

Pedagogical Professional Development of Medical Teachers: The Experience of NOVA Medical School / Universidade Nova de Lisboa



Formação Pedagógica de Docentes Médicos: A Experiência da NOVA Medical School / Universidade Nova de Lisboa

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ABSTRACT

Introduction: To be a college teacher requires a permanent effort in developing specific competencies, namely in the pedagogical domain. This paper aims both to describe the pedagogical professional development program offered by the Medical Education Office of NOVA Medical School of Universidade Nova de Lisboa and to analyse its role in the enhancement of reflection around curriculum and teaching practice.

Material and Methods: Description of the pedagogical programme offered between 2010 and 2016. We focused the analysis on different kinds of data – opinions of the participants in the training programme (questionnaire before and after the training); pedagogical products elaborated by the participants in the programme – design of lessons, modules or curricular units; questionnaire sent in 2016 to NOVA Medical School teachers responsible for the curricular units, about the contribution of their disciplines to the accomplishment of the core learning outcomes of the NOVA Medical School medical graduates.

Results: The pedagogical training needs identified by the teachers focused mainly on improving practice, critically analysing the curriculum and sharing experiences. Globally the training programme was deeply appreciated and considered very good by 97% of the participants. The lesson plans delivered showed that the teachers were able to integrate and apply the concepts developed during the training. The answers from the 46 faculty responsible for the curricular units (the majority of them had attended the Medical Education Office training programme) highlighted their capacity to critically approach content and pedagogical strategies within their disciplines as well as their contribution to the main goals of the medical curriculum.

Discussion: The results underlined the importance of a pedagogical training focused on the critical analysis of curriculum and pedagogical practice. On the other hand, the pedagogical products analyzed revealed great mastery by teachers of the content and pedagogical strategies present in the curricula of their respective curricular units, as well as their alignment with the general objectives of the Mestrado Integrado em Medicina.

Conclusion: In line with the literature of the specialty, pedagogical training in Higher Education, rather than aiming at the mere acquisition of techniques, should, above all, give priority to spaces for joint reflection on the curriculum and on the pedagogical options of teachers.

Keywords: Faculty Development; Education, Medical; Faculty, Medical; Portugal; Professional Competence; Surveys and Questionnaires; Teaching

RESUMO

Introdução: Ser professor no ensino superior exige um esforço permanente de desenvolvimento de competências, nomeadamente de competências pedagógicas. São objetivos deste artigo descrever a formação pedagógica de docentes, oferecida pelo Gabinete de Educação Médica da NOVA Medical School e analisar o contributo desta formação para a reflexão dos docentes em torno do currículo e da prática pedagógica.

Material e Métodos: Caracterização da formação pedagógica oferecida, entre 2010 e 2016, aos docentes da NOVA Medical School. Foram analisados dados de opinião recolhidos por questionário aplicado antes e depois da formação; planificações de aulas/módulos/cursos realizadas após a formação; questionário enviado aos regentes, em 2016, sobre o contributo da respetiva unidade curricular para o perfil de saída do Mestrado Integrado em Medicina do Gabinete de Educação Médica da NOVA Medical School.

Resultados: No questionário pré-formação, as necessidades referidas pelos docentes relacionaram-se maioritariamente com a melhoria da prática pedagógica, a reflexão sobre o currículo e a partilha de experiências. Em termos globais, a formação foi avaliada como muito boa por 97% dos respondentes. As planificações elaboradas pelos docentes revelaram integração e aplicação dos conceitos abordados na formação. As respostas de 46 regentes (maioritariamente participantes em ações de formação do Gabinete de Educação Médica) evidenciaram um elevado grau de reflexão sobre os conteúdos e estratégias pedagógicas presentes nas respetivas unidades curriculares, bem como sobre o contributo destas para a consecução dos objetivos do Mestrado Integrado em Medicina.

Discussão: Os resultados sublinharam a importância de uma formação pedagógica centrada na análise crítica do currículo e da prática pedagógica. Por outro lado, os produtos pedagógicos analisados revelaram grande domínio, por parte dos docentes, dos conteúdos e estratégias pedagógicas presentes nos currículos das respetivas unidades curriculares, bem como do seu alinhamento com os objetivos gerais do Mestrado Integrado em Medicina.

