

STATEMENT

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FACULTY OF MEDICINE

ON THE DOCTORAL THESIS OF DEYAN GRIGOROV GRANCHAROV:

**EFFECTIVENESS AND PERSPECTIVES OF SIMULATION
TECHNOLOGIES IN THE EDUCATION AND TRAINING
OF HEALTH PROFESSIONAL STUDENTS**

WITH RESEARCH SUPERVISORS:

**ASSOC. PROF. NATALIA VASILEVNA USHEVA, DM, PHD
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FOR AWARDING THE EDUCATIONAL AND SCIENTIFIC DEGREE

PHILOSOPHY DOCTOR

PROFESSIONAL FIELD 7.4 PUBLIC HEALTH

I have been appointed as an external member of the Scientific Jury, pursuant to Order No. – P-109-300/07.06.2020, of the Rector of the Medical University – Varna, to present a position statement on the doctoral thesis of Deyan Grigorov Grancharov. The subject of the thesis is “Effectiveness and perspectives of simulation technologies in the education and training of health professional students”. The doctoral thesis is submitted for awarding the educational and scientific degree PHILOSOPHY DOCTOR, professional field 7.4 Public Health.

General characteristics of the scientific work

Deyan Grigorov Gruncharov has submitted his doctoral thesis for assessment and statement. The thesis is written on 189 pages and is illustrated with 16 tables, 6 figures and 8 appendices.

The bibliographic reference includes 232 references, of which 2 are in Cyrillic and 230 – in Latin.

The research material is structured in the following main sections: Chapter 1 – Introduction, Chapter 2 – Literature review; Chapter 3 – Aim, tasks and working hypotheses; Chapter 4 – Materials and methods; Chapter 5 – Results and discussion; Chapter 6 – Conclusion; Chapter 7 – Conclusions, Chapter 8 – Contributions, Chapter 9 – List of thesis-related publications, References, Appendices.

The relevance of the explored subject is established by the fact that in Bulgaria, there is limited to no information and research on simulation-based medical training. Additionally, in recent years, in the context of the worldwide epidemic and the rapid development of modern technologies, the methods and forms of simulation-based training for students and physicians provide undeniable benefits – high quality, significant efficiency, economy, reliability and patient safety.

In his **introduction**, Deyan Grigorov Gruncharov convincingly validates the relevance and significance of the selected topic.

The **literature review** demonstrates the doctoral student's in-depth knowledge in the field of the chosen research problem.

He considers the issue in several aspects:

- ✓ Historical Overview;
- ✓ General characteristics of simulation technologies applied in medical education and training;
- ✓ Basic modern methods of simulation technologies applied in medical education and training;
- ✓ Application of simulation technologies in the training of medical students and postgraduates in various medical disciplines;
- ✓ Quality and effectiveness of modern simulation technologies in medical education and training;
- ✓ Economic analyses of the application of modern simulation technologies in medical education and training;
- ✓ Medical Simulation Centres in the medical universities in Bulgaria;
- ✓ Critical analysis of the literature on the scientific problem.

This chapter offers a wealth of material, competently and critically analysed by the author. It displays the author's broad understanding and scientifically substantiates the need for research on the effectiveness and perspectives of simulation technologies in training students from different health disciplines in Bulgaria. The extensive knowledge on the subject provided the author with a foundation for creating an appropriate methodology implemented in his own research.

The aim and objectives of the dissertation are correctly formulated and well justified. The specific scientific tasks, the object, units and signs of observation are related to the specificity of the development. Adequately selected methods have been used, complementing each other and allowing for a comprehensive assessment of the effectiveness and prospects of simulation technologies in training students from different health specialities. An in-house survey was conducted.

The aim and tasks of the thesis are suitably formulated and strongly substantiated. The specific scientific tasks, the subject, units and indicators of observation are associated with the specificity of the research. The applied methods are adequately selected and complement each other, enabling a comprehensive assessment of the effectiveness and perspectives of simulation technologies in training students of different health disciplines. The author carried out his own survey.

The thesis aims to investigate and analyse the application, effectiveness, and perspectives of simulation technologies in the education and training of students in different health disciplines.

