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Attitudes of Trainers and Medical Students Towards Using Modern Practices

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The development of universities as independent scientific centers determines their mission to incorporate the most modern achievements of science into the students' practical training. This research on the attitudes of the participants in this process towards the use of modern practices encompasses both trainers and students, and it consists of two studies. The contemporary education process is very complex and places the educators in situations which require the application of new approaches. The result of the study on the attitudes of the educators towards using modern practices in students' training shows the upsides and downsides of this process, as well as the mastery of the didactic art to apply the above-mentioned components of the education process to the needed extent. On the other hand, as subjects of cognitive activity, students are extremely sensitive to the effect of the new, the scientific discoveries and their application in the students' practice. The students' motivations for learning about the modern practices and their use in their future professional activity are significantly higher than their motivation for acquiring the classical fundamental knowledge included in academic study programs.

Keywords: attitudes of trainers, attitudes of students, modern practices, modeling, observational learning, motivation, self-regulation

Introduction

The contemporary education process is very complex because of the concurrent action of numerous, even opposing factors. They are determined by the huge amount of information and the lack of criteria for necessary and basic knowledge, the presence of contemporary cutting-edge technology for diagnosis and research, as well as the impossibility to use it directly in the education process and the underestimation of the individual approach to education in the preparation of future specialists.

These and other reasons place the contemporary trainers in the exceptional situation to possess vast amounts of knowledge and the art to present them conceptually, visualize to the needed extent the theoretical constructs and be able to effectively apply them in practice, have the ability to work with audiences, student groups or even individual students and finally be skilled in the art of motivating students for learning and practical fulfillment (Slavin, 2000).

The biggest challenge faced by today's institution of higher education is that it has the mission to prepare professionals who possess "anticipating competences" responding to the needs of the future. The educators

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teaching medical students are placed in a state of dependence by the fact that they have to prepare specialists, who, in 15 or 20 years, will be at the apex of their professional maturity. Even if today, it is impossible to predict the achievements of science and technology a quarter of a century from now and teach today's students how to use them, at least it is possible to help them develop a skill for "sensing the new", which we could call a disposition towards using modern practices.

"The effect of the new" is expressed in the heightened expectations towards positive results due to the higher "attractiveness" of the new methods, forms or means of educational training. Even though this effect can sometimes be a source of errors in the analysis of the results when conducting educational experiments, its influence cannot be avoided, but it can be predicted and used to form a positive attitude in the students towards the new, modern practices and their use in future professional activity.

The "attitude" is most often defined as a process of realization, assessment and readiness of the individual to act in a certain way under a certain set of circumstances (Allport, 1935; Heider, 1944; Rokeach, 1948; Festinger, 1954; Rosenberg, 1965).

Research on the process of the individual's adaptation to the environment has determined two main dependences that it exhibits: the dependence of the individual on the social organization and the dependence of the social organization on the individual (Hovland, Janis, & Kelley, 1982; Hovland & Janis, 1966).

The attitude has different components and in different situations that it can exhibit either its cognitive or its affective component (Katz & Braly, 1933, 1935; McGuire, 1969). Hovland (1959) used the principle of learning as an explanatory principle for understanding the fact of change in attitude. According to him, the person's attitude changes depending on how its support in the social environment is organized. The change of the system of rewards and punishments can affect the character of the social attitudes. A change in attitude arises every time when an incompatibility appears in the individual's cognitive structure (Heider, 1946).

Many researchers regarded the problem of change in attitude in relation to the contents of the objective social changes, the achieved level in the development of dispositions and the change in the a person's active position. The attitude is linked to the past experience and the cognitive assessment of the situation of the individual (Janis, 1959; Montmollin, 1984). As far as the concrete case is concerned, the attitude towards using modern practices is connected with one of the criteria for success and efficacy in one of the most significant and socially responsible professions—that of the medical doctor.

The education process in a medical university as a binary process manifests itself through the subjective factor—professor-student, with their own specific academic activities—teaching and studying. The goal of contemporary medical education is to assist the student in his/her independent acquisition of knowledge, skills and habits, in the development of behavioral algorithms, evaluation of attitudes and adoption of new styles of team work.

In the education process of medical institutions of higher learning, student training has a notably active character of co-operation and interaction, in which the instructor is organizer, coordinator and moderator of the independent cognitive activity of the student. It is not only just the instructor, but also the student who has the active role—the students independently or in a small group look for literature, study various sources and acquire practical skills.

