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Review Article

The Research Activity of Dental Teachers - Limitations and Prerequisites for their Academic Achievements (A Pilot Study)

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Abstract

A self-administered questionnaire had been distributed among dental teachers in the FDM to study some important aspects of the research activities through teachers' self-assessment and perception. Results showed that the teaching staff is ready and motivated to advance in their career based on individual efforts and cooperation rather than institutionalization of their creative potential. The improvement of the efficiency of teaching staff research and career advancement and satisfaction implies a better knowledge of human and institutional capacity.

Keywords: *Teaching Career; Research; Institutional Support; Institutional Recognition*

Introduction

During the last three decades of the last century, biomedical research, clinical approaches, and healthcare provision regulations in Bulgaria have undergone profound changes. Along with the social, healthcare, and education reforms in Bulgaria, a trend of gradually introducing problem-based learning in dental schools in the United States and most EU countries is observed, demonstrating the need for the integration of knowledge from different levels and fields of science, and practice of dentistry. To achieve educational goals, simulation models are used that recreate the working conditions, as well as the conditions in which the dentist makes professional decisions. Other characteristic elements of the problem-oriented approach are related to increasing the research literacy of dental practitioners (dental students) and educating an attitude toward continuing education and lifelong learning [1-3].

The intense introduction of high technologies in treating patients is another challenge for dental education for both educational institutes and teachers.

Teaching careers in dentistry apart from lecturing include research activities as well [4]. In addition to this, the lecturers at the Faculty of Dental Medicine in Sofia face specific challenges related to ongoing healthcare and dental education reforms in the country. Lecturers are involved in the development of new programs for scientific and applied research, and young teachers and doctoral students have to develop competitive projects for financing the process of planning, performing, and defending Ph.D. theses.

It could be expected that the scientific interests of the young colleagues, both in the different departments and in general for the faculty, on interdisciplinary topics, meeting the methodical experience of the senior lecturers would increase the efficiency and efficacy of the overall scholastic milieu of the educational institution. Pooling of all human and technological resources could be achieved with the institutional support of the ideas and efforts of individual teachers, in particular young colleagues. For this purpose, both the problems and the available infrastructure and human potential must be studied [5].

Purpose and Objectives

With this study, we aim to explore some aspects of the research activity of faculties through the prism of their positions requirements and their perceptions of the scholastic/research milieu. The subject of the study is the teaching staff's interests, preparation, and willingness to participate in the research activities of FDM, as well as the factors that determine their motivation and satisfaction with the achievements in this field.

In connection with the objective thus set, the following tasks are formulated:

1. To establish the existence of scientific interest, scientific production, and experience;
2. To show how teachers realize themselves as researchers;
3. To present the communication and collaboration between the teachers (continuity);
4. To show the expectations and satisfaction of teachers with institutional support.

Material and Methodology

A questionnaire survey was conducted including all lecturers of the Faculty of Dental Medicine Sofia (142 people). Standard self-administered questionnaires were distributed, completed by the members of the departments, collected, and submitted for processing and analysis of the results.

The questionnaire includes 19 questions, based on a system of relevant empirical indicators that study the main aspects of scientific and teaching work: scientific production, collegial relationship and continuity, evaluation and self-assessment of scientific activity, satisfaction, and relationship with institutional support. When processing the data, the distributions in terms of predetermined answers were calculated, ignoring the differences by sex and age, taking into consideration the limited number of respondents (a total of 56 people at a response rate of 39%).

Results and Discussion

Scientific interests, scientific production, scientific activity, and experience

In order to determine the readiness of teachers for scientific work and cooperation, we should first describe the existence of a targeted scientific interest, the scientific production and the experience to carry out certain research activities at the individual level [6]. Most of the respondents, 43 out of 56 people declare at least 1 area of scientific interest, 37 - 2 areas of interest, 19 - 3 areas of interest, and 13 people did not indicate any area of interest.

