

STATEMENT

By Assoc. Prof. Pepa Miteva Djedjeva, PhD

Department of Healthcare, Sliven Affiliate,
Medical University "Prof. Dr. Paraskev Stoyanov" – Varna

Appointed Member of the Scientific Jury by Order No. R-109-154 of 27/03/2026 of the Rector of Medical University "Prof. Dr. Paraskev Stoyanov" – Varna

Regarding: The procedure for acquiring the educational and scientific degree of Doctor in the field of higher education 7. Healthcare and Sports, professional area 7.4 Public Health, scientific speciality: Healthcare Management. The procedure is open for **Elka Dancheva Kostova**, a full-time doctoral student.

Thesis subject: Modern Competencies of the Radiology (X-Ray) Technician in Dental Digital Diagnostic Imaging

Research Supervisor: Assoc. Prof. Svetlana Peneva Angelova, PhD

1. General Overview of the Procedure

By Order No. R-109-147 of 23/02/2023 of the Rector of MU – Varna, *Elka Dancheva Kostova*, was enrolled as a full-time doctoral student in the Healthcare Management doctoral programme at the Department of Healthcare, Sliven Affiliate at Medical University – Varna. The programme is for the acquisition of the educational and scientific degree Doctor in the field of higher education 7. Healthcare and Sports, professional direction 7.4 Public Health, scientific speciality: Healthcare Management.

Elka Kostova's doctoral thesis is on: **The Modern Competencies of the Radiology (X-Ray) Technician in Dental Digital Diagnostic Imaging**. It was submitted for the awarding of the educational and scientific degree of Doctor. The thesis was discussed and referred for defence by the Departmental Council of the Department of Healthcare, Sliven Affiliate at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, on 24/02/2026. Research supervisor is Assoc. Prof. Svetlana Peneva Angelova, PhD.

The submitted set of documentation complies with the Regulations for Academic Staff Development at Medical University "Prof. Dr. Paraskev Stoyanov" – Varna and includes everything required.

The doctoral student has submitted two thesis-related publications.

2. Brief Biographical Data of the Doctoral Student

The author, *Elka Dancheva Kostova*, graduated from the Medical College – Plovdiv at MU – Plovdiv, speciality: Radiology (X-Ray) Technology, in 2001. During the period 2015–2018, she obtained a Bachelor's degree in Healthcare Management at MU "Prof. Dr. Paraskev Stoyanov" – Varna, and in 2019 she graduated with a Master's degree in Healthcare Management at MU "Prof. Dr. Paraskev Stoyanov" – Varna.

From 2001 until November 2020, she worked as a radiologic (X-ray) technician in different Imaging Diagnostics and Medical Diagnostic Laboratories in Varna.

Her academic career started in November 2020 as an Assistant Professor at the Medical College, Educational Sector Radiology (X-ray) Technician at MU "Prof. Dr. Paraskev Stoyanov". As of June 2024, she also served as Head of the Educational Sector at MC – Varna. She teaches the following courses: Fundamentals of Imaging Diagnostics, Radiographic Methods – practical sessions, and Practical Training.

General Assessment of the Thesis

3. Thesis Characteristics

Elka Kostova's thesis focuses on the study and analysis of the modern competencies of Radiology (X-ray) technicians in dental imaging diagnostics. It is presented on 178 pages in five main chapters: Chapter One – Literature Review: relevance of the problem; Chapter Two – Aim, objectives, methodology, and organisation of the study; Chapter Three – Results of original research; Chapter Four – Practical approaches; Chapter Five – Conclusions, recommendations and contributions. It is illustrated with 14 tables, 67 figures, and 5 appendices. The bibliography includes 232 references, of which 36 are in Cyrillic and 196 in Latin.

The individual chapters are chronologically connected and meet the structural and content requirements for a research study. The research instruments were independently developed and include four questionnaires for studying the key competencies of the X-ray technicians in dental digital imaging diagnostics. The study involves lecturers and students in the Radiology (X-Ray) Technician speciality, practising professionals, and employers. A semi-structured questionnaire designated for experts was also developed. These are presented in the appendices. Two scientific publications related to the thesis subject have been published.

4. Relevance of the Subject and Author's Expertise

The thesis addresses a highly relevant issue concerning the major technological advances in medical imaging over the past decade. The author's interest in this topic originates from her many years of experience and professional background.

