربه زیسته هفت ساله دانشجویان پزشکی دانشگاه علوم پزشکی مشهد از عوامل شکل دهنده پنهان و مغفول برنامه درسی آنهاست.

روش: این پژوهش با روش کیفی تحلیل محتوا شامل ١- مصاحبه فردی نیمه ساختاریافته با دانشجویان مقاطع مختلف پایه و بالینی رشته پزشکی، ٢- اجرای دو مصاحبه گروهی (focus group) ٣ - بررسی و تحلیل محتوای کارنوشت کلیه دانشجویان پزشکی (لاگ بوک) انجام شد. در قسمت بیان تجارب، انتقادات و پیشنهادات از حضور در بخشهای مختلف بیمارستان و آموزش های بالینی، اجرا شده که در تحلیل داده ها از روش گرنهیم و لاندمن استفاده شده است.

یافته ها: پس از تحلیل مصاحبه های انفرادی و گروهی و تحلیل کارنوشت دانشجویان، تعداد ٩٤٢ کد اولیه به دست آمد که در ١١ طبقه اصلی با عناوین: وجود برنامه مشخص آموزشی، مواد محتوا و منابع آموزشی، نقش الگومحوری استاد، نقش دانشجویان، روش تدریس، روش ارزشیابی، راهبردهای یاددهی و یادگیری در محیط، نقش فضا، مکان و تجهیزات و زیرساخت ها، زمان آموزش، ترکیب و اختلاط جنسیتی و جو حاکم بر روابط و محیط طبقه بندی شد.

نتیجه گیری: در این مطالعه به بررسی عوامل شکل دهنده تجارب پنهان و مغفول دانشجویان رشته پزشکی پرداختیم که دانشجویان در ١١ بعد به بیان تجارب خود و نقش آن در آموخته هایشان پرداختند که توجه هدفمند به آنها توسط سیاستمداران، برنامه ریزان و مدیران، می تواند به وجود آورنده محیطی سرشار از پویایی و آموزش باشد.

واژه های کلیدی: عوامل شکل دهنده برنامه درسی، تجارب زیسته، برنامه درسی پنهان، برنامه درسی مغفول، دانشکده پزشکی

بیک گروئنڈ: یونیورسٹی میں تعلیم حاصل کرنا متعدد تجربوں کا سبب بنتا ہے، ان تجربوں میں ایسے لاشعوری تجربے بھی شامل ہیں جو یونیورسٹی کے نصاب کی تشکیل میں اہم رول ادا کرتے ہیں لیکن محسوس نہیں ہوتے۔ اس تحقیق کا هدف یونیورسٹی میں سات برسوں تک زیر تعلیم رہنے والے طلباء کے لاشعوری اور شعوری تجربوں کا جائزہ لینا ہے۔ یہ تحقیق مشہد کی یونیورسٹی آف میڈیکل سائنس میں انجام دی گئی تھی۔

روش: اس تحقیق میں مطالب کے تجزیے، مختلف لیول کے میڈیکل طلباء کے انٹرویو، دو گروپوں کے انٹرویو، نیز میڈیکل طلباء کی لاگ بک کا جائزہ لیا جاتا ہے۔ اس تحقیق میں تجربات، تنقیدیں اور سفارشات بھی پیش کی گئی تھیں جن کا تعلق اسپتال کے مختلف شعبوں سے تھا، اس تحقیق کا ایک اہم حصہ کلینکل ٹریننگ تھا۔ ڈیٹا کا تجزیہ گرنہیم اور لاند مین کی روش پر کیا گیا

نتیجے: فردی اور گروپی انٹرویوز نیز لاگ بک کا جائزہ لینے کے بعد نوسویالیس پرائمری کوڈ حاصل ہوئے، ان کوڈز کو گیارہ اصلی طبقوں میں تقسیم کیا گیا ہے۔ یہ طبقے کچھ اس طرح ہیں، واضح تعلیمی نصاب کا ہونا، تعلیم کے لئے مواد، مآخذ اور منابع کا ہونا، استاد کو اپنا آئیڈیل سمجھنا، خود طلباء کا کردار، تدریسی روش، تجزیاتی روش، یونیورسٹی میں تعلیم دینے اور تعلیم حاصل کرنے کے طریقے، یونیورسٹی کے ماحول کے اثرات، یونیورسٹی میں موجود مشینوں اور انفراسٹرکچر، تعلیم کا وقت، لڑکے اور لڑکیوں کا ایک ساتھ مل کر تعلیم حاصل کرنا، یونیورسٹی اور طلباء کے تعلقات پر حاکم فضا۔ ان اہم فصلوں پرائمری کوڈز کو تقسیم کیا گیا ہے۔

سفرات: اس تحقیق میں ہم نے میڈیکل طلباء کے شعوری اور لاشعوری تجربات کے اسباب کا جائزہ لیا، طلباء نے گیارہ میدانوں میں اپنے تجربوں اور اپنی تعلیم میں ان کے کردار پر روشنی ڈالی۔ ان نکات پر یونیورسٹی کی انتظامیہ کی توجہ سے یونیورسٹی کا تعلیمی ماحول مزید بہتر اور جامع ہوسکتا ہے۔

کلیدی الفاظ: عوامل، اسباب، تشکیل، نصاب تعلیم، شعوری

INTRODUCTION

There are three types of curricula usually considered in the process of designing, producing, and performing formal curricula: Intended, Implemented, and Learned (1). The intended curriculum refers to the goals, desires, policies, content, and methods of teaching-learning and assessment methods which is announced by regulations, guidelines and approved curricula (2) and higher education system and its subset universities are required to implement it. However, the implemented curriculum contains students' experiences and various learning activities in order to achieve the curriculum (3). The learned curriculum is a set of learning process that takes place through implementing the curriculum (4). With a little care the present researchers noted that there is a difference between what is intended and what is eventually learned from one university to another one, one field to another field, and even sometimes from one entry to another entry. Unique differences arising from students' lived experiences become more important when we realize that a set of learning experiences students acquire in the university educational system is not limited to the obvious curriculum, so other important factors such as the hidden and null curriculum play an important role in the formation of their educational and professional experiences too.

