Abstract

The habilitation thesis is a genuine achievement of the research and didactic activity, an accumulation of theoretical notions correlated with practical applications, an outcome of professional fulfillments and a pertinent starting point for future trajectories of professional development of the young doctoral students in view of conducting individualized studies, with a deep practical impact.

The thesis reunites two main sections: the first section is destined to the evolution and development of one's own academic, scientific and professional career, in the context of the main research directions and of the current results that govern contemporary dental medicine, while the second develops the future research directions in the global context of the significant scientific breakthroughs on fields of competence.

As far as my professional background is concerned, I am a graduate of the Faculty of Dental Medicine, "Grigore T.Popa" University of Medicine and Pharmacy, Iasi, promotion 1995. I became part of the academic staff following a contest (university assistant, in 1999) teaching Dental Prosthetics within the Faculty of Dental Medicine, at "Appolonia" University, Iasi. Following the stages of professional evolution, in 2009 I became, following a contest, a lecturer at the same faculty, keeping the discipline constant and in 2015 I was admitted on the position of university professor at the Faculty of Medicine and Pharmacy, "Dunarea de Jos" University, Galati, the Department of Dental Medicine, the discipline of Dental Prosthetics, where I currently work. The PhD thesis, "Modern Methodologies of Making the Dental Implant", constituted a motivated started point for the research in the avant-garde of current dental medicine.

During all this time I have been concerned with the constant improvement of the didactic process in the complex field of dental prosthetics, actively taking part to the implementation of the new methods and techniques, both in fixed and in removable dentures, the practical works and the courses benefitting from a modern, interactive and student friendly presentation.

In order to optimize the courses and practical activities, I elaborated a number of 7 books and chapters, as author and co-author.

The permanent improvement has constituted a "sine-qua-non" prerequisite of the evolution on the medical level, thus becoming a primary doctor in general dental medicine

and a specialist doctor in periodontology, this field being in close connection with the dental prosthetics.

Even from the beginning of the academic career, my didactic activity has been doubled by an intense **scientific activity**, materialized in scientific works presented at various national and international manifestations and published *in extenso* in specialized magazines: ISI rated with impact factor – 35, ISI magazines without an impact factor-co-author: 6, indexed articles in international data bases: 21.

The most important themes of the research activity, whose results reflected in the doctoral thesis, were based on the field of oral implantology, the avant-garde of dental medicine, a continuously evolving field.

A main research direction, focused on the field of oral implantology, was represented by implant biomechanics which has always been an equation with at least one variable. Another important chapter of the research was dedicated to the modern application techniques of oral implants, bone grafts and prostheses in implantology. For the clinical cases solved we used the Sandhaus implants.

The main research directions have tackled the optimization of biomaterials involved in the dental prosthetics, a particular attention being paid to the research destined to silicone and acrylate materials, these studies having a profound deep impact, with the main applicability in the removable dentures.Other research directions were represented by the correlation of the general condition with the oral pathology and the identification of targeted therapies, important studies being dedicated to the cardio-vascular field.

With regard to the research activity, the 8 projects performed constituted important aspects of the development of certain fundamental issues for the dental medical activity, represented by prophylaxis, the cardio-vascular / oral pathology duo, the behavior of Ni Ti Nb alloys against corrosion, as well as the impact of edentation on the institutionalized geriatric patient.

The second section of the habilitation thesis is dedicated to the future research, trajectories based on the professional background which I intend to diversify in agreement with the current requirements of the dental medical practice, with the evolution of biomaterials and contemporary technologies, without neglecting the therapeutic approach of population groups, whose clinical and technological algorithm shows various particularities. Conclusive

examples in this sense are represented by the metabolic pathology, the mentally ill and the geriatric population.

I equally plan to organize a center of dental medical assistance destined to social cases, in collaboration with the City Hall of Galati, which aims at increasing the life quality of social patients, with specific dental pathologies, by signing contracts with the Health Insurance Department of Galati, having as a final result the elaboration of prosthetic rehabilitations adapted to the particularities of these clinical cases, with the prevalence on the functionality of these prosthetic works.

Another complex research direction that I would like to materialize, based on the studies conducted in the field of oral implantology, is represented by the elaboration of a complex mathematical model, focused on the 3D analysis ,that could analyze the particularities of the implant site, corroborated with multiples factors, in view of selecting the best therapeutic option.

Another research direction, adapted to the radio-imagistic evolution, is based on the elaboration of an image processing software that can automatically provide the selection of the therapeutic options, adapted to the particularities of the clinical cases.

Another research direction is that of the modification of the grafting substances structure in view of optimizing the process of bone creation, with the possibility of creating a biological model. I suggest this research direction in view of individualizing and choosing the grafting material of choice in agreement with the implanto-prosthetic rehabilitation solutions used, in addition I will focus on the elaboration of a self-drilling implant.

I intend to dedicate an important chapter of the future to esthetic restorations, an approach in line with the exigencies of the current society, which promotes of marketing of beauty according to very strict standards. At the same time, the interdisciplinary approach will be the key word that will lead to complex studies, based on fundamental research, individualized mathematical simulations, as well as the analog-digital pair.