

A Review of the Effectiveness of the Role of Various Components in Medical Education

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Abstract

Determining the components of education effectiveness, evaluating the performance of teachers, and presenting a picture of its strengths and weaknesses, give appropriate feedback to policymakers, planners, and those involved in the education system. Therefore, the current research was conducted to determine the effectiveness of education from the point of view of professors and students of medical sciences. In this review, articles published between 2010-2023 were examined. An electronic search was conducted using the keywords “Education Effectiveness”, and “Medical Sciences” in PubMed, Scopus, Ovid, Science Direct, Elsevier, and ProQuest. Six key indicators of the success of medical science education were found in the reviewed studies' results. These indicators were the teacher's communication power, the teacher's characteristics, the teaching method, the characteristics of the students, scholarly research, and the teaching environment. Taking into account the research findings, it is suggested that the effectiveness indicators of education should be introduced to all professors, and also, in the evaluation of professors, the mentioned areas should be taken into consideration according to priority, and based on that, objective and valid evaluation forms should be designed and implemented so that the ultimate goal of the evaluation, which is to improve the quality of education, is to facilitate.

Keywords: Education effectiveness, Medical education, Students, Performance of teachers

INTRODUCTION

Today, the education of medical sciences has seen wide successes, and certainly, the training of thousands of experts at different levels in medical sciences has a fundamental role in reducing human mortality [1-3]. The important goal of medical science education should be the education and training of students in the field of learning, teaching, personal growth and self-confidence, social development as a field of social sciences and humanities, and helping their fellows as much and more effectively as possible [4, 5]. The education of medical sciences is the foundation for providing efficient human resources to meet the needs of society [6, 7].

Researchers in this field have identified effective and efficient education as the most important factor in student learning and educational progress [8]. Education will be effective when it is independent and has an individual orientation, there is cooperation and interaction between students and professors, its orientation is short-term and it is aimed for the whole life of a person [9-11]. There are many studies in the field of professors' views on education as well as their problems, which can indicate the importance of their opinions on learning and education [12, 13]. According to a study, over 50% of medical faculty members were not satisfied with their faculty's performance in terms of education [14]. They identified several key issues related to

education, including inadequate planning, legality, and attention to material and managerial concerns [15-17].

The development of education and creating transformation in it requires knowledge of the education process, knowledge of new ways of its implementation, and its effectiveness indicators [18, 19]. This issue is more important in medical science education because the main mission of medical science education is to train capable and competent medical personnel who have the necessary knowledge, attitude, and skills to maintain and promote the health of society members [4]. Banidavoodi, by examining 75 medical students and 75 paramedical students, announced that from the student's point of view, in the field of academic research (54%), teaching

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method (47%), communication skills (34%), and personal characteristics (28%) of professors in The effectiveness of education is effective [18].

Considering that universities play a sensitive and influential role in the development process of countries as a center for training and preparing specialized and efficient human resources to meet the basic needs of society in various fields, investing and addressing issues, the higher education sector is important by examining the effective indicators of education, which is one of the important pillars of the development of countries in different dimensions [20-22]. This problem is especially in less developed countries, such as Iran, due to being involved with problems such as lack of educational investment, lack of specialized manpower, and lack of attention to the educational efficiency of human resources [23, 24].

In recent decades, universities have faced many challenges such as the mass and globalization of higher education, politicization, the accumulation of unemployment among graduates, the expansion of technologies and communications, the superiority of quantity over quality, the reduction of government budgets, and competition with other economic and social sectors [25]. To acquire resources and so on, they have faced changes in the efficiency and effectiveness of universities [26].

The expansion of the quantitative view in the higher education system regardless of the social, cultural, and economic capacity of universities has caused the university systems to rethink their structure, mission, goals, functions, and processes [27]. Determining the components of education effectiveness, evaluating the performance of teachers, and presenting a picture of its strengths and weaknesses, give appropriate feedback to policymakers, planners, and those involved in the education system [28]. Additionally, teachers can adjust their methods of instruction based on their understanding of how things work, which eventually raises the standard and efficacy of the educational system [29]. Since the whole purpose of education is to convey information correctly and to enhance the learning of learners, this should be considered from all angles [30]. Therefore, the current research was conducted to determine the effectiveness of education from the point of view of professors and students of medical sciences.

MATERIALS AND METHODS

In this review, articles published between 2010-2023 were examined. An electronic search was conducted using the keywords "Education Effectiveness" and "Medical Sciences" in PubMed, Scopus, Ovid, Science Direct, Elsevier, and ProQuest. After reviewing and collecting all the searched articles, duplicate and unrelated articles were excluded. The criteria for entering the study included: research article, medium and high quality based on the L-MASTARI tool, and the ability to access the full version of the article. Exclusion criteria also included articles in the form of letters to the

editor, case studies, and the lack of access to the full version of the article.

RESULTS AND DISCUSSION

Based on what is stated in the findings and results of the reviewed studies, the important and effective components of the training given to medical students can be mentioned in several cases.