The hidden curriculum in the medical educational system has become more and more complicated due to the type of education (basic and clinical), the duration of study, staying in the educational system (7 years), different educational places (classroom, hospital, clinic, and dormitory), the need to attend different environments and experience multiple interpersonal relationships (college, class, hospital, standbys, shifts, communication with professors, classmates, communication with higher students as their supervisors at the beginning of clinical work, and communication with medical staff including nurses communication with patients. The importance of a null curriculum is that it draws the attention of curriculum's decision makers to reflect on what has been removed from an obvious curriculum. In this regard, the dynamics of the curriculum will be maintained and the curriculum is saved from falling into the trap of tradition and habit. On the other hand, with the help of identifying a null curriculum, it is possible to decide on a new curriculum or analyze the current one (5). As a result, it is especially important to pay attention to the lived experiences of medical students as hidden and null factors that shape the curriculum.

Most of the students' learning process and their experiences are the result of their dynamic interaction with culture or a set of communications, relationships, rules and regulations, as well as the prevailing atmosphere in the learning environment which is one of the undeliberate, unintended, and mostly valuable, normative, and attitude-based types of learning and is considered as a part of the hidden curriculum (6).

Due to the role of the hidden curriculum in the field of values and ethics, it is very important to study and pay attention to the hidden curriculum, because in the process of training a physician, in addition to the knowledge and skills being

necessary to be engaged in this profession, attention should be paid to the development of values, attitudes, moral norms, social skills, and other characteristics that shape the human behaviors or professional skills.

The values and principles that students have at the time of entering the university will normally change during their studies at the university. Some research also suggests that unprofessional and unethical behaviors, especially in clinical education, indicate a complex dimension of negative hidden education in the medical curriculum. The multiplicity and complexity of the medicine students require a sense of responsibility, accuracy, and consciousness, since any shortcomings in the training of medical groups will certainly affect the quality and quantity of health services and eventually the health of a society.

According to the mentioned points, it seems that the hidden curriculum is the most powerful way to transfer the values of professionalism in medicine learners; therefore, it is necessary to examine the role of the hidden curriculum and its positive and negative effects through which the hidden components of the curriculum will be recognized, and the null layers of the obvious curriculum will be achieved.

One of the issues compromising the effectiveness of a curriculum is the existence of a gap or lack of an alignment between the intended curriculum as well as the knowledge and skills gained by students and graduates.

Considering the results of other research conducted in the country, it is noted that not only in the pre-diploma courses but in the university courses the mismatch between the intended, implemented, and the learned curriculums is clearly seen (7-9). Since the curriculum development system in our country, even in universities, has a centralized method and at the same time this centralized curriculum design system does not use the optimal and targeted combination of curriculum experts in curriculum development, the curriculum planning and educational evaluation specialists are either null or very insignificant. It is because the key role in designing the curriculum of the fields as well as the contribution of the education are played by the content of the field and the educational orientation specialists. As a result, this approach ignores the factors that shape the curriculum and creates a deep gap between planning and the way of its implementation. Of course, this gap will never be completely filled, but by identifying the factors that shape it, we can take a step in the direction of an educational positive guideline in the field of communication policies.

The inconsistency in the results of these three programs (intended, implemented, and learned) draws the attention of each planning expert to hidden and null programs in the learning environment, programs that result from the lived experiences of students, professors, and those involved in the education system as the previous research has examined and confirmed these points from different dimensions:

In a research, Safarnavadeh and Fathi Vajargah (1387) tried to answer why educational centers do not teach some topics with considering the application aspects of the null curriculum concept through adapting it to specific resources and texts of curriculum and resources related to the medical education (10).

Yamani (1388) suggested the seven areas of professionalism including: Implicit professionalism training, obvious education, professionalism teaching methods, modeling of professors, monitoring, evaluation and systematic monitoring of students and professors in order to improve the situation (11).

Some researchers have also focused on the role of hidden curriculum components (Architecture and quality of the faculty or university building, social and official structure of the faculty or university, the interaction of science committee and students, and the interpersonal relationships of students with staff and with each other) in strengthening students' scientific identity (12).

In a qualitative study, the qualifications needed to train general medicine students for lifelong learning were described: Awareness and attitude towards the dynamics of science and medical knowledge, flexibility against the changes in knowledge and science, being up to date and mastering basic and specialized knowledge, having a positive attitude towards learning, self-learning skills, study skills, creativity and innovation, time management skills, reflection skills on performance, evidence-based medicine skills, communication skills to participate their scientific findings, skills to participate in social networks of medical experts and fluency in English, combined and interprofessional learning skills, basic and clinical science knowledge skills, interprofessional learning skills in the workplace (13).

In a research, Fathi Vajargah and Bozorg demonstrated that the discussion of higher education and the hidden curriculum regardless of the culture series would be an incomplete effort due to the different characteristics that each group of students has due to their presence in that field and internalizing its special features. On the other hand, discussing about the physical environment, space, understanding it, and its impact on humans regardless of norms, values, interests, or in other words, cultural or social emphases including community series will have fewer results. Therefore, since higher education is the basis of the various community series in which everyone has its own culture; it is necessary to interpret the lived experiences of students in identifying the hidden messages derived from this culture (14).

