Teaching with research: a strategy for students of postgraduation in medicine

Ensino com pesquisa: uma estratégia formadora para alunos de pós-graduação em medicina

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A B S T R A C T

Objective: To promote and observe, in a participatory manner, a scientific activity accompanied by a didactic-methodological renewal which develop scientific attitude and, at the same time, allow the study about updating the pedagogical skills of doctors working as teachers in medical colleges. **Methods**: Students of the Post-graduation Program in Surgery, Federal University of Rio de Janeiro, from two consecutive classes, conducted a study in which they randomly surveyed 150 professors who work in medical colleges of Medicine in the State of Rio de Janeiro. The study was structured in three stages: defining the investigative content; interviewing, through field research; and discussion of results. **Results**: Most medical professors interviewed (85%) claim to know the current trends in education, but, when expressing the thought, leave doubt about the real knowledge of the subject. The lectures were used by 90% of respondents and the rest (10%) used other teaching strategies to convey the contents. Only 52% of doctors said they had heard about the Resolution CNE/CES 04/2001. **Conclusion**: the activity of teaching with research challenged the students as researchers, preparing them for research and construction of scientific attitudes necessary in graduate school, assisting them in solving the problem investigated. The results highlight that the answers in the interview were not accurate enough to characterize the actual extent of professors' pedagogical medical update.

Key words: Problem-based learning. Scientific and technological activities. Teaching materials. Education graduate in medicine. Professor of medicine.

INTRODUCTION

The educational process involves a number of people [1] for construction of knowledge [2], a set of actions developed and supported by principles and values [3,4], which result from or depend on numerous other issues that go beyond the sphere of education challenge most of the actors, an active method [5] based on individual mechanisms of thought and social mechanisms [6], a set of rules, strategies and resources that enable teachers to work in classrooms with students in the pursuit and acquisition of knowledge [7].

Teaching presupposes actions, reflections and procedures based on the design and vision of the world, society and education, on educational-philosophical ideas and on pedagogical trends [8-10]. It is a constant process of reflection that is subject to questions [11] on various issues, questions that make us reflect on the gap between educational institutions in relation to the design of training, curricular management forms and interpersonal requirements [12]. Some of those have been generated issues studied by the medical post-graduation students, with the aid of some strategies that aim to explore the ways and favorable conditions available to the effectiveness of teaching, for example, the strategy of teaching with research, which utilizes the principles of teaching associated with the ones of research.

The dynamics of teaching with research is to challenge the student as a researcher [13] and manufacturer of projects, establishing principles of movement and change in knowledge, problem solving, validation criteria [14], reproduction and analysis [2]. It is a meaningful learning where the student, by discussing, learn how to learn and actively participates in teaching [5].

Thus, this work demonstrates the teaching strategy research and was conducted with the objective to promote and observe, in a participatory manner, a scientific activity accompanied by a didactic-methodological renewal that would develop the scientific attitude and, at the same time, provide the study about updating the pedagogical skills of doctors working as teachers in medical colleges.

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METHODS

We observed a scientific activity through the strategy "teaching with research," for five weeks of the discipline of Pedagogy of the Postgraduate Course in Medicine of the Department of Surgery, UFRJ, using the technique of participative observation in driving the strategy. The observation lasted for two consecutive classes, in the years 2006 and 2007.

Students weekly presented the steps of a research chosen by them about updating the pedagogical skills of the doctors who work in medical colleges in the city of Rio de Janeiro.

The first stage of the research was considered the literature review indicated in the references of the discipline, which is not computed in the five weeks for the "teaching with research". From the discussions and reflections carried out in the classroom emerged the contents investigated in the research: 1 - current trends in education [8]; 2 - teaching strategies [2]; 3 - curriculum guidelines for medical education [15].

The second step was the development and application by students of a semistructured interview to medical teachers who had contact with the pedagogical disciplines: 1 - heard about current pedagogical trends of education? What do you think about? 2 - How does the knowledge of his/her subject reaches the student? 3 - Have you heard about the Resolution establishing the (Brazilian) National Curriculum Guidelines for Undergraduate Medical Courses?

The universe of medical teachers was defined by the criteria of random selection of respondents. Each of the 142 students interviewed at least one active medical teacher from medical schools in the state of Rio de Janeiro, without repetition and without interfering in the answers.

The responses from the interviews were organized in the classroom following the teacher grouping criteria by education institution as observed in the interviews: a) group of medical teachers from UFRJ; b) group of medical teachers from other public universities of the State c) group of medical teachers from private universities in the state.