In contemporary practical medical training, it is often hard for the student to participate directly and autonomously in practical activities, because of the risk of making mistakes associated with high risk for the patient's life. Moreover, complex technological processes are used in these practical activities, which can be

operated only by medical specialists with a lot of experience. Therefore, medical training often has the character of modeling or observational learning (Bandura, 1986; Miller, 1983).

This learning model is based on the view that the modeling generates learning through its informative function. This type of learning is regulated by means of four interconnected factors—the processes of attention, retention, motor reproduction and motivation (Bandura, 1986). This model of learning, which is applied in the training of medical students, undoubtedly relies on the formation of mechanisms of self-regulation (Pressley, 1995; Winne, 1995; Zimmerman, 1995). Self-regulation refers to the possibility for the individual to be aware of his/her abilities and to direct his/her behavior towards relatively specific tasks and situations (Bandura, 1977). This process could be much more successful under the conditions of applying modern practices in professional medical activity.

The contemporary organization of the training of medical students has to develop in them the sensitivity to using modern practices in their future professional activities. Such attitudes are capable of enhancing students' motivation for knowledge acquisition and this will help to increase their professional competence.

Methodology of the Research

Our research is organized into and consists of two independent studies of the trainers' attitudes towards using modern practices in student education and the students' dispositions towards using modern practices in their future professional activities.

Study 1

The goal of study 1 is to determine the educators' attitudes towards using modern practices in the process of training medical students.

On the basis of the scientific, theoretical analysis of the problem, our team hypothesizes that the trainers' attitudes towards using modern practices in the training process of the medical students enhance their motivations for learning and contribute to the formation of their professional competence.

The tasks of the study are directed towards:

(1) Studying the educators' opinions regarding the relationship between the fundamental and the applied, practical knowledge;

(2) Determining the forms and methods of education under the contemporary conditions;

(3) Analyzing the possibilities for demonstrating to the students the latest scientific achievements in their corresponding field of study.

Study 1 encompasses 33 university teachers from the Faculty of Medicine at Trakia University. The subject of the analysis is their opinions and assessment of the training of medical students from the perspective of using the cutting-edge achievements of science and practice.

Instruments. Study 1 uses Questionnaire 1, which was designed specifically for the purposes of the study. It contains six questions regarding the quality of education.

Results of study 1. The results of the educators' responses are the following.

Question 1: What do you think is the optimal amount of knowledge that students should receive in the area of study in which you teach? (see Figure 1)

The responses indicate that the majority of trainers (95%) think that there has to be a balance between fundamental and applied, practical knowledge.

Question 2: If the hours assigned for lectures and exercises in the course schedule are too few, how would

you organize the teaching material in your area? (see Figure 2)

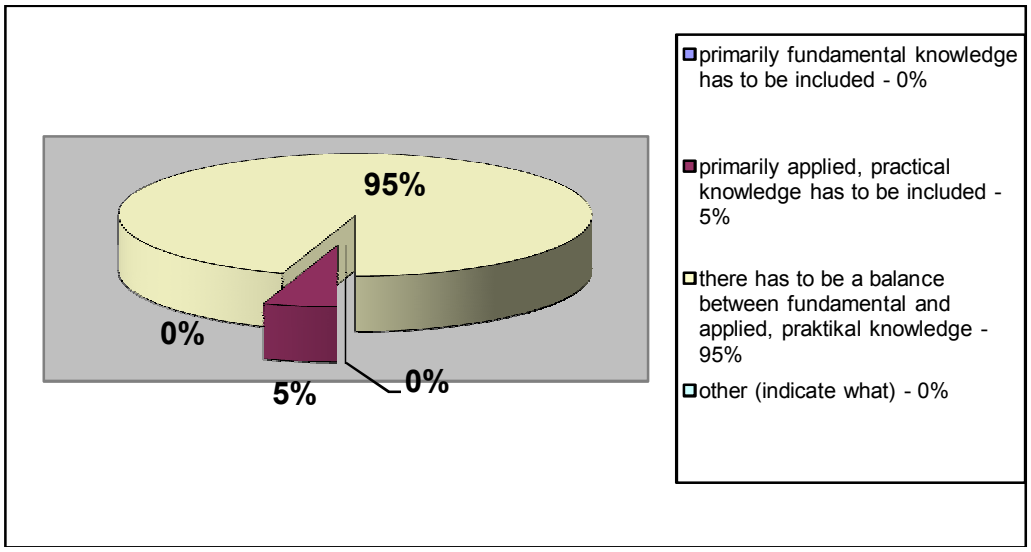

Figure 1. Respondents' replies to Question 1.