However, the development of professional ethical values of medical students can be influenced by the quality of role models and the experiences they meet during their studies (15), and perhaps nonprofessional performance can be managed by controlling emotions (16).

Therefore, considering the content provided, it should be admitted that several research have been done on the hidden and null curriculum separately. However, a closer look at this issue reveals that attention to research on these issues in different schools of our country has a longer history, and in recent years, more attention has been paid to academic environments. At the same time, these studies are very few in Iran's medical universities and specifically have not been studied at Mashhad University of Medical Sciences in the field of medicine. More important point in conducting this research is a special attention to the hidden and null curriculum as a comprehensive study by understanding the

necessity of conducting such research. In fact, this study aims to answer the question of what the hidden and null factors that shape the curriculum based on the lived experiences of medical students at Mashhad University of Medical Sciences are.

METHODS

This research has been done with qualitative content analysis method and using several sources. The interviewees were randomly selected by snowball method. In addition to being a student or a medical graduate of Mashhad Medical Faculty, the criterion for entering the interview and selecting people was the willingness to participate in the interview along with completing a conscious consent form and cooperation in expressing their lived experiences. The criteria for leaving the interview was being as guest or transfer students and those who do not intend to change their fields.

The tools for achieving the components were open questions in the form of a researcher's framework, semi-structured interviews about the hidden and null curriculum, and the reported text from the students' logbook system. Due to the fact that the research is qualitative, the variable studied in this study was not known from the beginning and it was derived from the text of individual and group interviews as well as the text reported from the content of students' logbooks. The interviews continued until the saturation level was reached. After implementing the concepts in the interviews and reports based on the connection with similar topics, they were classified and categorized and then continued with central and selective coding. If, at any of the coding and analysis stages, the researchers discovered new aspects (variables) which needed to be re-studied, they would return to the data collection stage and continue the interviews and checking reports to reach saturation point. Details of the studied sample are given in detail:

- 1- Semi-structured individual interview with students of different basic and clinical levels of medicine: 8 participants
- 2- Performing two focus group interviews: A group of 9 students from different basic, externship and internship students, a group of seven medical graduates
- 3- Reviewing and analyzing the content of the writings of 984 medical students in the field of expressing their experiences, criticisms and suggestions from attending different wards of the hospital and clinical trainings in the academic year of 1396-97. There were over 1600 reports in the field of experiences. The analysis of the data in the present study was done according to the type of research based on three stages as follows:

In the first stage, which was related to the qualitative part of the research, all the conversations were typed completely after each interview session and a focused group discussion. Then the typed texts were entered into the Max QDA software and the data were managed and coded using this software. In order to interpret and analyze the data entered into the software, qualitative content analysis method was used. In this way, the codes and contents were identified through the systematic classification of data. In data analysis, Grenheim and Landman methods were used, which its steps are given in table 1.

Table 1. Stages of research data analysis based on the Grenheim and Landman model	
Stages	Activity
Starting Point	Implementing conversations and extracting log reports
Stage 1	Reviewing the prepared texts several times
Stage 2	Extracting semantic units from texts
Stage 3	Creating codes based on summarizing semantic codes
Stage 4	Reviewing the codes once more, comparing them with each other, and creating exclusive contents
Stage 5	Comparing sub contents with each other and with the main text in order to create exclusive contents
Stage 6	Independent analysis of texts by two researchers and discussion of content and achieving consensus on contents

Based on this, the obvious and hidden concepts were defined, coded, summarized and classified according to the participants' descriptions, and then the main contents were extracted. The codes were based on semantic units adapted from the participants' descriptions and they were categorized based on similarities and differences. To increase the accuracy and ensure the correctness and strength of the data collected at this stage of the study, four criteria proposed by Lincoln and Goba were used, including acceptability, generalizability, reliability and verifiability. To this end, the researcher tried to provide real data by spending enough time to collect data through proper communication with participants. Participants' review methods were also used to confirm the accuracy of the results and their agreement with the findings. In addition, to ensure the acceptability of the data, the implemented conversations, codes, and results were provided to three other researchers who were experts in the field of subject and methodology in order to obtain additional opinions which had a similar understanding. In order to investigate the similarity that is similar to stability in quantitative research and in fact indicate the stability of data in the same time and situation, the text of individual and group interviews and log reports were given to two persons randomly who were as foreign observers and had no connection with the research. Similar results were obtained. Of course, it should be noted that in qualitative methods, the emphasis is on the exclusivity of experiences and views, and even when all the same conditions are created, we should not expect the similar results completely. In order to ensure the generalizability of this study, efforts were made to select participants with maximum variety in terms of characteristics such as gender, age, year of entry, etc.

RESULTS

The findings of the present study are based on the content analysis of eight semi structured individual interviews with first to seventh year medical students, two group interviews (a group of 9 students from different grades of basic, externship and internship, a seven-member group of medical graduates) and the study and analysis of the content of the transcripts of 984 medical students in the field of expression of experiences, criticisms and suggestions amounted to 1600 statements of experience and comments from attending different wards of the hospital and clinical training which were obtained in the 97-96 academic year.