Conclusão: Em consonância com o que veicula a literatura da especialidade, a formação pedagógica no Ensino Superior, mais do que visar a mera aquisição de técnicas, deverá, sobretudo, privilegiar espaços de reflexão conjunta sobre o currículo e sobre as opções

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pedagógicas dos docentes.

Palavras-chave: Competência Profissional; Educação Médica; Ensino; Faculdade de Medicina; Inquéritos e Questionários; Portugal

INTRODUCTION

Lecturer's current requirements of an increasingly more competitive and more diversified higher education extend beyond scientific and technical domains within their own areas of research.¹

Literature on the subject considers that real higher education can only exist when skills in different domains are shown by lecturers, including (i) scientific contents, (ii) the way these are selected and organized (i.e., curriculum design), (iii) training course planning, (iv) the very pedagogical action, (v) learning evaluation, (vi) availability and skills for student support and (vii) administrative procedures regarding the teaching role.²

The relevance of lecturer's sound education is reinforced by much of the research in this area,^{3,4} as well as by the departments aimed at the promotion of educational quality within higher education institutions.⁵

However, the activity of a lecturer goes beyond teaching activities and research;⁶ management and extension functions also have an important role.

As regards medical lecturers, these functions fill in a significant, even crucial part of their activity as these are usually healthcare professionals working as lecturers and not lecturers occasionally working in the healthcare area.

This article aimed at providing a discussion on the experience in educational training developed by the Medical Education Department (*GEM – Gabinete de Educação Médica*) at the NOVA Medical School (NMS) over 2010-2016 as well as at the analysis of its contribution to lecturer's discussion on curricula and improvements in educational practice.

Relationship between teaching and learning in higher education – characteristics of an efficient education

Different studies have analysed the relationship between high school student outcomes and lecturer's characteristics. The educational dimensions which are more related to student learning outcomes are usually identified in these studies⁷ based on the evaluations that these have produced regarding their lecturers as well as on the classifications obtained in the different subjects. The first conclusion is that a single profile for the 'ideal' lecturer is unavailable as he/she would have different characteristics according with the different courses. On the other hand, different skills have emerged, allowing for the conclusion that the 'ideal' lecturer would have different personal and educational characteristics, either related to mastery over the subjects and to the interaction with the students. However, lecturer's enthusiasm and kindness or even readiness, even though considered as relevant dimensions, did not seem to have had the greatest effect on student's learning. Lecture preparation, as well as clarity were mostly correlated with student's learning, followed by achievement of objectives

and student's perception regarding the relevance and usefulness of contents. The dimensions associated with the interaction between students and lecturers, such as the encouragement of student's interest and motivation, lecturer's openness to questions or communication skills, were moderately correlated with learning outcomes.

These conclusions should obviously be carefully considered and taken into account in lecturer's educational training.

Lecturer training

Training should be initially focused on areas that lecturers are unfamiliar with.⁸ Therefore, apart from the scientific expertise, which is an essential part in any educational level and crucial in higher education, lecturers must be skilled in (i) planning and design of their own training programs, in (ii) the actual pedagogical intervention, in (iii) training evaluation and finally, in (iv) assuming a professional attitude of reflection on the educational practice aimed at the identification of gaps and at training in order to fill these gaps, practising a scholarship of teaching in which (i) different ways of supporting student's learning are developed and, on the other hand, (ii) research on training and its outcomes, adopting a researcher attitude of curiosity and rigor, similar to the research attitude adopted in lecturer's scientific domain.

Importance of lecturer educational training in medical schools

A systematic review on studies regarding medical education published between 1908 and 2002 was carried out in 2006,⁹ aimed at answering to the question "*What are the effects of faculty development interventions on the knowledge, attitudes and skills of teachers in medical education and on institutions in which they work?*". The results allowed for the characterisation of the target public (mostly clinical lecturers) and for the typification of the available training courses – mainly including workshops, seminars and short-term courses. Regardless of the format, all training courses were based on certain principles – training in which the experience of the participants was considered as crucial, practising some techniques and allowing for trainer feedback, effective work involving professionals from different disciplines and well designed and clear training courses.

