

Design a Clinical-Based Educational Program in Forum and study its Self-Reflection Consequences in two groups of medical and nursing students

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ABSTRACT

Background: Nowadays paying attention to the development and expansion of skills such as problem solving, critical thinking, and interpersonal, creative and critical skills are important. Choosing the appropriate teaching method is one of the effective factors in students' progress and acquisition of professional skills.

Aim: To design a clinical-based educational program in forum and study its self-reflection consequences in two medical ethics and mental health courses.

Methods: This is a quasi-experimental study that was conducted on two groups of medical students (44 people) with a medical ethics course and nursing students with a mental illness course (35 people). The method of teaching was designed in such a way that the main contents of the lesson were taught by the professors and then, as a supplement to the clinical lessons, divergent questions as a case based learning were asked in the forum. The total questions was evaluated and the score was considered for students' quiz. Each student answered questions individually and then it was possible to view the comments of others for self-reflection in last two specified days. The number of clinical cases was 6-8 cases for 6 to 8 weeks.

The Self-Reflection and Insight Scale (SRIS) standard questionnaire was used for studying self-Reflection in two steps (before and after self-Reflection) with three sub-domains(encourage self-reflection, requiring self-reflection and insight). Data were analyzed by SPSS software and using paired t-test.

Results: Results showed that interactive virtual case based learning was effect to students' self reflection subdomains . The mean of encouragement for self-reflection(21.29 ± 3.21)vs(22.47 ± 2.78),($p=0.01$),need for self-reflection was(19.93 ± 3.08)vs(21.61 ± 3.27), $p=0.0001$. Also insight mean (24.46 ± 3)vs(25.55 ± 3.55), $p=0.01$.all subdomains were statistically significant.

Conclusion: Using new methods of student- based teaching and applying problem-based methods with interactions can provide a basis for self-reflection and developing self-regulation and self-management in students

Key words: Self-relection, Forum, Problem-solving learning, team- based learning

INTRODUCTION

Clinical education facilitate learning activity in clinical environment. In fact, effective clinical education includes training and guidance that is provided by an instructor in the special environment and in situation, with an appropriate training program, while the student takes care of the patient directly. Also students interact with the instructor and the environment and act according to learned concepts in the form educational program¹.

Technological tools are able to remove training from time and place . In fact, classroom content, as it is supposed to be implemented in the class, falls into a web-based interactive system. In this way, students can learn scientific content wherever they are and where they are more appropriate. The using technology in teaching and applying it to learn and evaluate students is a new educational strategy in today's world. Forum is one of those sections that creates an interactive environment, in addition it can be able to simulate a classroom, obviously change the relationship between the teacher and students and develop level of teacher-learner to the level of learner-learner. There are also ask and answers in forums, and students' questions are answered, and wherever there is ambiguity, the professor or other members of the team

respond by consulting to each other. This can synchronize scientific information^{3,2}.

Self-Reflection is also one of the important ways in education which is effective to enhance knowledge and skills in clinical settings⁴. The four-stage of self-reflection model consists of: description, analysis, theorizing, and practice⁵. In this method, one refers to his previous experiences and, according to what is in the current situation, collect information and analysis and receive feedbacks⁶, which is one of the main components of the process of self-reflection and has been interpreted as the heart of medical education. Many students have identified lack of feedback as the cause of inadequate clinical skills learning and introduced the use of this component as a useful tool for learning⁴. Hence giving feedback leads to more motivation in learning so that the individual evaluates his or her performance and modifies it. Also it is active in the learning process⁷. Indeed, self-reflection and self-assessment are both processes that can lead to learn from experience, but their goals are different.

A self-reflection is a process that examines a person's past to explore previous experiences of his value, his discoveries, his insights about himself, his behaviors, one of his values or knowledge, and is usually not a specific

criterion for performance. But self-assessment is a process which studies a person's performance in order to improve it. This process has more significant role in criteria defined for performance and define before asking for an action or before doing it. Also, the strengths, improvement, and insights of these criteria are recorded during this process⁸.

Evidence suggests that learning involves the use of methods that require a person to be involved⁹, and inclusive participation in the learning process is an active learning strategy. Education through the self-reflection is one of the active learning methods¹⁰, along with practices such as problem-based learning, exploratory learning, experiential learning, and competency-based learning that are widely used in education¹⁰. This method comes together with person's activity to enhance ability and professional competence¹¹.

There are many clinical situations in which thinking and critical analysis can identify applied solutions, integrate to past experiences and enhance active learning. Also providing appropriate feedback in this situations enhance professional competencies⁴.

Previous studies have shown positive effects of self-reflection in clinical situations¹². Clinical education is affected by several factors and variables such as educational curriculum, learning lecture and educational environment. The weakness of educational curriculum based on clinical education can ultimately lead to the weakness of the graduates' professional skills and, consequently, to reduce their efficiency¹³. Also, having a proper training program in this regard cause identifying their weaknesses and their strength and as a result identifying opportunities and threats. Ultimately it can cause attempt to achieve a desirable position and superior status¹⁴.

As stated in the introduction above, due to the importance of a clinical education program and new methods of using it, such as forums, this study aimed to design interactive virtual case-based curriculum in forum and examine its self-reflection consequences on students.