In data analysis, out of 942 codes, 11 main classes were extracted, each of which has several sub codes in its subset. The following is a description of some participants' experiences in each area:

1) Existence of a specific educational program and its correct implementation:

One of the main issues in the formation of the curriculum from the students' point of view was the existence of a specific curriculum and its proper implementation, which mostly included the null aspect of the curriculum. The experiences of students were as follows:

<Classes are canceled a lot, and they don't think about compensating at all, and they are careless.>

<The planning of the classes is very poor. First, we are taught about patients and disorders and then anatomy!>

<Each topic is taught several times by different professors and there is no specific order.>

<Some groups do not have a clear curriculum for training a general practitioner.">

2) Curriculum's Materials, Content and Reference Resources:

Table 2. Number of sample groups		
Target Group	How to Collect Information	Number
Graduates	Focus Group	7
Basic, Externship and Internship Students	Focus Group	9
	Individual Interview	8
Medical Students Transcripts (Logbook)	Review and Analyze the Content of the Transcript	984

Materials, content and reference resources of the curriculum have always been one of the most important factors in the formation of the curriculum, which is null in various aspects, and ignoring its importance will be toward the detriment of graduates of a university and eventually the society. The students' statements were divided into several subcategories:

- 2-1. Deleting or not teaching the essential content
- 2-2. Using up to date materials, content and resources
- 2-3. Using reference resources and references
- 2-4. Paying attention to the needs of society

For example, students stated:

<Some of the procedures are very useful and sometimes they are even the job of the general practitioner in the project, but there is no place in the curriculum for students to do it under the supervision of professors.>

<Selection of resources is not in line with the upstream resources of the Ministry of Health.>

<The problem with interns when they graduate is that they aren't sent to clinics. Of course, some fields are much better because they go to clinics, but other fields aren't sent there and lots of them first become family doctors and then they are sent to clinics, an environment where they have not received any training on what to do with patients and which drugs to prescribe. I just feel that many things that they are learning here do not match with what they want to use later.>

3) The Role of Professors:

The importance of the role and position of teachers in teaching and learning is not hidden from anyone point of view; however, what adds to its importance is the extent of the hidden influence of teachers in the education system. Students acknowledged the hidden impact of the professor's performance on themselves in two dimensions: 1- Guidance and modeling and 2- Professionalism on bedside and clinic education, each of which covered different dimensions. They are listed in table 3.

<The ethics and behavior of a professor and being on time, even the field taught by him, his specialization and his interest, are really important. Students see his work and his interest and skills. These are all role models for students.>

<The topics professors emphasize on, even from his or her coating, you can get information. These are the things we pay attention to.>

<I often go to one of the professors that I've learned to take a history from him, and I consult with him about patients, while the patient might not belong to that ward at all.>

<We usually learn from professors how to behave in an academic environment.">

"We actually learn from professors how to deal with the patient, not what we just read."

4) Inclusive Role - Student:

Ignoring the hidden role of students, their styles and abilities, their study strategies and their learning styles are issues that seem to have been null in education and requires more special attention. In general, students pointed to the null role of academic self-concept and self-efficacy, their conditions and abilities and limitations in learning, learning style, study strategies, motivation, and progress as factors in the curriculum. The following are examples of students' speeches about some of these issues:

<You talk with some friends and you see they are walking in another world. You set some goals, you come and talk to them to help you achieve some goals, and then you see they are behind you; on one hand they are happy that you are a purposeful person, on the other one, it unconsciously and negatively affects their behavior and makes them unmotivated.>

<Now the students start a semester with the fact that they will study well to get a good mark, since they have come from a small town to a bigger city to have a richer scientific system. But what if they were studying medicine in the same city to become a better doctor?>

Table 3. The Role of the Professor as a Factor in Shaping the Curriculum

Group	Main Codes	Sub codes
The Role of the Professor	Guidance and Modelling	psychological, moral, social and religion personality
		Type of discipline and coating
		Counseling and modeling
		Observance of cultural and social issues
		Performance-based Guidance and learning
		Training in the field
	Professionalism on Bedside and Clinic Education	Guide your future career
		Scientific identity and learning academic behavior
		Ability to make clinical arguments and make the right diagnosis and take timely action
		Contact the health care staff
		Communication with the patient and companions
		Communication with the community and social responsibility

"In the university, if you are only going to pay attention to the lessons, you will grow one-dimensional. It's not a matter of not having time. We were high school students and we thought we wouldn't have much time; however, we entered the university and faced lots of books. So, it is not correct to say we don't have time. If we study for even 24 hours, the books may not finish, but the way you study is more important. No one teaches you the right way to study. For example, one of the professors told us that you have to change the way you study for the purpose you have. This means that the study model is also important. >

5) Teaching method:

The professor's teaching style, attention to students' learning, the importance of time management in the classroom, scientific mastery of the content of the lesson, the power of transferring concepts, the ability to correlation between basic and clinical lessons, managing interactions and behavior in the classroom were the most important concepts mentioned by students. The followings are some examples:

<When the tone of the master's voice is sleepy or unsuitable for teaching, and the teacher, even though he knows and even states that my voice is like that and it cannot be solved, says I can't teach another way, then I may not participate some classes selectively because I don't learn anything. >

<Teaching with a reading approach from the slide or even jumping from this topic to another one is inevitable. Sometimes the master does not say important things in the class and a professor's handout is not readable at all. >

<It's very important that the teacher gives you a general view of a lesson, so he can use different methods like writing something on the board or using a film, or asking questions from students. >

<The fact that the professor himself knows the lessons well is important too. Some professors teach as they have memorized the teaching points. If the professor is a top scientist, a group principal, a science committee, and has some articles, it doesn't matter. It means that the students don't understand any of his words in the class at all. >

<Some professors don't have the ability to communicate with students at all. >

<Clinical education should be in bedside, not in the classroom and in a theory situation; however, everything is usually taught in theory, and even without considering the fact that new methods can be used in education instead of presenting slides. >

6) Method of measurement and Evaluation:

Apart from the hidden role of how to design a question by the professor in determining student's study style, students also noted the null role of skill assessment in comparison to library studies and the use of new assessment methods:

<There is a big difference between the things professors actually teach and the things they ask from. It seems that the questions come from another planet. They say that the questions are clinical but we wonder if they actually taught us these things? They don't teach clinically but they prefer to ask clinically. On the other hand, sometimes they teach clinically but all the questions are multiple choice questions.