The Power of Teacher Communication

The results of some studies showed that the teacher's communication power is the most effective component of education from the point of view of the majority of students. This importance was evident in the study of Askari and Mahbob Moadab [31], Mohaddesi *et al.* [32], Mirmohammadi Meybodi [33], Valiee *et al.* [34] from the perspective of students, and in the study of Gholipour Moghaddam [35] from the perspective of professors, and it was evaluated as the most important indicator of the effectiveness of education. The skill areas that determined the strength of the professor's communication in reviewing the studies include preparation to solve the student's problem, creating a context for students' participation in the class, being available outside of office hours, establishing a friendly relationship with the student, stimulating and encouraging independent learning, identifying Individual differences and paying attention to them in teaching were guiding the student to create a positive self-image, having discipline and tact in words, mutual respect between the teacher and the student, having justice in evaluating and re-explaining the material and solving problems. In the educational process, "communication" means establishing a relationship between two people, two subjects, two or more thoughts, and in better words, understanding and sharing thoughts between the teacher and the learner or learners, including understanding and sharing at the level of knowledge, culture and the values governing two people who communicate with each other. Communication should be considered as a necessary condition of teaching in the educational process; therefore, in the teaching process, it is not only the teacher's experiences and scientific views that become effective. No learning or change in the teaching process will take place unless the teacher communicates effectively with his students. The importance of communication skills in the education process and the sensitivity of the issue of education in the university environment make it necessary to pay more attention to communication skills in the university environment to achieve the basic goal of communication, which is the exchange of ideas and Thoughts take a step forward through effective communication. To strengthen communication skills among professors and lecturers, it is possible to plan by holding educational and explanatory workshops in this field and using the fund of beliefs and suggestions to ask students' opinions about professors' communication skills.

Personal Characteristics of the Teacher

In the review of studies, the teacher's characteristics were determined as the second indicator of the effectiveness of

education. In this regard, in the studies of Sadigh *et al.* [36], Ghorbanian *et al.* [37], Tofoghiyan [20], and Sayyadi *et al.* [38], from the student's point of view, this indicator was the most important component of the effectiveness of education. The cognitive areas that determined the individual characteristics of the professor in the review of the studies include the eloquence of the professor's expression, the professor's interest in the teaching topic, observing the exact start and end time of the class, the professor's criticism, the professor's fair behavior, the appearance of the professor, flexibility The professor, the professor's decisiveness and strictness, the professor's sense of humor, the professor's self-confidence, compliance with social and moral norms, the professor's positive attitude towards the field, having a long experience in teaching, the professor's academic rank, and having the executive position of the professor. Since the role of the teacher in the teaching and learning process is important and undeniable, knowing the characteristics of a good teacher for effective teaching can be effective in improving the teacher's performance. The behavior and performance of professors in educational environments are judged by different groups. In the meantime, due to their direct presence in the educational situation, students have a closer relationship than other judging factors, and their attitude towards the characteristics of a desirable professor can have a great impact on the learning process. On the other hand, because the student takes an example from his teacher, paying attention to the individual component and having the right personality can cause high satisfaction of the student during the teaching process. Therefore, holding suitable and targeted training courses with the correct educational standards and strategies plays a significant role in improving the teaching-learning process because it can both increase the scientific knowledge of professors, and it can also be an exercise for professors in transferring The content should be simple and fluent.

Teaching Method

In this study, the teaching method was determined as the third indicator of teaching effectiveness. In the study of Abazari and Namnabati [39] from the professors' point of view, and the studies of Mohaddesi *et al.* [32] and Elahi *et al.* [40] from the student's point of view, this index was the most important and effective component of education. The skill areas that determined the effectiveness of the teacher's teaching in the review of the studies include: presentation of new course materials by the professor, creation of intellectual creativity in students, appropriate and appropriate use of educational aids, clear and clear transmission of course materials by the professor, compliance, the logical sequence of teaching, referring to a case of the course that is necessary for the professional future of the student, the resources used by the professor, spending time to solve the problems and questions of the students, giving the responsibility of presenting part of the courses to the students, providing the appropriate volume of the course according to educational goals, mastery of reference in the taught course, attention to reference in teaching the desired skills to students, providing a suitable

educational atmosphere for creating a positive attitude towards the educational environment, providing a suitable educational atmosphere for creating a positive attitude towards self-application of methods, different teaching by the professor, stating clear and measurable educational goals at the beginning of the class, and the teacher's evaluation of the students' learning rate. The teaching approach is considered one of the most important things to advance the achievement of educational goals in various educational systems, and it is the teacher's general orientation, which consists of a set of regular and coherent factors and elements, such as teaching methods, content, educational materials, goals, his activity and skill and the learner's activity, which is considered the basic basis of their decision-making and educational activities. Achieving an ideal and effective teaching method requires strong links between lesson objectives and students' teaching and learning methods. The meaning of effective teaching is a set of professor's functions and characteristics that achieve educational goals and student learning. Of course, learning depends on many other factors, including student behaviors, learning motivation, curriculum content, and environment, and according to Sadigh *et al.* [36], this component was one of the last components of the effectiveness of education from the student's point of view. Research on the use of effective teaching criteria in universities is, first and foremost, useful in identifying gaps in education and making up for them. This is because it gives a complete picture of the university's educational quality and helps to close the gaps in teaching quality by enhancing its strengths [41]. Becomes professors. In this regard, university officials should pay attention to all the components of effective teaching to improve the current situation. The formation of an effective and high-quality education system needs to pay attention to the scholarly component that if the teacher's teaching method is in an environment away from discrimination and accompanied by friendly and sincere interaction, the effectiveness and consequently the quality of education will be improved.