High satisfaction with the format and content of the courses, the change of attitude regarding the educational practice and the introduction of changes into this practice have been described by the participants. In addition, many studies have described a very positive feedback by students to these changes.

Any institutional changes derived from training courses

or the impact in student's learning have not been analysed by most of the studies in this area. These limitations, which still remain in many research on the introduction of innovations in higher education institutions, have raised the need for longer-term studies analysing other results apart from the degree of satisfaction described by lecturers and students. Taking as a reference the model used in this systematic review,¹⁰ we would say that, apart from the level of *reaction* shown by the degree of satisfaction of the participants and the level of *learning* produced by the change of attitude, the levels of *behaviour*, changes in educational practice and in *results*, changes in organizations, in systems and particularly in departments should be looked at.

The need for training not confined to the classroom or to practical training aimed at a better education, extended to other domains and compliant with the roles that a lecturer has to assume today has been supported by an article on the past, the present and the future of faculty development.¹¹ New realities regarding globalisation and mobility, the use of technology and related ethical issues, for instance, the arrival to University of students with gradually less homogeneous lifestyles, cultures and beliefs, as well as the increasingly vital need to be accountable to society led the University to open up to the wider world and removed the lecturer from the comfort of in-house operation. Every training exclusively focused in the classroom is currently bound to fail, according with the authors.

MATERIAL AND METHODS

Background

In order to define the object of our study, both types of educational training provided by Nova Medical School (NMS) to lecturers are briefly described as follows: the first one, which will be called as generalist, included the presence of lecturers from the different schools of the NOVA, involving approximately 40 lecturers working at the NMS, mainly in 'primary' disciplines. The second one, focused on the support to the development of the ongoing curriculum reform, aimed at clinical lecturers, involved around 60 lecturers.

Twelve-hour duration training courses were organized by the NMS covering a three-day program and aimed at the promotion of basic educational skills¹² involving (i) reflection on the relevance of an integrated curriculum design; (ii) preparation and planning of teaching activity (intra and inter-curriculum unit alignment of objectives, contents and student learning evaluation); (iii) selection of the pedagogical strategies more suitable to the objectives and to different learning styles; (iv) selection of course content; (v) use of some working techniques with small and large groups; (vi) development of supporting material and instruments for training and learning evaluation.

A wider approach has been followed in 'generalist' training, allowing for the inclusion of lecturers from different NOVA organic units. This global approach has

been considered adequate for a diversified public, even though the risk for some lack of specificity has been taken into consideration and was minimized with post-training monitoring of lecturers, whenever requested and with the development of discussion networks and sharing of educational practices.

The specific training, aimed at the support to clinical lecturers for the implementation of the curriculum reform, was based on the contents used in generalist training, mainly focused on the role of the curriculum units in the design of the *Mestrado Integrado em Medicina* (MIM) (Masters Program in Integrated Medicine).

Data collection and analysis

The following has been analysed, in order to approach the educational training provided over the period 2010-2016 to lecturers of the NMS (15 training courses have been carried out in 2010-2016):

- Responses to pre-course questionnaires regarding needs analysis, motivations and expectations. A pre-course two open-ended item questionnaire ["*Quais as razões da sua participação neste workshop?*" ('What were the reasons for your participation in this workshop?') and "*Que competências espera desenvolver ao longo deste workshop?*" – ('What skills do you expect to develop throughout this workshop?')] has been sent to the attendant lecturers. Its analysis allowed for a better preparation of training and better adequacy to the group of participants. Content analysis technique has been used for response categorisation.¹³
- Post-course evaluation questionnaire was immediately completed upon the end of the final session. Close-ended items and one open-ended item with additional remarks were included in the questionnaire, aimed at obtaining lecturer's feedback on (i) compliance with the objectives, (ii) adequacy of course contents to the real needs of the participants, (iii) methodology used by lecturer trainers, (iv) clarity of course contents and (v) evaluation procedure. Responses to closed-ended items were statistically analysed and the open-ended item has been submitted to content analysis.
- Training products (class, module or curriculum unit planning sheets). Planning sheet for one class or module or even for a whole curriculum unit has been requested (based on a planning format shared in training,¹⁴ shown in Table 1) by each small group of lecturers in which the explanation of general and specific objectives of the curriculum unit has been requested, including contents, educational strategies and evaluation instruments, aimed at the assessment of the application of discussed concepts. All planning sheets were analysed by trainers and feedback has been given to lecturers.
- Questionnaire aimed at head lecturers of MIM curriculum units

This questionnaire has been completed by head lecturers of the NMS, aimed at obtaining feedback on the three characteristics of the curriculum unit that were considered as having contributed the most to a successful graduation. The analysis of this questionnaire allowed for the identification of an alignment between contents, goals and evaluation by head lecturers and, in addition, of a MIM articulated curriculum design.

how these could have a contribution for its improvement.