Although there are always exceptions, we are talking about things that are common. >

<For instance, one of the professors was taking the exam in a way that they took each student to ER and asked them to take history from a patient while they were observing and giving feedback. This kind of exam is very valuable for us and even though it is an exam we have learnt from a lot. >

<There are some sample questions which some students read and memorize them before the exam. After the exam they declare that some questions have been in the sample questions, so they answer them correctly and they score 19. However, the one who hasn't read the sample questions for any reason might score 14. Therefore, by reading and not reading the sample questions one becomes top student and one weak regardless of how they were scored. Maybe if the questions were different the result would differ. >

<The exams are more from memorizing things than practical contents. >

7) Strategies and Methods of Teaching-Learning:

Science is changing and knowledge is increasing with a staggering speed. One of the most important strategies to be considered for the mass transfer of information to the brain and memory of individuals is to teach them how to learn. This means learners are taught how to learn, how to deal with problems, how to cultivate problem-solving skills. It helps persons' personality grows to the point where they can guide themselves, decide, and judge correctly. Paying attention to this while using new methods of teaching-learning in clinical education with rapid scientific developments and the need to keep pace with new technologies for accurate, correct and up-to-date information transfer becomes inevitable and important. This is the hidden role in the accountability and efficiency of education that has always been the concern of politicians in education system. To the extent Students receive education in an active way and with new and technological methods of teaching-learning and in order to acquire individual, managerial and clinical skills the students noted as follows:

<Right now, our trainings are very patient centered and should go toward health centered training which might seem strange for now, but if they train students in a way that they care about the people's health then our priority will become the patient not the diagnosis or consequences. In many cases there is no disease, but as a doctor we are always trying to cure a disease. However, being a doctor doesn't only mean that but we have narrowed it down only to treatment. >

<Different teaching methods such as case report, using skill lab, and online classes for potential students alongside with clinical training is being strongly null in a way that the professors still want to teach us the way he was taught 40 years ago without considering the fact that nowadays a cellphone can help students within few seconds to be more updated than them. >

8) Space, location, bedding of equipment, resources, infrastructure, and procedures:

For students, paying attention to the required quantitative and qualitative standards of training, equipment and

infrastructure of clinical training, monitoring the training cycle in hospitals and clinics, long work shifts and working hours of medical staff, physician-patient ratio, and even neglecting the space and facilities of students' rest areas in their shifts, all contain an unspoken message that shows the importance of education and students. According to one student:

<Despite the different number of patients in different hospitals, the schedules are fixed. One hospital may have more patients than the other one and the patients also have different diseases.>

<Lack of minimum physiologic needs: Getting interns' room assigned to the interns and replacing it with a small rest room with poor air conditioning and poor hygiene, not letting the interns use the separated bathroom but they have to use the same bathroom which patients also use, non-standard beds with plastic mattresses and not changing the bed sheets. Really, the places allocated to interns and students in hospitals are not worthy for a student.>

9) Training time:

The timing of classes and the layout of the lessons play an important role in the disciplinary behavior of the students and even the importance they attach to the subject. When a student is faced with the interference of class time and rest time, he or she must make a choice and this difficult choice is a kind of disciplinary behavior that determines his or her attendance in the classroom and the delays. Sometimes they even underestimate the importance of a subject in general compared to other subjects. The students' talks and experiences in this regard indicated the following contradictions:

<In a class at 2 o'clock in the afternoon everyone is sleepy and doesn't understand anything. It seems that they only want to harass if they hold a class at that time.>

<Holding the classes at noon hasn't had any effect on our learning but extreme fatigue.>

< At noon, some professors, instead of coming and teaching, prefer to have tea and do not attend the classes on time, but if the student arrives a few seconds late for class because of having lunch or using the self-service, they won't allow him to enter the class or they consider it as a delay, so they cut some points of his final score.>

<I prefer to take the teacher's notes and study them on my own instead of attending a class at the time of my rest, I'm not a robot that can go without food and sleep ...>

10) The role of gender mixing:

In our country's education system, gender segregation is applied during 12 years of general education, and the only point of confrontation between the two sexes while studying is entering the university environment. This can lead to negative conflicts and thoughts about any kind of scientific, correct, and logical relationship between a girl and a boy. What most students experience when they enter university for the first time is answering internally to their WHY questions as well as their BUTs and IFs about this relationship. This becomes even more apparent when the city of study, according to students, has a religious

environment. However, the passing time and being together for seven years as well as the content of the lessons have caused this issue to be faded gradually. Also some students have pointed to more free and easy behavior of their classmates over time:

<Mashhad university is different from other universities, and that's why students have to do some things for their interactions. For example, when a student education committee or a research one is formed, it is not acceptable that it is only for research or education; however, they have a different view of doing these cultural and scientific work than in other universities.>

<The class atmosphere is very awful in most batches. For example, it has become as a problem that students cannot even have a friendly interaction with each other as a classmate and they are afraid when they talk to their classmates about a subject. So, they become anxious to be seen with each other even by another classmate since they might be misunderstood.>

<Working with a person and having the opposite gender in a group for class work or lab work is not well received. Sometimes in a lab, after grouping one boy may leave the group because he is with some girls, and no other group is also volunteered to ask him to join them.>

11) The atmosphere of relationships, classroom, university, hospital, and clinic:

The atmosphere dominated in universities has relatively a stable quality of the educational environment. This is resulted from the efforts, relationships and interactions between the internal groups of the university, officials, professors, staff and students. The final consequence of these interactions is the formation of values, beliefs and social norms of the university system. The interaction between learners and the social environment is also important (17).