Student's Characteristics

Student characteristics are the fourth effective component in the education process. In this regard, in the studies of Firoozehchian *et al.* [42] from the perspective of students and professors, and in the studies of Elhami *et al.* [43] and Tofoghiyan *et al.* [20] from the perspective of professors, the individual characteristics of students were investigated as the most important component of the effectiveness of education. The cognitive domains that determined the student's characteristics in the review of studies included: student-teacher behavioral interaction, student's respect for the teacher, and student's interest in the teaching topic. Among the cognitive fields, the student's interest in the subject of teaching from the professors' point of view was the most important sub-component of the student's personality characteristic affecting the effectiveness of education. Interest is an important factor in teaching and learning that brings pleasant emotional consequences and is usually related to the non-competitive goals of the learning process. They

arouse the interest of learners in the subject to continue their efforts to understand the subject and understand it. Interest in the subject of the lesson determines how students process the subject matter. It is obvious that the processing of topics of interest is different from topics that are of no interest to them, and in this regard, it is possible to involve the students' conditions and interest in the education process by making the process of selecting the course units selective, and in this way, the satisfaction of the students and the quality of education. Also, according to the results of this part of the study, it is suggested that in the student admission process, the personality characteristics of the students should be considered according to the field of study.

Scholarship

A review of studies shows that scholarship is the fifth component of the effectiveness of the education process. In this regard, in the study of Bahadori *et al.* from the point of view of students, and Askari and Mahbob Moadab [31] from the point of view of professors, this indicator was the most important component of the effectiveness of education. The cognitive and skill areas that determined scholarship in the review of studies include: having general knowledge about the course, presenting materials based on the results of research, the professor's interest in research in the subject being taught, and the history of research conducted by the professor. Among these, sufficient knowledge about the subject of teaching was the most important sub-component of scholarly research from the professors' point of view. A university professor has sufficient knowledge of course topics and is confident that the course content is up-to-date, accurate, and suitable for the relevant course in the student's curriculum. This principle states that a teacher is obliged to maintain the effectiveness of the course content at a high level, not only in the areas of personal interest but also in all areas related to the objectives of the course. The purpose of the appropriateness of the course content is that what is taught in the program of a course is compatible with the goals mentioned for that course and prepares the students to the extent required for the next courses for which the corresponding course is a prerequisite. An efficient professor in educational fields explains the objectives of the lesson to the students and keeps his information up to date. Strengthening these things may be done through studying educational texts or company regulations in periodic workshops and conferences related to the faculty.

Educational Environment

The educational environment was mentioned as the last component affecting education and it was evident in the studies of Firoozehchian *et al.* [42], Ghorbanian *et al.* [37], and Elhami *et al.* [43]. Also, in the study of Abazari and Namnabati [39], the inappropriate educational environment was determined as the first factor limiting the effectiveness of education from the point of view of managers. The sub-components that determined scholarship in the review of studies included: professor and student access to all types of patients with various problems, the ratio of the number of

students to the number of patients, and cooperation and coordination between the professor and the department staff. Clinical education is one of the most important aspects of the education of students of medical sciences, which is a major part of their educational programs. The clinical environment plays a key role in education, because theoretical education alone does not lead to learning useful clinical experiences, and clinical learning plays an important role in increasing students' practical skills. Therefore, the clinical training environment is a bridge between theory training and clinical practice. In this stage of training, what has been learned is put into practice, skills are taught, and the realities of the work environment can be explained to the learners. Clinical education can be seen as a facilitator of learning in a clinical environment in which the clinical instructor and students are equally involved, and its purpose is to create measurable changes in the student to carry out the treatment process. Therefore, considering the importance of clinical education in shaping the basic skills and professional capabilities of students. Educational planners should provide favorable conditions for students in clinical departments so that this course can be used to the maximum.

CONCLUSION

Based on the results of the reviewed studies, six important indicators in the effectiveness of education in medical sciences were respectively in the six areas of teacher's communication power, teacher's personal characteristics, teaching method, student's characteristics, scholarly research, and teaching environment. Considering that one of the important missions of the university is the education and training of efficient human resources, it seems that the authorities in planning workshops on professors' teaching methods, promoting the research of students and professors, as well as in the selection of lecturers, are based on the indicators of educational effectiveness from the point of view Students and professors pay more attention. Considering the results of the research, it is suggested that the effectiveness indicators of education should be introduced to all professors, and also, in the evaluation of professors, the mentioned areas should be taken into consideration according to priority, and based on that, objective and valid evaluation forms should be designed and implemented so that the ultimate goal of the evaluation, which is to improve the quality of education, is to facilitate.

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