The computed information was qualitatively and quantitatively analyzed in the classroom.

The third step was intended for discussion and oral presentation of the results, completing the students survey, and observation of the strategy of teaching with research. The step of writing and publishing the results of the survey was not included in the implementation of the strategy.

RESULTS

It was proven, with the strategy "teaching with research", that 81% of the 142 students actively participated in the field research and the tasks proposed in the five weeks dedicated to strategy. The other students did not perform field research (19%), but of the proposed tasks.

The results of 150 interviews with medical teachers showed a total of affirmative responses about having contact with pedagogical disciplines, allowing the continuation of the interview, since all stated that they knew that it would the subject to be investigated and consented to give their testimonies .

In the first question, about having heard about the current trends of education [8], we obtained 85% of affirmative answers. Medical teachers reported having heard about trends and expressed knowledge as follows: "they are attempts to replace the old and obsolete model"; "they are necessary to conform with the current reality"; "everything innovative comes to add if viewed with a critical analysis"; "it is important to adapt new ideas to our reality"; "to conserve what is good, to identify and incorporate the new that is here to stay"; " interesting, the student must seek knowledge, but oriented". The rest (15%) respondents said they did not know enough to respond.

Regarding the second question, which addresses teaching strategies [2], the students investigated how knowledge of the subject reaches the student. It was found that 90% of doctors use lectures. Other "strategies" were described with a percentage of 10%, distributed between seminars, readings of scientific articles, clinical case discussions, classes, works, keynotes presentations with audiovisual resources and roundtables.

Regarding the third question, about the curriculum guidelines [15], which investigated the awareness of Resolution CNE / CES 04/2001 establishing the National Curriculum Guidelines for Undergraduate Medical Course, they found that 52% of surveyed doctors said have heard about this legislation, 36% reported that they have not heard about it and 12% of respondents left the question in blank.

DISCUSSION

The result of the first question leads us to reflect and report on trends in education that are cited in the literature as concepts that the teacher adopts in practice, such as philosophical and educational ideas, principles that guide teaching [8-10]. Trends can be classified as liberal and progressive, arguing that the liberal pedagogical trend aims to prepare individuals for the performance of social roles, according to individual skills, and progressive pedagogical trend aims at a critical analysis of social realities, sustaining the socio-political purpose of education [10].

Respondents did not clearly address the trends of education. They did not mention, for example, the coexistence of different training and research paradigms in higher education, such as the traditional paradigm, the postmodern paradigm and the emerging one [12].

It was not possible to say whether medical teachers are aware that the traditional paradigm assumes that one can determine a priori the knowledge that the future citizen needs to master to be an autonomous professional, an epistemology of knowledge transfer in a perspective of technical rationality, where learning is acquiring transmitted knowledge, and the postmodern paradigm assumes that the complexity of social and professional situations is incompatible with mere technical rationality, an epistemology of the student and the researcher as subjects who build knowledge, less certainty, more questioning, linking training and research. It is a bridge to the emerging paradigm that enhances the questioning of scientific truths, knowledge produced in multi and transdisciplinarity [12].

There was no mention in interviews that the authors adapt the educational reality to the new postmodern and emerging education paradigms [16-18] or indications of education theories. This could have happened is because, when it comes to education, it is clear the emphasis given to some authors as Morin, who defends the complexity theory, the interconnection of knowledge[16], Perrenoud, who develops the concept of competence as the ability to mobilize a set of cognitive resources (knowledge, skills, information) to solve a series of cases[17], Coll, who, inspired by what Jean Piaget, directs thinking to a constructivist conception of teaching and learning [18], and other authors who are dedicated to education.

The answers of the first question show that 85% of doctors said they had heard about the current trends in education, but did not mention them. Nor they mentioned the problem-based learning [19] or evidence-based medicine [20-22], both occupying a privileged space in the debate that has taken place in the field of medical education [23].

It was noticed that there is a notion on the subject and a belief that educational innovations can contribute and even resolve the impasses of medical training that society is demanding [23], but there is not a consolidated knowledge.

The answers were not accurate to characterize the actual extent of updating knowledge about trends in education, resuming the interview being necessary to confirm the issue objectively investigated. The second question, which addresses how knowledge of the subject reaches the student, reinforces the doubt above, because the lecture [19] prevails in 90% of responses. This may mean a traditional trend in education or lack of potential for other strategies [19,24], a superficial knowledge that does not warrant the application of different lecture strategies. This occurs due to the various types of problems that appear in the selection of teaching activities: problems of criteria to guide them in choosing; ignorance of the possibilities and limitations of various types of activities; availability of time (CVs burdened with a heavy workload) that limit the use of varied activities [24]. Or even having criteria for choosing activities and knowing in theory that there are various methods and techniques, the teacher may not know how to employ them for not having practiced them or for not daring to incorporate them into the repertoire [24].