Treating the students as worthy people is very important. If learners are treated like robots, it is feared that all their emotions, interests, and attitudes toward education, academia, or any kind of educational environment will be negative and this will create a condition for intellectual stagnation, so the learning won't take place in the true sense of the words (18).

In this study, students have repeatedly mentioned the hidden role of the present atmosphere in attitudes, motivations, their perception of future careers and decisions, competitive learning, discriminatory view, lack of meritocracy, and lack of justice.

<From an educational point of view, both the staggers and the interns are generally considered as a luxury entertainment for professors. Like a punching bag, the professors will relieve their own stress and anger by humiliating them in the ridiculous and non-educational grand rounds.>

<The irrational and dictatorial atmosphere created by some professors and lack of responsibility in some of them cause many problems. Considering all facts, would my opinion as a student about the education, professors, and the future of faculty be correct?>

<Not having justice in doing tasks, but the importance of

personal gain is something we learn very well!>

<There are some students whose parents are the university professors or someone important in the university. Some of the professors treat these students differently. Sometimes in class the professors tell them to send their hello to their parents. This makes others feel bad.>

DISCUSSION

In this study, we discussed the factors that form the hidden and null experiences of students in the field of medicine in 11 different topics about their experiences and the role of these 11 topics in what they have learnt. "Existence of a specific educational program and its correct implementation, curriculum's materials, content and reference resources, the role of the professor, inclusive role – student, teaching method, method of measurement and evaluation, strategies and methods of Teaching-Learning, space, location, bedding of equipment, resources, and infrastructure and procedures, training time, the role of gender mixing, and the atmosphere of relationships, classroom, university, hospital and clinic"

For example, students shared their experiences with the null role of having a specific curriculum and its proper implementation. From Myla's (2010) perspective the curriculum is an open question. According to her, curricula are a set of theoretical and specialized components of knowledge for human progress which should be according to reality (19) (practical components), so the interpretation of materials, content, and reference resources of the curriculum become particularly important because it considers the university as a precious and at the same time vulnerable and fragile commodity that is committed to transferring the best accumulated human knowledge to students (20). The students also spoke about the important and vital role of resources and content in the curriculum and the consequences of neglecting it in the future of community health. On the other hand, the students mentioned the effective role of the teacher as a hidden curriculum. The role of pivotal and professionalism of the professors in numerous researches is seen, Harris and Sass (2011), Bergen Henegouwen (2009), Marzooghi and Amini (2015), Seyed Majidi, Maryam and coworkers (2016), Mosallanejad (2014), Ahmadian (2014), Yamani, Nikoo (2009) (21-27).

The learners have a null role in the formation of the curriculum because the curriculum is always known by its content, resources, and teacher. Paying attention to the students and their individual needs is something that, at best, is vaguely and indefinitely assigned to professors. Students pointed to different learning styles, motivations, their abilities, and their role in self-efficacy in form of experiences. This has been approved in some research such as Parejas (2001), Rahnama and coworkers (2017), Dibaj nia (2005), Amin khandaghi and Rajaie (2013) (28-31).

Teaching methods, learning strategies, and training time on one hand can create a spirit of passivity, frustration, superficiality, and struggle to memorize like parrots and even cheat, and on the other hand, they can cause enthusiasm for learning and creativity and innovation. All these depend on the teachers' teaching style and behavior in the classroom, their scientific mastery of the content of the lesson, the

power of conveying concepts, and managing interactions and classroom behavior (32). In this study, students paid special attention to different aspects of teachers' teaching, as previous researchers such as Alizadeh Nayyeri and Adib (2013), Amini and Coworkers (2012), Sobhani Nejad and coworkers (2014), Taghvaie, Yazdli and coworkers (2013) (Safavi, 1994) (Vogt & Rogakka, 2009) also got the same result (33-38).

Measurement and evaluation method: According to the findings of this study, students pointed to the lack of skill assessment and the use of new assessment methods (39). The results of most studies confirm the role of measurement and evaluation in the hidden curriculum, such as Sobhani nejad and coworkers (2014), Taghvaie, Yazdli and coworkers (2013) (40,41).

Certainly, standardization of educational space, attention to the equipment and infrastructure needed for education, monitoring of the education cycle and patient-physician relationship in clinical settings, and students' welfare facilities play an important role in perceiving and building students' positive or negative mentalities and as a result the formation of a hidden academic curriculum that isn't hidden from students' point of view. The following studies also confirm this: Fathi Vajargah & Bozorg (1391), Strack, Fritz & Deutsch (2004), Noorzadeh & Fathi (2009) (42,43,14).

About the role of gender mixing: Universities and higher education centers of every society represent and reflect the highest thinking and knowledge of that society, and manifest the principles of worldview as well as belief and value system of the society; however, studies show that in universities, especially with different cultural contexts and unfamiliar environment, students face social problems but they constantly adapt to these differences. One of these problems is the relationship between boys and girls at universities. The students also implicitly referred to the harms of these relationships and cited the freer relationships between the sexes as a hidden harm.