The tasks outlined are entirely consistent with the stated objective.

Task One: To provide a historical overview of the introduction and application of simulation technologies in the training of health professional students;

Task Two: To study the different types of simulation technologies, the developments in their current progress and the purposes of their deployment, including in Bulgaria.

Task three: To determine the effectiveness of implementing simulation technologies compared to conventional teaching methods;

Task four: To assess the subjective experience, attitude and exposure of students and lecturers when working with simulation technologies in the course of training and the evaluation process;

Task Five: To identify impediments to the extensive implementation of simulation technologies in the training of health professionals.

In his research, Deyan Grigorov Grancharov employed a complex system of methods to prove the set of hypotheses:

- Documentary method;
- Survey;
- Experimental study;
- Survey among Obstetrics and Gynaecology lecturers;
- Qualitative method for expert assessment of the impediments and perspectives of ST applied for training purposes;
- Statistical methods.

Evaluation of results

The study's results are summarised in several areas, thus revealing an excellent analytical insight into the status and future development of simulation technologies in student learning.

1. Survey on the attitudes and experiences of the application of ST in the training of medical and dentistry.
2. Survey among medical students with a designated assignment in obstetrics and gynaecology.
3. Survey of the opinion of the obstetrics and gynaecology lecturers.
4. Qualitative analysis among experts on the application of simulation technologies in modern higher medical education:

- *Evaluating the role and advantages of simulation technologies in contemporary higher medical education;*
- *Major barriers to the application of simulation technologies;*
- *Availability of simulation technologies and their utilisation in the respective medical school;*
- *Application of simulation technologies in the training of students and postgraduates;*
- *Impediments on the part of faculty to the widespread use of simulation technologies in the education and training of medical students and postgraduate students;*
- *Ethical issues of the application of simulation technologies in higher medical education;*
- *Legal and financial problems of the application of simulation technologies in higher medical education;*
- *Simulation technologies in higher medical schools in Bulgaria: A Perspective.*

The conclusions of the study follow naturally from the analysis of the results obtained. Deyan Grigorov Grancharov draws eleven conclusions corresponding to the five tasks set.

Evaluation of contributions. I am in agreement with the contributions indicated by the doctoral student. The contributions have been appropriately classified and categorised in the following areas:

- ✓ A detailed and in-depth historical review of the development and application of simulation technologies for training students of various medical disciplines has been presented.
- ✓ This multifaceted study is the first initiative in our country regarding the effectiveness and perspectives of modern simulation technologies in training clinical medical students and dental students.
- ✓ This is the first time a survey has been conducted on the attitudes and experiences of using simulation technologies in training medical and dental students.

- ✓ An experimental study was conducted for the first time in Bulgaria to evaluate the effectiveness of the application of ST in the training of Obstetrics and Gynecology students.
- ✓ Obstetrics and Gynecology students and lecturers' knowledge, subjective experience and exposure when working with simulation technologies were investigated and analysed.
- ✓ The first qualitative expert analysis was conducted to identify the main barriers to the widespread use of simulation technologies for training health students in Bulgaria.
- ✓ The overall analysis of the collected data provides grounds for recommendations to the relevant institutions for introducing routine and effective training of students in higher medical schools in Bulgaria.

Thesis summary and thesis-related publications

The thesis summary correctly reflects the structure of the thesis and contains the most important results and conclusions of the study.

There are three publications related to the dissertation subjects.

I give a positive evaluation of the presented thesis.

Conclusion

Deyan Grigorov Grancharov's thesis on the *Effectiveness and perspectives of simulation technologies in the education and training of health specialities students* is a relevant scientific work. The scope of research and the significance of contributions meet the requirements of the Development of the Academic Staff in the Republic of Bulgaria Act and Rules and Regulations of MU-Varna for academic staff development.

Having taken all the above into consideration, I give my affirmative opinion, and I confidently recommend the honourable Scientific Jury to award the educational and scientific degree "Philosophy Doctor" in the professional field 7.4 Public Health to Deyan Grigorov Grancharov.

25/08/2023

Prepared by:


/Prof. Vladimir Gonchev, MD, PhD/