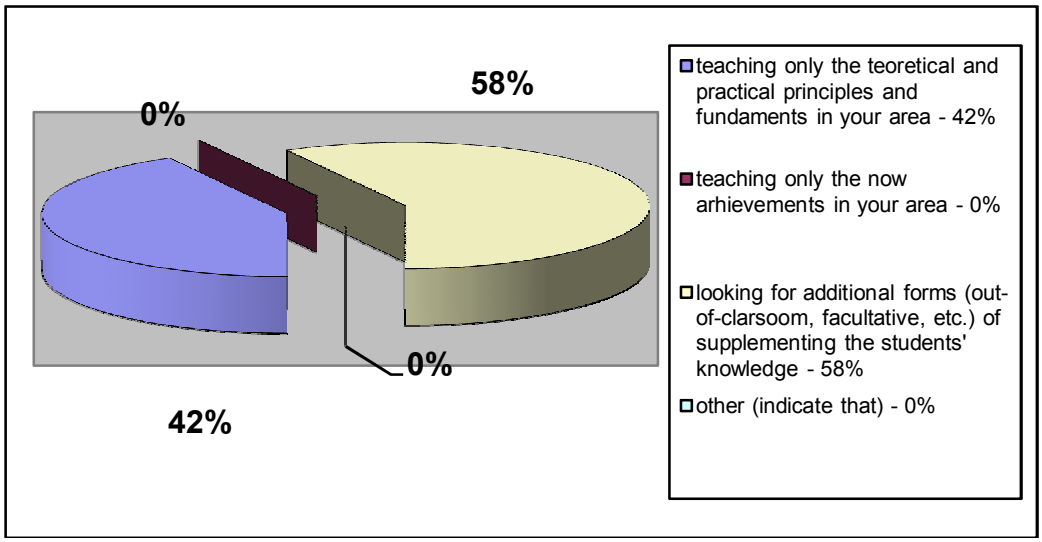

Figure 2. Respondents' replies to Question 2.

In response to this question, more than half of the surveyed trainers (58%) find it necessary to look for additional ways (out-of-classroom, facultative, etc.) of supplementing the students' knowledge, while 42% of them think the best course of action is to choose the option of teaching only the theoretical and practical principles and fundaments in their area of expertise.

Question 3: At what stage of their professional training and development should the future medical doctors become acquainted with the cutting-edge achievements of medical science and practice? (see Figure 3)

In response to this question, the majority of the surveyed faculty members (74%) think that the future medical doctors should start learning about the latest achievements of the medical science and practice from the very first day of classes.

With regard to the preferred methods of instruction, various views are also expressed. The majority of

trainers are supporters (38%) of the traditional lecturing technique. Others prefer more modern forms: conversation and talk (31%), debate and discussion (23%). A relatively low percentage of the educators prefer the presentation (3%) and the demonstrations (5%).

Question 4: Is it possible for you to demonstrate some of the achievements in science and technology in your area of competence? (see Figure 4)