The main areas of interest mentioned in the answers usually coincide with the specialized fields of care provided by the respondents, such as clinical diagnostic problems in orthodontics, endodontics, conservative dentistry, prosthetics, operative dentistry, periodontal surgery, bone and bone repair surgery, allergology, immunology, oral medicine, periodontology, X-ray diagnosis, physical therapy, aesthetic dentistry, cariology; non-carious lesions, remineralization, adhesives, biomaterials, instrumentation, lasers, occlusodontics, mucous non-surgical periodontal therapy, acute odontogenic infections, traumatology, anesthesia, total dentures, oral biology, epidemiology, ergonomics, ethics, methodology, European integration.

It can be seen that at the time of the study, most of the teachers have their defined focus of research and follow their personal planning. Only about a tenth of them feel challenged by the process of starting a research project. With a high degree of probability, it can be assumed that they form a group of young teachers. A small number of answers go beyond the list of the departmental topics, which shows existing but still little interest in topics of interdisciplinary nature.

Respondents estimate that they have experience mostly in writing articles (86%) and participating in working groups (50%). Far fewer people consider themselves experienced in writing reviews (10 - 14%). Even less significant is the number of those experienced in the guidance of dissertations concept development, and writing monographs (12%).

The leading place is occupied by the writing of articles, followed by the presentation of scientific forums in Bulgaria. The number of published monographs is much smaller, which can be attributed to both the limited financial resources and the wide penetration of online publications.

The scientific output of each lecturer is subject to official recording and basis for analysis of his/her development and the accreditation of the educational institution. In our case, the structure of scientific production is of interest, as a prerequisite for the generational continuity of the faculty staff.

Given the expected rapid generational replacement of teaching staff with young staff who have to develop dissertations, there is a need to encourage all teachers to increase their methodological training and experience in developing, writing, and publishing all genres of scientific works, including these directions and reviewing of publications [7,8]. Defining priorities for the research activity of the institution could provide great help to young teachers to quickly focus on a topic for dissertation development relevant to the scientific plan of the institution.

How do teachers realize themselves as researchers?

Of interest is the teachers' self-assessment of their readiness to conduct and publish research. Information on the self-assessment of the readiness to implement creative plans and the need for help is contained in the answers to questions 9, 10, 11, 12, and 15.

The majority of respondents replied that they could handle to a large extent the technical work of planning, conducting, and presenting the surveys. They can present tabular results (64%), make a poster (62%), diagrams (52%). The percentage of those who can construct a questionnaire (43%), slides (34%), videos (30%), and movies (27%) decreases. Less than ten percent can direct the presentation of scientific development to a student research group or a research project. To question number 12: "To what extent do you know statistical methods" only 7 people answer that they cope with SPSS (12%), and of the rest, only 18% use the services of a statistician for a fee. Perhaps the non-establishment of basic approaches in the statistical analysis of results creates some barriers for teachers to participate in research.

Another integral element of the competencies inherent in research is English language proficiency. According to the answers to question 11, most of the teachers (88%) read scientific literature, half of them report maintaining scientific correspondence (52%), and only about one-fourth present (29%) or write articles (21%) in English. Only 3% lecture in the English language.

It can be said that most teachers use the English language in their work, but they need help improving it to be able to freely apply it in education for international students. The problem of improving language proficiency is within the competence of both the individual specialist and the institution.

Approximately half of the respondents consider themselves prepared for research. About 1/3 - oscillate in their perception, and approximately 1/5 do not feel prepared.

Communication and collaboration between teachers (continuity)

Research is a complex of individual and collective activities. The process builds professional careers, and the accumulated published results build the image of the team and the institution. Value orientation in dynamic collectives is a prerequisite for mutual assistance, respect, and gratitude. In order to understand the level of communication between lecturers in the course of the research, we asked the following questions:

- Q 4: What competent assistance would you offer to colleagues?
- Q 6: To what and/or to whom do you think you owe the greatest success in your scientific work?
- Q 7: Who would you work with in a scientific team? (Insert three names)
- Q 8: What qualities of these colleagues do you think are important for scientific work?

To specify the need for methodical assistance we will comment on the answers to question 9. It turns out that colleagues have the greatest need for communication. They put in 1st, 2nd and 3rd place the need for advice (41%), supervisor (39%), and help in producing an article, dissertation, poster, or lecture (38%). Only then comes the specific need for help in filling gaps in methodology, statistics and language preparation.

