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SOS for Researching Seafarers – Introducing Professional Doctorate in Maritime Education

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Abstract

Students interested in pursuing doctoral degree can usually choose between studying full-time and part-time with latter option generally chosen by working professionals. However, their drop-out rate from such programs is considerable. The problem is even more specific in maritime higher education sector where professionals working at seas are separated from universities for prolonged periods and therefore cannot often cope with demands of studying at doctoral level. This is why universities must find a way to retain these students at doctoral programs. A possible solution is to provide a professional doctorate over classical research doctorate. This paper elaborates the need for professional doctorate in maritime sector putting emphasize on foundations such program needs in order to be successful: career focus, research type and focus, learning outcomes, mode of study, blending of work and study and distant learning.

Keywords: *doctorate, professional doctorate, researching professionals, maritime higher education*

1. Introduction

Doctoral degree is the highest formal academic qualification awarded to a student in higher education scheme. Doctoral programs are usually offered as full-time or part-time. Part-time option is mainly chosen by working professionals (WP) – employed career-focused individuals with specialized knowledge who pursue their doctoral degree along with their regular full-time job. One of the characteristics of these WPs is that they often have considerable practical experience in industry and business. Experience like that can undoubtedly help in identifying problems that need to be solved using scientific approach. But, practical-solving mindset of these doctoral students often conflicts with somewhat rigid academic environment so their full potential is often not recognized and universities don't benefit from a blend of academic and professional cooperation [1]. This challenge is even more present in maritime industry where professionals working at seas are separated from universities for prolonged periods due to the nature of their work. For instance, data available from Croatian maritime higher education institutions (HEI) clearly show that students in majority opt for part-time doctorate, Fig. 1.

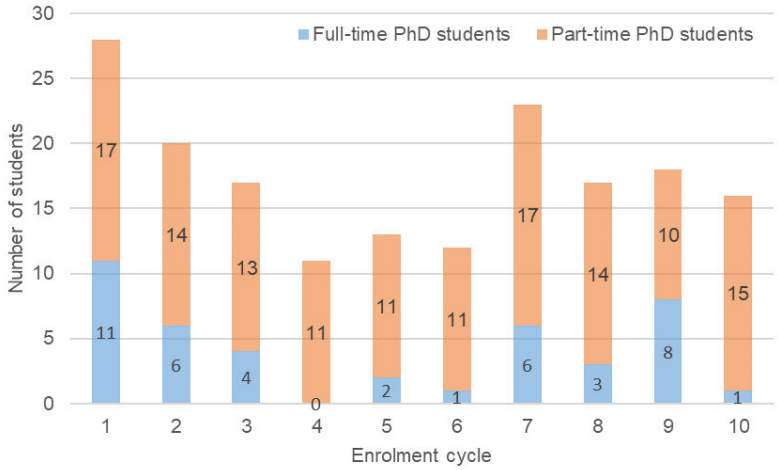

Fig. 1. Structure of PhD students at Croatian maritime HEIs in the last ten enrolment cycles (2009-2020).

In order to attract and keep WPs at their doctoral programs, HEIs need to help them to prevail the challenges on their path to doctoral diploma. A possible solution, that hasn't been used yet in maritime educational sector, is to provide a professional doctorate (Doctor of Engineering, EngD) instead of

classical research doctorate (Doctor of Philosophy, PhD). As literature states, PhD is aimed at developing "professional researchers" while EngD is aimed at developing "researching professionals" [2]. Doctor of Engineering program should combine foundational and theoretical knowledge across one or several disciplines with knowledge of research in its context. The idea of introducing EngD in maritime PhD programs is discussed in the following section of the paper. Six pillars that should represent foundations of a successful EngD program are presented. These points are put together by authors after careful investigation of the leading doctoral curricula in engineering sciences, both professional and classical, critical review of the available references and, finally, on independently recognized best practice of the authors who have been actively designing and managing doctoral programs along with mentoring doctoral students.

2. Six EngD pillars

Although professional doctorates vary from the classical research doctorates and, moreover, vary between themselves depending on the subject and the institution that offers them, some common ground can be established. Some shared features can be highlighted as pillars on which every successful EngD program can be built, especially those in maritime sector of education, Fig. 2, [3].

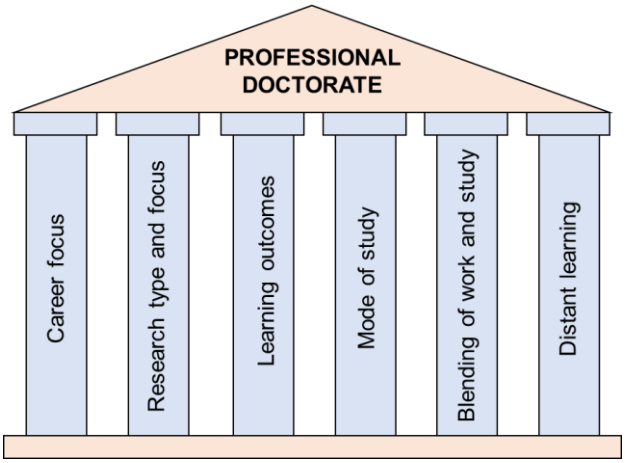

Fig. 2. Six pillars that should represent foundations of a successful EngD program.

2.1 Clear career focus

Classical PhD is generally not adequately suited to the needs of professionals pursuing a career outside academia environment or an industrial laboratory [3]. PhD is usually open for candidates who generally have no or little experience of the subject beyond the knowledge obtained at the BSc and MSc level in the proposed field of study. Moreover, PhD is designed as a pre-service training in research, while EngD is designed as an in-service professional development [4].