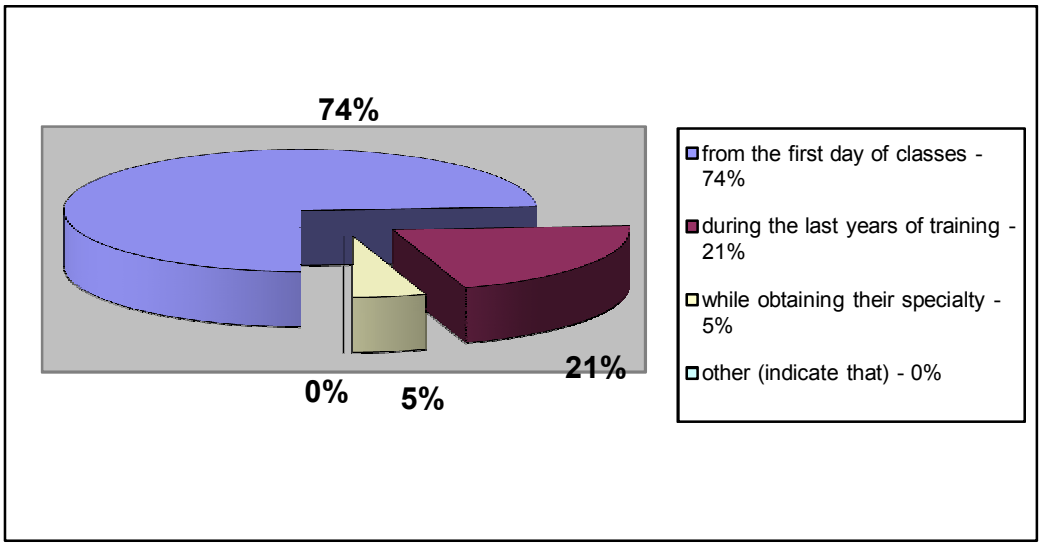

Figure 3. Respondents' replies to Question 3.

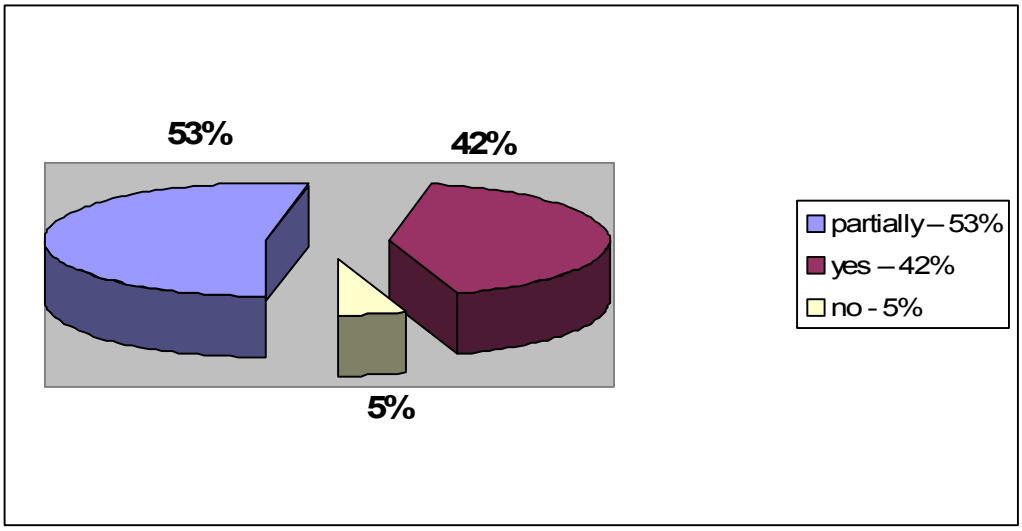

Figure 4. Respondents' replies to Question 4.

From the responses to this question, it becomes clear that for the majority of surveyed faculty members (53%), it is only partially possible to demonstrate some of the achievements in science and technology in their area of competence. Forty-two percent of them are convinced that they can and actually do this in the education process and only 5% of them are of the opinion that this does not happen in the education process and most of them believe that it is impossible to use demonstrations because of insufficient funding.

Question 5: If not, why? (see Figure 5)