It should also be mentioned as the last discussion raised in this research: Most of the students involved in the research focused on the relationships between different educational, clinic settings, and the mentalities that each of these relationships and educational spaces create in them. For a student, it seems that the most tangible experience in a university is the atmosphere in educational and therapeutic spaces, because as a medical student, they spend most of their lives in the heart of these relations and spaces. They closely monitor intra-group and interpersonal relationships between the classmates, professors, and staff. They respond to that to the extent that the poor quality of these relationships makes students bored with the learning process, so it will lead to disruption of their abilities and will create an unfavorable attitude towards the educational processes of the university. Their judgment in this matter shapes their attitudes toward educational justice, discrimination, meritocracy, competition, or even the cultivation of critical thinking or teamwork.

Considering that critical thinkers are pioneers of change in society because they never see the future of their society, it is

to be hoped that efforts to improve or correct the present relations, the atmosphere and the judgments that result from them, play a key role in reducing negative attitudes and creating better experiences in the academic environment.

Research strengths were:

1. The present study has dealt with the hidden and null dimensions of the curriculum at the same time, while the previous research examined only one dimension.
2. No research has been done on this issue in Mashhad University of Medical Sciences.
3. The content analysis approach and the Granheim and Landman's method are powerful methods in collecting and analyzing data.
4. Since the present research is a subset of a more comprehensive research called "Analysis of the hidden and null curriculum in medical sciences in order to design a practical model according to the packs of evaluation and innovation plan" In which the final goal is designing patterns based on transformation and innovation plan, it is one of the main strengths of this research.

The limitations of the research were:

1. Sampling of the research was performed based on the snowball model which is non-random. However, in selecting the prototype, the researcher tried to cover the diversity of

students in terms of year and level of students (basic sciences, internships and graduates).

2. The scope of research does not include all fields of study in Mashhad University of Medical Sciences.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

ACKNOWLEDGEMENT

We would like to thank all the respectable participants who helped us advance this research by providing their valuable experiences.

Financial Support: This article is the first in a series of a PhD thesis at the Islamic Azad University of Roudehen which has been implemented with the ethics code of IR.MUMS.REC.1398.032 at Mashhad University of Medical Sciences.

Conflict of interest: The authors reported there is no conflict of interest in connection with this article.

REFERENCES

1. Shering TY. The Intended and the Taught curriculum in Grade 6 Geography in Bhutan: A curriculum Audit. In the Department of curriculum and Instruction. The University of New RUNSWICK; 1998.
2. Robitaille DF, Schmidt WH, Raizen S, McKnight C, Britton ED, Nicol C. Curriculum Framework for Mathematics and science Canada IEA. Vancouver: Pacific Educational Press; 1993.
3. Schmidt WH, KnightMc CC, Valverde GA, Houang TR, Wiley DE. Many visions, many aims: across national investigation of curricular intentions in school Mathematics. Dordrecht Boston London: Kluwer academic publishers; 1997.
4. Johansson M. Textbooks in mathematics education: a study of textbooks as the potentially implemented curriculum (Internet) [BSc dissertation]. [Luleå]: Luleå tekniska universitet; 2003. (Licentiate thesis / Luleå University of Technology). Available from: <http://urn.kb.se/resolve?urn=urn:nbn:se:itu:di-va-18457>
5. MehrMohammadi M. Curriculum, Perspectives, Approaches and Perspective. Tehran: Samt & Behnashr Publications; 2008. Persian.
6. Alikhani MH, MehrMohammadi M. Investigating the Unintended Consequences of Hidden Curriculum Due to the Social Environment of Isfahan Secondary Schools. Journal of Psychology and Educational Science. 2006;12(4):121-46. Persian.
7. Glatthorn AA, Boschee F, Whitehead BM. Curriculum Leadership: Development and Implementation. ERIC; 2005.
8. Terence SP. Assessing the curriculum. Dangkusay, Boston. Intended-Implemented-VS- Achieved- curriculum. Available from: <http://www.scribd.com/dog/61986229/Intended-VS-Implemented-VS-Achieved-curriculum> (accessed 10 Oct2011)
9. Clarisse AMH. Intended VS. Implemented. VS. Achieved- curriculum. Available from: <https://www.scribd.com/doc/61986229/Intended-vs-Implemented-vs-Achieved-Curriculum> (accessed:2011)
10. SafarNavadeh M, FathiVajargah K. A Passage on the Theoretical and Practical Foundations of Null Curriculum in Medical Education. Medical Education Strategies (Educational Strategies). 2008;1(1):40-47. Persian.
11. Yamani N, Liaghatdar MJ, Changiz T, Adibi P. How Do Medical Students Learn Professionalism During Clinical Education? A Qualitative Study of Faculty Members' and Interns' Experiences. Iranian Journal of Medical Education. 2010; 9 (4) :382-95. Persian.
12. Mojatal Choobaqloo MA, TamjidTash, E. Investigating the role of hidden curriculum components in strengthening students' scientific identity (Case study of Bonab Islamic Azad University). Scientific-Research Quarterly of Educational Psychology. 2012;2(4):52-66. Persian.
13. Mohammadi Mehr M, Maleki H, Nojumi F. Determining Teaching-Learning Process in Curriculum of General Medical Course with Life-Long Learning Approach. Educ Strategy Med Sci. 2014; 7 (3) :181-89. Persian.
14. FathiVajargah K, Bozorg H. Identify hidden curriculum affected by the university's physical environment. Higher educational curriculum studies. 2012;(5): 26-48. Persian.
15. Garg P, Neider D, Madhusudan P, Roth D. Learning invariants using decision trees and implication counterexamples. ACM Sigplan Notices. 2016;51(1): 499-512.
16. Kremer T, Mamede S, Martins MA, Tempski P, van den Broek WW. Investigating the Impact of Emotions on Medical Students' Learning. Health Professions Education. 2019;5(2):111-9.
17. Sanagoo A, Jouybari L, Kazemi M. Opposite-Sex Classmate: Facilitator and Barrier to Learning. Journal of Gorgan Bouyeh Faculty of Nursing & Midwifery. 2010; 7(18): 42-48. Persian.
18. Shakournia A, Motlagh M, Malayeri A, Jahanmardi A. Students' views towards teacher's evaluation, Ahwaz Medical Sciences University. Iranian Journal of Medical Education. 2002; 2:52-53. Persian.
19. Maila MW. Curriculum as open-ended inquiry in higher education. Africa Education Review. 2010;7(2):263-82.
20. Brooks P. Our universities: How bad? How good. The New York Review of Books. University of Chicago Press. 2011; 24:10.