This career focus is what sets PhD and EngD apart. EngD is usually aimed at experienced professionals wishing to broaden their expertise and undertake advanced research, while not becoming researchers tied to HEIs or scientific institutes. Prospective candidate for a professional doctorate is usually required to carry 3 years of professional experience and relevant employment.

"Professional researchers" vs. "researching professionals" is a term that maybe most adequately describes the difference in career focus of PhD vs. EngD.

2.2 Defined research type and focus

"Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge - including knowledge of humankind, culture and society - and to devise new applications of available knowledge" [5]. The term R&D covers activity such as: basic research, applied research and experimental development. "Applied research is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective" [5]. Definition of applied research is what adequately describes professional doctorates.

As for the research focus, PhD candidate is usually expected to perform a preliminary research, identify existing gap and start their work towards making a significant original contribution to knowledge in a subject discipline.

By contrast, EngD candidate starts from what is not known, a perceived problem in professional practice that needs investigation and resolution. Professional research deals with a topic that relates to a candidate's own field of professional practice. In both cases, review papers are a good starting point into clarifying focus of the research [6].

2.3 Proper learning outcomes

Ending their PhD program, students should become independent scientists capable of performing and critically evaluating research using current techniques and methodologies and developing new ones. Developing the capacity to provide a significant original contribution to knowledge in a subject discipline is the intended learning outcome of the PhD.

Learning outcomes of professional doctorates are to develop the capacity to make a significant original contribution to knowledge of professional practice through research. EngD students should demonstrate the knowledge to create and interpret new knowledge, through original research, of a quality to satisfy peer review, extend the forefront of the discipline, and merit publication. They should, in general, be able to systematically acquire and understand a substantial body of knowledge and applicable techniques for research that are at the forefront of their area of professional practice. EngD students should, in particular, be able to conceptualise, design and implement a project that is intended to generate new knowledge and its application to professional practice.

2.4 Adequate mode of study

Professional doctorate students are expected to spend their working time in industry and therefore most of the professional doctorate programs are created to be studied in part-time form. However, some programs state that the students are considered to have full-time engagement with the understanding that majority of their time will be dedicated to their duties in a professional or industrial organisation. If the blend between professional work and academic duties is performed seamlessly, it is hard to distinguish between full-time and part-time mode of study. However, some HEIs offer double amount of time for part-time students to finish their study.

2.5 Blending of work and study

As previously stated, most professional doctorates intend to blend the professional work of doctoral students into their studies as much as possible. Harmonizing the extent to which the scientific research will penetrate everyday professional practice of an EngD student seems crucial in attracting prospective candidate to EngD programs and helping them to cope with two difficult tasks: delivering optimal performance at work place and, in the same time, fulfilling academic requirements. Hence, professional doctorates can, in a way, be viewed as a type of work-based learning and life-long learning [7]. This implies acceptance of alternate means of teaching and mentoring at the PhD level of education; a significant step in breaking the rigid frames of academic environment.

Setting the professional work of candidates into their doctoral studies can be done directly or indirectly. Directly, when students deal with a problem that is an integral part of their professional practice and indirectly when students deal with a problem that is not an integral part of their professional practice. Indirect setting is primarily used for students that wish to gain a broader knowledge about their professional sector.

2.6 Introducing distant learning

Students enrolled in the PhD programs are expected to study on-site, committing themselves to full-time program attendance, while EngD students are expected to continue working while taking courses. Moreover, in some specific industries, it is almost impossible to account for students' regular visits to campus. Professionals in transport industry, military, civil engineering or large multinational companies can rarely expect that they will spend prolonged periods at a single place.

A possible solution for their problems would be composing adequate online curriculum of postgraduate program. This program should adhere to same academic rigour as ones taking place on campus ground. Academic rigour means that students are challenged to think, perform and grow to a level that they were not at previously [8]. Standards of the course must be set in a way that they challenge the students, not frustrate him. Academic rigour commonly consists of three different phases: setting the standard for students; equipping students through instructional and supportive methods; student demonstration of achievement [9]. At distant learning, it is often challenging to maintain academic rigour due to the nature of the study, but failing to do so can lead to deficient results of the research and dissertation itself.

3. Conclusions

Classical doctorate programs dedicated to maritime affairs are rare, professional doctorate programs practically non-existent. Out of 64 maritime HEIs, regular members of International Association of Maritime Universities, only 26 offer some kind of PhD program, Fig. 3, and no one offers EngD.

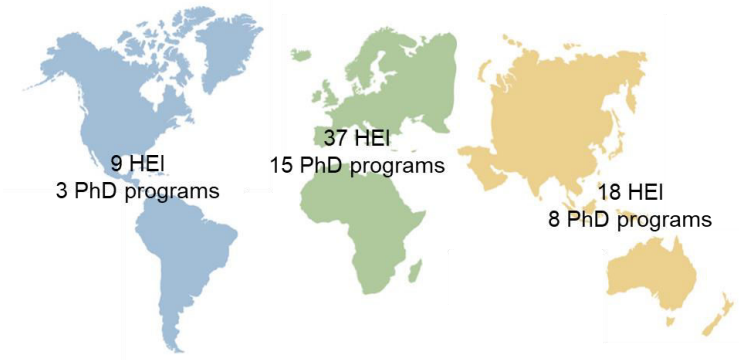

Fig. 3. Number of maritime HEIs, members of IAMU, across continents and PhD programs offered (as of December 2020).

Given the extreme applicability of the research in the maritime domain, it is obvious that there is a place for EngD programs. They do represent a tougher test than the PhD as research takes place in an environment with less support and findings must have an impact on a professional setting as well as contributing to knowledge. However, if enough efforts are put in proper design of professional doctorate programs and dissemination of the idea behind them to WP community, maritime sector has the most serious potential to implement this type of postgraduate advancement.

4. Acknowledgements

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