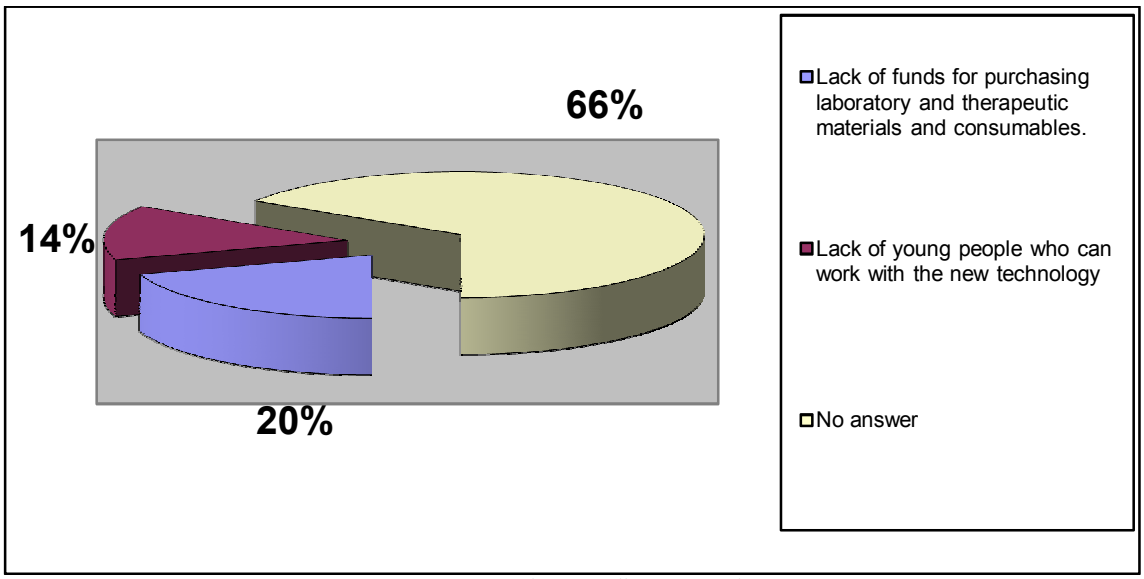

Figure 5. Respondents' replies to Question 5.

Only one third of the trainers answer this question. Their responses can be divided into two groups: Group 1: Lack of funds for purchasing laboratory and therapeutic materials and consumables; Group 2: Lack of young people who can work with the new technology.

Question 6: How do you compensate for the limited possibility to demonstrate the cutting-edge achievements of the scientific disciplines which you teach? (see Figure 6)

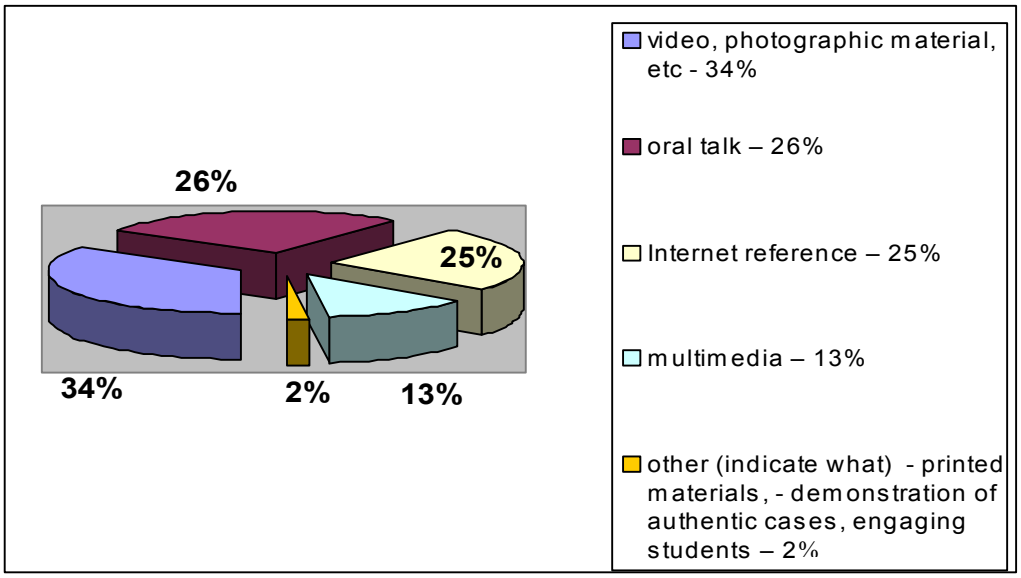

Figure 6. Respondents' replies to Question 6.

The trainers obviously use a great variety of methods to compensate for the limitations of the education process with regard to the use of modern practices. The largest percentage of trainers is those that use video and photographic sessions (34%). More than one-quarter of them (26%) use the oral talk, almost as many (25%) use Internet references, 13% rely on the multimedia and 2% use each of the following methods-printed materials, observation of real cases and engaging students in the education process.

Study 2

Forming attitudes in medical students towards using modern practices in their future professional activities is an important part of the complex of determinants shaping the professional competence of the medical doctor. The goal of study 2 is to determine the attitudes of students towards the utilization of modern practices in their future professional activities.

The tasks of the study are directed towards:

(1) Analysis of the academic education as a source of information on modern practices in the corresponding scientific area;

(2) Determining the best time for students to start becoming acquainted with the achievements of contemporary medicine;

(3) Studying the students' opinion regarding the fundaments in the basic (pre-clinical) disciplines which can have sufficient application in medical practice.