The literature review, 62 pages, includes 232 references, the majority of which were published within the last 10 years. It is structured in four main sections that chronologically follow the main objectives of the thesis hypothesis and examine its various aspects.

The literature analysis reflects the author's in-depth knowledge of the field, particularly regarding the challenges of digitalisation and artificial intelligence in modern healthcare and medical education. The collected and analysed information surveys the continuous improvement of software functionalities in radiographic equipment. In turn, this results in an increasing need to update the existing knowledge, skills, and competencies of the X-ray technicians in a constantly shifting technological environment.

The literature review demonstrates the need for educational and practical approaches enabling rapid adaptation to new technologies to ensure the quality of results and patient safety.

5. Research Methodology

The author conducted an original study among a general population of 317 respondents: lecturers in Radiology (X-Ray) Technician speciality (n=24); students in Radiology (X-Ray) Technician speciality (n=127) from Medical Colleges in Sofia, Plovdiv, Varna, and Pleven; practicing X-ray technicians (n=113); employers of graduates in Radiology (X-Ray) Technician speciality (n=46), from the cities of Varna, Dobrich, Shumen, Veliki Preslav, and Omurtag; and experts in Radiology and Dental Medicine (n=7).

The study was approved by the Research Ethics Committee (REC) at the Medical University – Varna.

The aim of the thesis is clearly and precisely formulated. Seven objectives have been set, covering various aspects of the issue. They are practical and support the effective implementation of the planned study. Three working hypotheses have been established.

The researcher independently developed the necessary research instruments: four questionnaires: one for students, one for lecturers (with 24 questions), one for practising X-ray technicians, and one for employers (with 24 questions).

A semi-structured interview questionnaire with 13 questions for experts in Radiology and Dental Medicine was also developed.

The research methods – documentary, sociological, and statistical, enable in-depth analysis and interpretation of the results and ensure their validity.

6. Results and Discussion

The results of the survey conducted with the individual respondent groups are presented by *Elka Kostova* in the third chapter of her thesis. Their socio-demographic characteristics are described, and the results are grouped into thematic sections following the chronological order of the seven objectives.

The presented data identify deficiencies in the practical training of students and establish the need for additional training and the integration of modern simulation technologies into the educational process.

The results are systematically analysed and illustrated with 9 tables and 51 figures. The data analysis and discussion correspond to the formulated aim, objectives, and hypotheses, and logically lead to important conclusions and recommendations.

Ten conclusions have been formulated to summarise the survey findings. The overall conclusions demonstrate the achievement of the research objectives.

The recommendations and contributions outlined by the doctoral student are based on the conclusions.

The doctoral student proposes a curriculum for an *elective course on Dental Digital Imaging Diagnostics* aimed at developing digital competencies among students in the speciality.

A specialised electronic library of real, anonymised dental images has been created, structured in directories by file format (DICOM, TIFF/JPEG) and by type of modality (intraoral, panoramic, and CBCT), which would contribute to the development of digital competencies among students.

The doctoral student participates in a research project with a scope that corresponds to the thesis aim and objectives, centred primarily on developing the professional competencies of Radiology (X-Ray) Technician students in using specialised software.

The thesis is written with competence, in clear and precise language, with accurate use of terminology.

7. Thesis summary

The thesis summary is presented on 66 pages, in four sections, and contains the main elements of the research. Its content and quality meet the requirements of the Rules and

Regulations of MU – Varna. The thesis summary provides an accurate and sufficient representation of the study's findings. Two thesis-related publications are presented.

In conclusion, I consider that the thesis presented by *Elka Dancheva Kostova* on the **Modern Competencies of the Radiology (X-Ray) Technician in Dental Digital Diagnostic Imaging** demonstrates the doctoral student's in-depth theoretical knowledge and committed academic inquiry into the subject. The thesis, in terms of its relevance, scope of research, adequacy of the methodological approach, quality of results, and significance of its scientific contributions, meets the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for Academic Staff Development at MU "Prof. Dr. P. Stoyanov" – Varna.

In light of the above, I give a **positive assessment** of the research presented in the thesis and its summary. I propose to the esteemed members of the Scientific Jury that **Elka Dancheva Kostova** be awarded the educational and scientific degree of **Doctor** in the field of higher education 7. Healthcare and Sports, professional area 7.4 Public Health, scientific speciality Healthcare Management.

14/04/2026

Prepared by:
Assoc. Prof. Pepa Djedjeva, PhD

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