METHOD

This is a quasi-experimental study conducted on two groups of medical students with medical ethics course (44 people) and nursing students with a mental illness course (35 people). The research population was Jahrom University of Medical Sciences students. The study was available and the whole class was included in the study. The method of teaching was designed in such a way that, the forum was used as a supplement to the course, clinical cases containing divergent questions were put in certain associations, and the total number of evaluated questions was calculated as students' quiz score. Also it was a motivational factor for responsiveness and participation of all students. Each student answered the questions individually, and then it was possible to view the comments of others for self-reflection in two days after the deadline for responding. The self-reflection and insight scale (SRIS) questionnaire with three domains (encourage self-reflection require self-reflection and insight) was used to measure the effect of self-reflection in two stages (before and after

participation in the forum). This questionnaire asking subjects the extent to which they agree or disagree with 20 statements that examine three subscale (encourage self-reflection, require self-reflection and insight). Each question are scored on a scale of one to five with one equating to "strongly disagree" and five to "strongly agree". Internal reliability reported good ($p > 0.8$). A total score for each domain of the questionnaire is listed as follows:

- Engaging in self-reflection (items 7,12,18,2,15,5) maximum possible score 30.
- Need for self-reflection (items 8,16,1,19,10,13) maximum possible score 30.
- Insight (items 17,14,11,4,9,20,6,3) maximum possible score 40^{15,16}.

The questionnaire was checked on 30 people and the Cronbach's alpha coefficient was calculated for the reliability ($r=0.78$). Also the mean score of students in pretest- post test was analyzed with paired T- test by SPSS software, which indicates the extent self-reflection and it's development. All participants were justified to participate in the study and received the necessary explanations for the intervention. Proposal extracted from the study confirmed by ethical research committee.

RESULTS

Results showed that 47 (55.7%) of students are female and 32(44.30) are male. 44 people were medical and another one nursing. Data from two questionnaires (before and after the study) showed that the mean of encourage to self-reflection index after the study was (22.47 ± 2.78), which was significantly higher than the previous stage with a mean of (21.29 ± 3.21), $p = 0.01$. Also, the mean of requiring self-reflection before and after the study was reported respectively (19.93 ± 3.08) vs (21.61 ± 3.27), $P=0.001$, respectively. In insight scale, the mean was (24.46 ± 3.17) before implementation of the training program and (25.55 ± 3.55) after training, and a significant increase were reported in ($p=0.010$). Evaluations of scales showed that the cyber-based educational method is based on the use of cyberspace and learning environment interactions and can have an impact on students' self-reflection (Table 1).

Table 1: Design a clinical case –based education program in forum and examine it's self-reflection consequences on students (n=79).

Index	Mean±SD	T	P value
Encourage self reflection	Before: 21.29±3.21	2.48	0.01
	After: 22.47±2.78		
Requiring self reflection	Before: 19.93±3.08	3.66	0.0001
	After: 21.61±3.27		
Insight	Before: 24.46±3.17	2.46	0.01
	After: 25.54±3.5		

DISCUSSION

Resent result showed that the interactive virtual learning effects to students' self reflection and subscales. The review of articles suggests that there are few studies about self-reflection in Iran. This problem showed inadequate use of this tool. Although self-reflection as a tool for learning in higher education, leads to students' development talent and clinical competence, many students are not familiar

with this method¹⁷. However, in some studies, lack of time for reflection and evaluation were expressed as barriers of using self-reflection method¹⁸.

Nursing education self-reflection followed by other medical sciences in the late 1990s was used in England and the United States¹⁹, and a lot of research has been done about it. The research showed by using self-reflection method, students' self-awareness increased and their ability to use thinking strategies and patient care improved^{20,21}.

Another study also indicated that self-reflection was an empirical learning method by which identified by students²². Dewey considers contemplation or self-reflection to be the precise, active, and continues consideration of any given belief or form of knowledge, enabling professors to act in a way that is purposeful and conscious²³. Schone with regard to the situation and the time in which contemplation occurs, expands Dewey's concept of self-reflection and divides it into two categories (before and after teaching²⁴). In another study, Lorch et al examined the effect of contemplation and self-reflection on high-level thinking skills (cognitive thinking) by qualitative method. The qualitative analysis of the written reports of learners suggests that contemplation and self-reflection have been effective on cognitive systems (application, analysis, comprehension, retrieval), Metacognition (goal selection, adjustment and monitoring the study), and its system (various systems related to each other, excitement, belief, and attitude²⁵). Grant et al also used exactly the same questionnaire to investigate the factors of self-reflection²⁶. All results above confirm recent results about the effect of educational intervention on self reflection and effect of this skills on students' cognitive ability and learning abilities.

Johns structured self-reflection model was also designed in 2006 by analyzing the interviews of clinicians and observers, describing the experience, self-reflection and influencing factors based on knowledge patterns²⁷. Another study also described six components for self-reflection: 1. Emotional response 2. Explanation and description 3. Internal review 4. Critical analysis, 5. Evaluation, 6. planning for new actions^{28,29}.

Also, the results of Moatari et al, Confirmed the effect of self-reflection on the students 'inductive reasoning and the total score of the critical thinking skills test³⁰. The results of another research, also confirmed the effect of self-reflection on clinical competencies³¹. Other evidences indicated self-reflection holistic approach effect to patients' care ,students' thinking, integrating theory and practice, and improving self-regulatory mechanisms and motivation^{32,33,34}.

Using virtual interactive methods as a student-based education and applying problem-based approaches can provide a basis for self-reflection and developing self-regulation and self-leadership in students. Considering the impact of complementary training through cyberspace, it's effect on self-reflection, technology-based equipment and tools access in medical science universities, using cyberspace to complete learning and deepen it is suggested.

One of the limitations of this study is the weakness in sharing information with peers, which needs to improve

the culture of team based learning among Iranian students. Disconnection of Internet at some point was another limitation of this research.

Conflict of interest: Non declare

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