Study 2 encompasses 130 medical students from the Faculty of Medicine at Trakia University.

The subject of the analysis is their views and assessment of the quality of medical training and the extent to which it incorporates cutting-edge achievements of science.

Instruments. Study 2 uses Questionnaire 2, which was designed specifically for the purposes of the study. It contains six questions regarding the quality of education.

Results of the study 2. The results of the students' responses are as follows.

Question 1: Do you have the impression that the academic education is giving you enough information on the modern practices and technologies in the area of medicine? (see Figure 7)

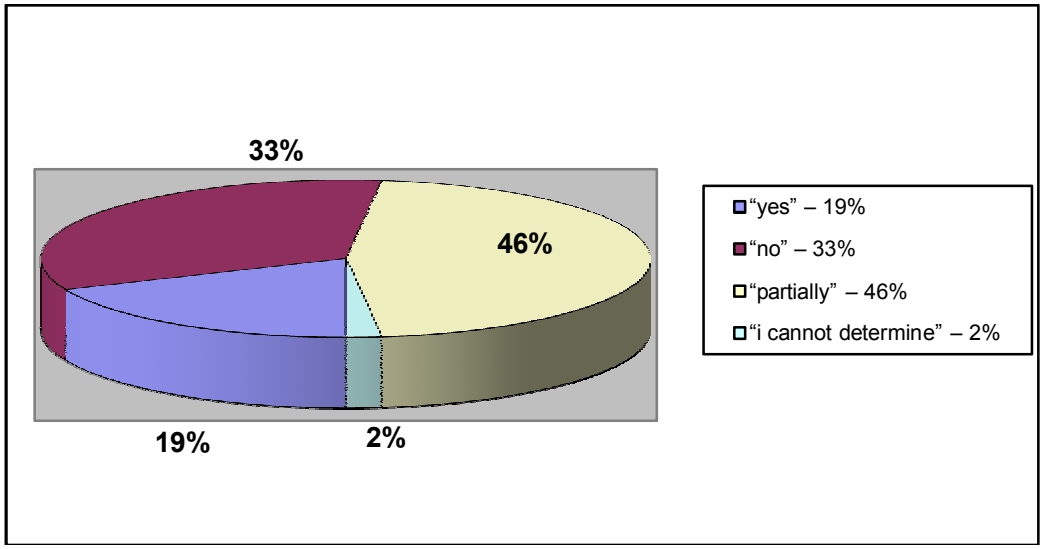

Figure 7. Respondents' replies to Question 1.

The student responses are as follows: 19% or one-fifth of the students answered "yes"; 33% or one-third of the students answered "no"; the greatest number of students, 46% or almost half of the students answered "partially"; and an insignificant number of students, only 2%, gave the answer "I cannot determine". No other responses were selected.

Question 2: Have you selected your future medical specialty? (see Figure 8)

The conclusion that can be drawn from the responses to Question 2 is that 61% (two-thirds) of the students

have not chosen their future specialty yet. This is completely normal, because the compulsory and elective chemistry classes, during which the questionnaire was filled out, include first- and second- year students. These students have not studied a lot of the disciplines yet and have not had enough exposure to make their selection of specialty.

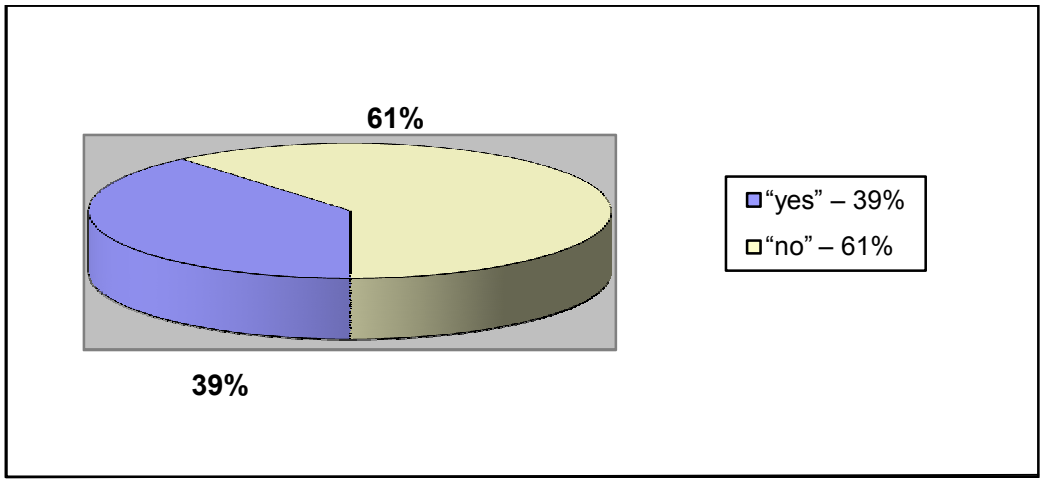

Figure 8. Respondents' replies to Question 2.