The competent help that teachers think they are able to offer each other includes consultation on writing an article, dissertation, poster, or lecture: (57%), project development (46%), construction of questionnaires (45%), development of a concept for a research topic (39%), multimedia assistance for the development of lectures and presentations (34%). Significantly fewer people can and wish to help with: orientation towards organizations and experts (20%), peer review (18%), preparation of Ph.D. students (14%), statistical data processing (12%), finding sponsors (11%).

From the answers to question 6 "To what and/or to whom do you think you owe the greatest success in your scientific work?" it is understood that both professional and personal relationships are important in professional cooperation, and it is difficult to prove which ones dominate.

It is natural that personal qualities (68%) and personal contacts (52%) are decisive for scientific development due to the collective nature of research. On the other hand, it is noteworthy that in the scientific realization the individual lecturer prioritizes administrative contacts over scientific ones - he expects more from the head of the department (48%) than from his scientific supervisor (27%). Respondents report that colleagues who have the capacity to help them do not always have an adequate academic position. Working conditions at the department, faculty, and university level are not perceived as a crucial prerequisite for the success of research undertaken [1,3,4].

When asked about the personal qualities they consider important in collaborative scientific work (C.8), respondents put "correctness" (68%), "employability" (61%), "integrity" (59%), and "creativity" (54%) at the top of the scale. Next is "erudition" (50%), "methodology" (50%), "knowledge of the problem" (41%), and "the ability to rely on them" (39%). Only after them come qualities such as: "write well" (30%), "have good contacts" (21%) and "encourage me" (18%) [4,5,7].

Self-assessment, expectations, and satisfaction of teachers with institutional support

When asked "How do you assess your previous scientific work?" the respondents answered extremely self-critically. Only 3% feel they are highly appreciated for their scientific work, and 16% rate it as a "success". Self-assessment prevails as "good" (39%), "satisfactory"

(18%), and "unsatisfactory" (11%). Two people (3%) cannot judge, and 6 people (11%) think it is "not so important". Only 28% of respondents feel that "their efforts in scientific work are appreciated" by the institution.

So many respondents think that their efforts are not appreciated (28%). Even more unusually, 18 people could not determine how their achievements are considered by the institution (32%), and 5 people did not respond (9%).

The expectations for the institution are revealed in the answers to the following questions:

- Q.13: Do scientific work feel to be a priority for the FDM?
- Q.16: What do you expect to be done by the Faculty for your preparation and support in the work?
- Q.17: Give specific proposals for the purchase of fixed assets.

Only 14 people (25%) believe that scientific work is a priority for FDM, for 20 people (36%) the answer is negative, and 20 people cannot determine (36%). Of the proposals for improving the conditions for research, the most important for them are apparatus (54%), software (46%), computers (36%), and equipment of multi-purpose halls (19%).

Teachers are very modest in their expectations of the institution. They put at the forefront the working conditions: apparatus (66%), materials (59%), data processing system (50%), support for finding sponsors (43%), and literature (38%). Improving comfort at the workplace and flexibility of working time remain secondary: creative leave (36%), and creative business trips (32%). Only finally comes the expectation of a worthy distinction according to achievements (29%), and presentation to another institution (23%).

Conclusion

The scientific potential of FDM-Sofia is distinguished by high competence and in-depth interest in scientific activity in the relevant field of the main units and much less in topics and ideas of interdisciplinary nature. For the realization of their plans and goals, lecturers rely mainly on their qualities and personal professional contacts and less on the support of the institution (department, faculty, university). The if expectations for institutional support are mainly expressed in providing material conditions for conducting research activities and, to a much lesser extent, in institutionalizing the creativity of the individual member of the team. Young researchers prefer to look for administrative rather than expert cooperation. The above correlates with high self-criticism in self-assessments and very modest expectations for distinguishing and valuing personal contributions to the institution.

Appendix 1. Questionnaire

Dear colleagues,

This survey aims to collect information to outline the interests, preparation and opportunities for the development of individual and collective projects with a view to participating in competitions and supporting young teachers to enrol and develop doctoral theses. The data will be processed and made public. The survey is anonymous. Please fill in the questionnaire by surrounding the answers that are more in line with your opinion.