An example of pre and post-course design of contents and objectives is shown in Table 2.

RESULTS

As mentioned above, 15 generalist educational training courses were carried out over the study period and 40 lecturers of the NMS were involved. Two other training courses, specifically aimed at clinical lecturers, were also carried out and involved 30 participants at a time.

Need and expectation analysis questionnaire

Responses to this questionnaire were analysed and the following needs and expectations have been identified:

- Diversifying pedagogical strategies aimed at improving classroom dynamics, student performance and improving education effectiveness;
- Sharing experiences and reflecting on these within educational reference frameworks;
- Reflecting on the educational practice, each curriculum unit and on MIM curriculum design;
- Class planning;
- Defining and diversifying evaluation strategies (training, continuous, etc.);
- Development of class support materials.

Planning

The first conclusion was that lecturers were particularly aware of the definition of clear and realistic objectives in order to allow for easier communication with the students and leading to a clear understanding of what was requested.

In addition, lecturers were concerned with the adequate selection of teaching strategies and educational resources to be used, aimed at the alignment of these with the established objectives.

Finally, the methods and evaluation instruments that were consistent with the objectives and aligned with the selected teaching methods have been selected by lecturers, aimed at the validity, reliability and feasibility of each instrument. Many participants have also considered whether the education could be evaluated by students and

Training evaluation questionnaire

Very high levels of satisfaction with training courses, namely regarding compliance with the objectives and adequacy to lecturer expectations, as well as to course contents were found upon the analysis of training evaluation questionnaires, as shown in Table 3. Positive feedback has also been found as regards the evaluation procedure.

Training courses were globally rated as 'Good (*Bom*)' to 'Very Good (*Muito Bom*)' by most participants (approximately 97%).

MIM Head Lecturer questionnaire

From this academic year, head lecturers were asked to complete a questionnaire with items regarding the disciplines under their supervision. In total, 46 responses to the item "*Em que medida a unidade curricular contribui para o perfil de saída do MIM?*" ('To what extent does the curriculum unit contribute to a successful graduation?') were obtained (mostly from head lecturers having attended training courses organized by the GEM (*Gabinete de Educação Médica*)) regarding 80 curriculum units.

Responses were organized according to categories: Knowledge; Procedures; Vocational Education Attitudes and Objectives. These are some examples:

- Knowledge regarding different levels of complexity, from acquisition to application:
 - Promoting knowledge acquisition in...;
 - Promoting the integration of basic science knowledge for the interpretation of pathophysiological mechanisms of diseases or for the analysis of case reports;
 - Promoting training in hypothetico-deductive reasoning.
- Training in procedures with different gradients of autonomy:
 - Observation of X procedures;
 - Simulation procedure training;
 - Procedure training under supervision.
- Development of certain attitudes:
 - Promoting intellectual curiosity;
 - Awareness of aspects regarding doctor-patient or inter-peer relationship.

Table 1 - Class, module or curriculum unit planning sheet

Identification of the Curriculum Unit:				
Overall framework of the Curriculum Unit				
General objectives	Specific objectives	Contents	Educational strategies	Evaluation