Question 3: If yes, what specialty?

Around 33% of the students indicate that they have already chosen a specialty. They are students from all class years, including first-year students. This demonstrates that the choice of specialty can be made personally or on the basis of family tradition (many students are children of medical doctors).

Question 4: At what stage of your education do you expect to receive information regarding the modern achievements of medical science in the specialty you have chosen? (see Figure 9)

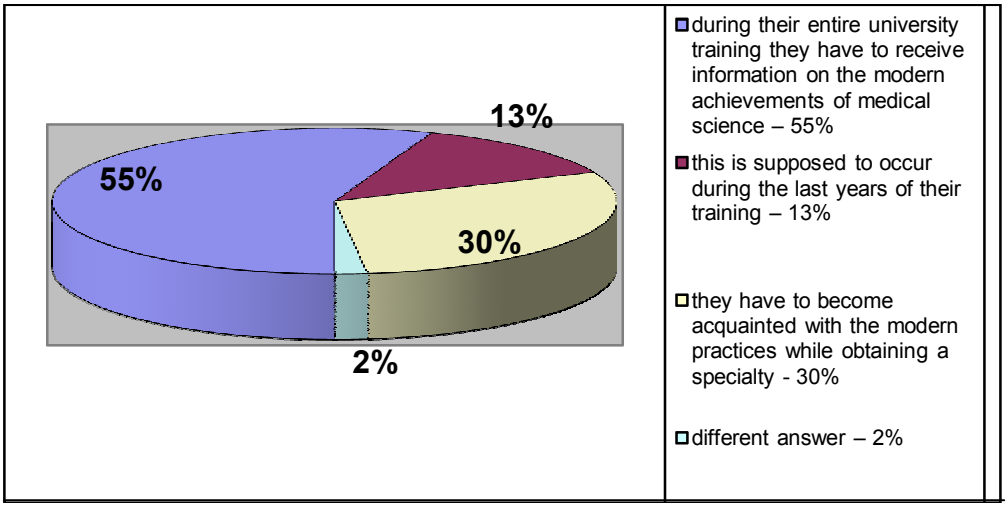

Figure 9. Respondents' replies to Question 4.

The students' responses to the fourth question can be summarized as follows.

More than half of the students (55%) respond that during their entire university training, they have to receive information on the modern achievements of medical science.

A small percentage (13%) of students think that this is supposed to occur during the last years of their training.

A third of them (30%) are of the opinion that they have to become acquainted with the modern practices while obtaining a specialty.

Two percent of the respondents indicate a different answer.

Question 5: Do you think that the fundaments of the pre-clinical disciplines can have modern applications in medicine? (see Figure 10)