22. Harris DN, Sass TR. Teacher training, teacher quality and student achievement. *Journal of public economics*. 2011;95(7-8):798-812.
23. Bergenhenegouwen G. Hidden curriculum in the university. *Higher Education*. 1987;16(5):535-43.
24. Marzooqi R, Amini M. Identifying the factors that create the implicit academic curriculum with a confirmatory factor analysis method. *Culture Strategy*. 2015;8(31):155-72. Persian.
25. Seyyed Majidi M, Seyyed Majidi SA, Hbibzadeh Bijani F, Khodadadi E, Motalebnejad M. Evaluation of an effective teaching's characteristics from Babol dental faculty postgraduate students' viewpoints. *Biannual J of Med Edu*. 2018; 6 (2):32-38. Persian.
26. Mosalanejad L, Parandavar N, Rezaie E. Students' Experience about the Hidden Curriculum: A Qualitative Study. *JRUMS*. 2014; 13 (2) :111-24. Persian.
27. Ahmadian M, Sobhaninejad M. Survey of Relation between Hidden Curriculum Components and Dimensions of Tendency to Students' Critical Thinking. *TLR*. 2014; 2 (4) :87-112. Persian.
28. Yamani N, Liaqatdar MJ, Changiz T, Adibi P. How do medical students learn professionalism in bedside: A qualitative study of the experiences of professors and externs. *Education in Medical Sciences*. 2010; 9(4):383-96. Persian.
29. Pajares F, Schunk D. The development of academic self-efficacy. *Development of achievement motivation United States*. 2001; 7:1-27.
30. Rahnama A, Alifat, A, Omid M. Attainment the roles and components of the hidden curriculum in the educational self-efficacy of son students from view of the Abdanan city teachers. *Quarterly Journal of Educational Psychology, Tonekabon Branch, Azad University*. 2017;8(1):95-108. Persian.
31. DibajNia P. Comparative investigation of self-concept between the freshman and senior students. *Research in Medicine*. 2005; 29 (3) :231-34. Persian.
32. AminKhandaghi M, Rajaei M. The effect of students' learning style on their preferred teaching style. *Educational Psychology*. 2013;9(28):16-40. Persian.
33. Shabani H. Methods and process of educational skills in teaching. Tehran: Samt publication; 2005. Persian.
34. Alizadeh Niri S, Adib Y. A Study of hidden curriculum dimensions in first-grade female high-school teachers' method of teaching from the students' point of view. *Journal of Education and Evaluation*. 2013(6)23: 55-76. Persian.
35. Amini M, Mehdizade M, Mashallahinejad Z, Alizade M. Survey of relation between the hidden curriculum components and students' scientific spirit. *J Research and Planning in Higher Education*. 2012; (62): 81-103. Persian.
36. Sobhaninejad M, HosseiniYazdi AS. Review of correlation relationships and explanatory contribution of components of hidden curriculum with dimensions of research comprehensive approach of educational sciences students of Tehran public universities. *Knowledge and Research in Educational Sciences-Curriculum Planning*. 2014;11(41):116-24. Persian.
37. Taghvaei Yazdali Z, Rahimi H, Yazdkhasti A. Review of the hidden curriculum of Kashan University of Medical Sciences from the students' point of view. *Journal of Educational Development in Medical Sciences*. 2013; 12(6):14-23. Persian.
38. Safavi A. Methods and process of effective teaching. Tehran: Moaser Publication; 1994. Persian.
39. Vogt F, Rogalla M. Developing adaptive teaching competency through coaching Teach Educ. *Teaching and Teacher Education*. 2009;25(8):1051-60.
40. Noorabadi S, Musapour N, Aliasgari M, HajiHosseinnejad Gh. Evaluation of the quality of interfiled humanity curricula in the Iranian academic system. theory and practice in the curriculum of the second year. 2015;2(4):61-84. Persian.
41. Bahraamipoor M, Kian M, Niknaam Z. Reexamination of the 7th Grade's Social Studies Null Curriculum. *QJOE*. 2017; 33 (3):9-34. Persian.
42. Kian M, MehrMohammadi M. Identifying the null aspects and dimensions of the elementary school art curriculum, teaching and learning research. *Daneshvar Raftar*. 2013;51(20):1-18. Persian.
43. Strack F, Deutsch R. Reflective and impulsive determinants of social behavior. *Personality and social psychology review*. 2004;8(3):220-47.
44. Nowruzzadeh R, FathiVajargah K, Kizuri AH. An analysis of the contents of the chain of transmission of Faradasti and its specific point of view of the conclusion of the policy of the program. *Research and Planning in Higher Education*. 2009;15. Persian.