Table 2 - Example of pre and post-course objectives and contents design

Pre-course	Contents
	1. Ageing. 2. Health and disease in the elderly.
	Objectives
	- Knowing main physiological changes associated with ageing. - Knowing the geriatric syndromes. - Understanding individual's functional ability and main limitations and dependences. - Evaluation of the elderly person according with a bio-psycho-social model. - Establishing a care plan.
Post-course	Contents
	1. Ageing Demographic aspects. Ageing-related biological changes. Ageing-related systemic effects. Ageing, health and disease. Ageism.
	2. Health and disease in the elderly Functionality, frailty and their evaluation. Specific characteristics of disease presentation. Clinical follow-up and pharmacotherapy in the elderly. Geriatric syndromes – concept; detection criteria; triggering and risk factors. Major geriatric syndromes – falls, malnutrition, chronic pain, neuropsychiatric disorders, urinary incontinence, pressure ulcers.
	Objectives
	- Identification of major ageing physiological changes, recognizing its clinical manifestations. - Definition of geriatric syndromes and description of the most prevalent. - Differentiation between normal and abnormal ageing clinical manifestations. - Evaluation of individual's functional ability and characterisation of major limitations and dependences. - Evaluation of the elderly according with a bio-psycho-social model. - Establishing an adequate, global and integrated plan of care, taking into consideration previous evaluations.

Table 3 - Course evaluation considering objectives, contents and expectations

Analysis parameters	Very good	Good
Objectives	72%	24%
Program content (adequacy)	85%	15%
Program content (acquisition)	76%	22%
Teaching Methodology	79%	18%
Evaluation process	41%	37%

- Vocational objectives (one way of student's early acculturation into his future profession):

- Development of a cross-sectional approach (...), getting the student closer to the real situation of a future physician;
- Promoting the precise use of the medical language;
- Promoting the interest in scientific research.

DISCUSSION

The results obtained from lecturer's feedback and from the analysis of some of the training products, as well as the theoretical references on lecturer training, namely regarding medical education¹⁵⁻¹⁷ and also the studies on student's feedback regarding what they value the most in a lecturer seem:

- To validate some of the principles in which educational training of the NMS lecturers has been based^{18,19}:
- Compliance with what is known regarding adult training

and with lecturer characteristics. In fact, a non-school-based training has been intended and, even though based on practice, was intended to be theoretically contextualized²⁰;

- Characterisation by lecturers of their training needs and negotiation of their training objectives¹⁴;
- More than a simple practical training, time for discussing lecturer's concepts regarding teaching and learning procedures, compliant with the reference frameworks and experiences of each one;
- Absence of a definition or standardisation of 'good teaching', assuming that each lecturer has his/her own style which he/she must know how to justify.²¹
- To confirm the importance of an adequate educational training for an informed reflection on the curriculum²²:
- Planning developed by lecturers showed a significant level of awareness regarding the concepts analysed throughout the training and, consequently, a real ability to reflect on the importance of the alignment between

contents, aims and evaluation of the curriculum unit, as on the curriculum and potential links with other curriculum units;

- Responses of head lecturers mostly showed a high level of reflection on the content of the curriculum unit and on the relevance assigned by head lecturers to it within the curriculum. From a formal point of view, no contaminations were found between the *syllabus* and the *curriculum* of each curriculum unit and lecturers have established the difference between the list of contents to be taught and the set of objectives to be met by students. In addition, many head lecturers assumed that they did not only aimed at objectives within the cognitive domain or training of professional actions, but also aimed at the development of certain professional approaches as well as certain attitudes;
- Lecturer requests for monitoring experiences of planning practical application have shown that training was extended beyond the sessions, reinforcing its pertinence and usefulness.

CONCLUSION

From a more global point of view, these were the more relevant conclusions:

- Lecturer educational training is still not a general practice, even though its relevance has been shown by lecturer's feedback. This has been described for a long time in medical education and medical schools all over the world (Portugal is not an exception) have been pioneering in this domain;
- Well validated training programs are directly linked with the needs of the institution and / or with lecturer's individual needs;
- There is the need for extending training to lecturer

functions, by removing exclusively classroom-oriented contents and giving more relevance to curriculum alignment;

- Higher education lecturers and clinical lecturers hold in high regard an educational training based on reliable theoretical references and linked with their own practice;
- The development of educational research within higher education is crucial, requiring the analysis of lecturer's own practices, in order to understand and innovate and therefore filling the gap between research and pedagogy;
- Educational training may represent the opportunity to create common areas between departments and services until now separated by the barriers of their own scientific domains.

HUMAN AND ANIMAL PROTECTION

The authors declare that the followed procedures were according to regulations established by the Ethics and Clinical Research Committee and according to the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in writing this manuscript.

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