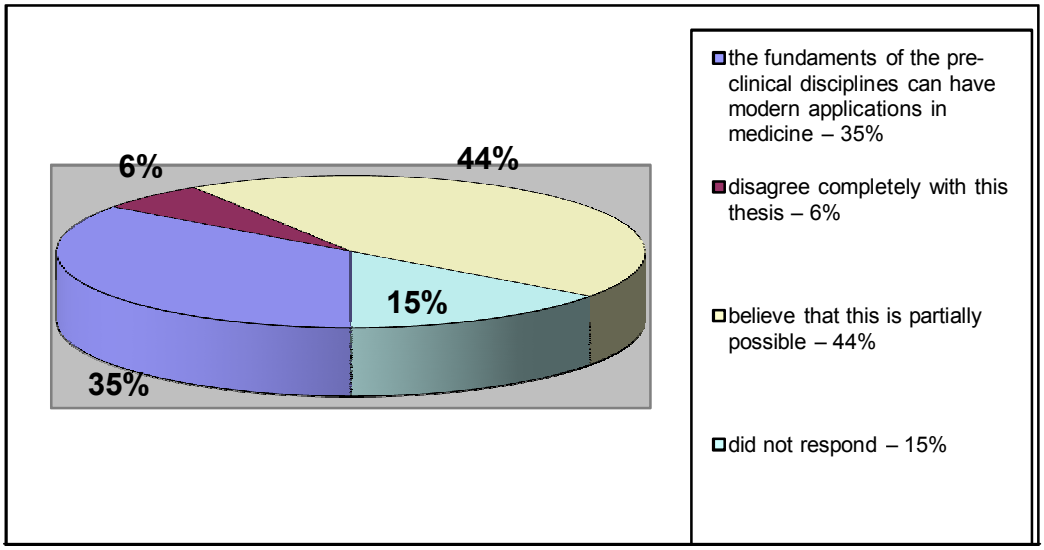

Figure 10. Respondents' replies to Question 5.

Approximately, a third of the students who participated in this questionnaire think that the fundaments of the pre-clinical disciplines can have modern applications in medicine. Approximately half of the students (44%) believe that this is partially possible. Only 6% of the respondents disagree completely with this thesis.

Discussion

The education process in a medical university is a binary process both with regard to participants—professor and student—and with regard to the specific academic activities—teaching and studying. The goal of contemporary medical education is to assist the student in his independent acquisition of knowledge, skills and habits, and in the development of behavioral algorithms, evaluation of attitudes and adoption of new styles of team work.

The vast majority of educators (95%) think that they have to provide a balance between fundamental and applied practical knowledge, while more than half of them (58%) also think that it is necessary to look for additional forms (out-of-classroom, facultative, etc.) of supplementing the students' knowledge.

A lot of trainers (74%) think that the future medical doctors have to start learning about the cutting-edge achievements of the medical science and practice from the first day of classes. That would be the only way to fulfill the mission of contemporary university training to prepare specialists for the next 20 to 30 years.

More than half of the surveyed trainers (53%) claim that it is possible for them only partially to demonstrate in the training process some of the latest achievements of science and technology in their area of competence.

The most positive conclusion that can be gleaned on the basis of the teachers' responses is that they are willing and ready to contribute through various forms of education to the students' familiarization with the contemporary achievements in science and technology.

In the education process of medical institutions of higher learning, student training has a notably active character of cooperation and interaction, in which the instructor is organizer, coordinator and moderator of the independent activity of the student pertaining to knowledge acquisition. It is no longer just the instructor, but also the student who has the active role—the students independently or in a small group look for literature, study various sources and acquire practical skills.

The medical student is a partner in the education process. He/she is motivated to study, has a positive attitude towards his/her chosen profession and regards it as his/her vocation. By taking responsibility for his/her own training, the medical student has a preference with regard to the goals, tasks, contents, methods and the overall organization of the training process. Being familiar with the objectives of education, the student is capable of constructing his/her knowledge on his/her own, forming logic of reasoning and building his/her own style and manner of studying, as he/she follows the path to scientific medical knowledge. The medical student is critical, both with regard to the teaching and his own academic activity. He/she wants to be aware what and how much he/she has achieved where he/she errs and how to correct his/her error. Evaluation is extremely important to him/her. He/she has requirements concerning the organization of practical training and demands that the theory be operationalized with lots of practical tasks and exercises, he/she wants to be provided with conditions similar to real clinical practice, in which he/she can work on his/her own and see the results of his/her practical activity.

The results of the conducted study show that almost half of the students (46%) believe that their academic training only partially provides them with sufficient information on modern practices. These are responses of students who have not chosen their specialty yet. More than half of the students (55%) who participated in the study think that in the course of their entire academic training, they have to receive information regarding the achievements of contemporary medical science.

Approximately half of the students (44%) survey thinks that the fundaments of the pre-clinical disciplines can have modern applications in medicine.

Conclusions

From the conducted research, we can draw the conclusion that all possible forms of presenting the latest achievements in science and technology, which are applied in the education process, contribute to effective student training in general and in particular to effective training of medical students. They have a positive impact on the students' motivations for studying and the formation of their professional competence.

The effectiveness of education can only be accomplished through directing training programs to familiarize students with the modern practices in medicine with respect to preclinical and clinical disciplines. A useful strategy in education would be the application of contemporary methods of teaching and informing students about the use of modern practices in medicine.

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