Questionnaire

Please indicate the main areas of your scientific interests: (no more than three answes)……

1. What scientific output does your scientific activity include? (each correct answer)
    - Individual publications,
    - Graduate studies,

- Defended dissertation,
- Monographs,
- Presentations in Bulgaria
- Presentations abroad,
- Project management,
- Participation in projects in Bulgaria,
- Participation in projects abroad,
- Other (specify).....
- I don't have one.

2. How do you rate the experience you have in scientific work? (any correct answer)
    - Reviews of articles,
    - Reviews of theses,
    - Reviews of competitions,
    - Conceptualization,
    - Working groups,
    - Writing of articles.
    - Monographs
    - Guide of dissertants,
    - Others.....
3. What competent help would you offer your colleagues? Any correct answer (refine in which area)
    - Preparation of dissertants,
    - Peer review,
    - Orientation to organizations and experts,
    - Statistical data processing,
    - Construction of questionnaires,
    - Development of a concept for a research topic,
    - Finding sponsors,
    - Developing projects,
    - Consultation to write an article, dissertation, poster, lecture,
    - Multimedia help for the development of lectures and presentations,
    - Others……..
4. How do you assess your research work so far? (one answer only)
    - Great achievement,
    - Success,
    - Good,

- Satisfactory,
- Unsatisfactory,
- I can't judge,
- It's not that important to me.

5. To what and/or to whom do you think you owe the greatest success in scientific work? (any correct answer)
    - My preparation before I start working here,
    - Personal qualities (creativity, working capacity, other),
    - The conditions in the department,
    - The conditions at the faculty,
    - The conditions at the university,
    - The help of colleagues,
    - The head of the department,
    - Personal contacts,
    - Scientific supervisor,
    - The support of my family,
    - The example of colleagues,
    - Other, please specify……..
6. Who would you work with in a scientific team? (insert three names)
    - 1……..2……3…….
7. Which qualities of these colleagues do you think are important for scientific work?
    - Erudition,
    - Creativity,
    - Integrity,
    - Correctness,
    - Employability
    - Write well,
    - Methodical are -learned from them,
    - Have good contacts
    - Encourage me to always count on,
    - Something else.....
8. What methodological help do you need in your work? (any correct answer)
    - Scientific supervisor,
    - Methodical preparation,
    - Advice,
    - Collaborators,

- Consultation on writing an article, dissertation, posters, lectures,
- Multimedia help for lecture development,
- Language preparation,
- Other.....

9. What do you know how to do alone? (any correct answer)
    - Tables,
    - Diagrams,
    - Questionnaires
    - Slides,
    - Posters,
    - Videos,
    - Movies,
    - Other.....
10. To what extent do you speak English in your scientific work? (any correct answer)
    - I read scientific literature,
    - I keep a correspondence,
    - I present in English,
    - I write articles in English,
    - I lecture in English,
    - I do not speak English,
    - Other.....
11. To what extent do you master statistical methods?
    - SPSS,
    - I don't handle,
    - Otherwise.
12. Do you feel scientific work as a priority for the FDM (one answer only)
    - Yes,
    - No,
    - I can't define.
13. Do you feel that your efforts in scientific work are appreciated? (one answer only)
    - Yes,
    - No,
    - I can't determine,
    - Depends on the management.

14. Do you feel prepared for scientific work? (one answer only)
    - Yes,
    - To some extent,
    - Rather yes,
    - Rather no,
    - No,
    - I don't think it's important.
15. What do you expect to be done by the faculty for your preparation and Support at work? (any correct answer)
    - Apparatus,
    - Materials literature,
    - Data-processing system,
    - Creative leave,
    - Creative posting,
    - Presentation to another institution,
    - Support for finding sponsors,
    - Worthy distinction according to achievements.
16. Give specific proposals for the purchase of fixed assets: apparatus, computers, software, other important equipment of multipurpose halls.
17. Share a problem you've faced during your research work……
18. Share your ideas about the advancement of research activities.....

Thank you for your participation.

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