It is important to know that each step in the process of teaching demands different types of activities. Each activity has a didactic potential, as well as specific limitations and possibilities. The combination of didactic potential activity and teaching strategy can also hinder its implementation by the teacher, causing him/her to become used to working with the same strategy, in this case the lecture.

It is necessary for teachers to know that strategies help to explore the means and the available favorable conditions, requiring, on the part of those who use them, creativity, perception and personal experience [2].

Strategies such as simulations, case studies, laboratory (workshop), computerized mailing list, problem solving, simulated jury and teaching with research [2] are examples of a more active higher education [5,19].

In the survey, only 10% of respondents mentioned using strategies different from lectures. It can be observed from the answers that medical teacher use them less frequently for non-identified reasons, which need to be investigated.

It is advisable to conduct lectures or workshops [2] about some strategies that can contribute to the training and updating of teachers and facilitate the process of active learning [5].

The last issue of discussion regards knowledge of curriculum guidelines for medical education [15], which investigated whether teachers knew the CNE / CES 04/ 2001 resolution, highlighting the need for disclosure of the resolution amongst the teachers, because a significant percentage of respondents was unaware of it.

Ignorance is explained by the fact that the legislation is recent, the reading and the study of the articles of Resolution being advisable to teachers, whether individually or in groups. The knowledge of this law is very important, since it defines the principles, fundamentals, conditions and procedures for teaching doctors [25-27].

Systematic observations throughout the study showed that students perceived that the research content is provisional, they understood the contribution of the strategy and the need to resume the investigation, prioritizing and reformulating some questions to clarify persisting doubts. The analysis and synthesis of the research were carried out in the classroom and there was no time for writing and publishing the results.

At the end of the course, the students positively evaluated the strategy and recognized that teaching with research contributed to the approach of pedagogical reality, strengthening the understanding of the subject.

It was concluded that the strategy of teaching with research offers support for the exercise of autonomy and responsibility of students, practicing intellectual work

under the supervision of the teacher, who provides the necessary corrections in real time.

It is noteworthy, in this work, the thought that the university questioned the quality of teaching practices that grow in it, seeks to know new methods and extends the debate on the profile of the professional that it wants to groom, confirming the reflections on the subject and the importance of the strategy "teaching with research", which provided the observation and study of pedagogical issues, challenging medical students to build scientific attitudes necessary for training of students in a post-graduation program in Medicine.

RESUMO

Objetivo: *promover e observar, de forma participativa, uma atividade científica acompanhada de uma renovação didático-metodológica que desenvolvesse a atitude científica e, ao mesmo tempo, proporcionasse o estudo sobre a atualização dos conhecimentos pedagógicos dos médicos que atuam como docentes em faculdades de medicina.* ***Métodos:*** *alunos do Programa de Pós-Graduação em Cirurgia da Universidade Federal do Rio de Janeiro, de duas turmas consecutivas, realizaram uma pesquisa, na qual entrevistaram aleatoriamente 150 professores-médicos que atuam em faculdades de Medicina do Estado do Rio de Janeiro. O estudo foi estruturado em três etapas: definição do conteúdo investigativo; realização de entrevistas, mediante pesquisa de campo e discussão dos resultados.* ***Resultados****: a maioria dos professores-médicos entrevistados (85%) afirma conhecer as tendências atuais da educação, mas, ao expressar o pensamento, deixam dúvidas sobre o real conhecimento do assunto. As aulas expositivas foram utilizadas por 90% dos entrevistados e os demais (10%) utilizaram outras estratégias de ensino para transmitir os conteúdos. Somente 52% dos médicos afirmaram já ter ouvido falar sobre a Resolução CNE/CES nº 04/2001.* ***Conclusão:*** *a atividade de ensino com pesquisa desafiou os estudantes como investigadores preparando-os para a pesquisa e construção de atitudes científicas necessárias na pós-graduação, auxiliando-os na solução do problema investigado. Os resultados destacam que as respostas obtidas na entrevista não foram precisas para caracterizar a dimensão real da atualização pedagógica dos professores médicos.*

Descritores: *Aprendizagem baseada em problemas. Atividades científicas e tecnológicas. Materiais de ensino. Educação de pós-graduação em medicina. Docente de medicina.*

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