Universitat Rovira i Virgili

GOOD PRACTICES IN DOCTORAL SUPERVISION

Reflections from the Tarragona Think Tank

Edited by
Mar Reguero, Joan Josep Carvajal,
María Ercilia García & Mireia Valverde

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Preface by the Rector of the Universitat Rovira i Virgili

In June 2016, the Universitat Rovira i Virgili hosted the annual meeting of the Council for Doctoral Education of the European University Association (EUA-CDE), that gave place to the follow-up meeting, *Tarragona think tank on PhD supervisory training: challenges and good practices*, organized by the Group of Trainers for the Professionalization of Doctoral Supervision of our University. It is this group that has been behind this publication on the training of doctors in which various authors provide their vision. We are grateful to all of them for taking part in this collective project because it deals with one of the main focuses of interest of our university.

In our social and economic system, knowledge is increasingly becoming a fundamental element for the future of our society, particularly if we are to maintain our welfare state. Universities have become fundamental structures for the development of society and their establishment in various regions has been the driving force behind economic and cultural progress. Since it was created the Universitat Rovira i Virgili has been committed to generating and transmitting knowledge, and encouraging the equality of opportunity through education as the best way of achieving personal and collective progress as a society.

Recently we have reaffirmed this commitment by passing the 2nd Strategic Plan for Research and Innovation which, on the basis of scientific excellence, has two main objectives: reinforce the productive sectors in which our region specializes and rise to the social challenges we have as a society (the welfare of people, the sustainable development and the revitalization of cities and the region).

The Plan gives particular importance to the high quality of doctoral education and the consolidation of our Postgraduate and Doctoral School with the aim of reinforcing the research done at the URV, increasing the number of researchers working

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in production and bringing the percentages of doctors employed by companies up to the levels of countries that have an expenditure in R&D higher than our. Only in this way will it be possible to move quickly and steadily towards this innovative economy that generates new jobs with greater added value.

This book, then, makes a positive contribution to this process. It is at the beginning of the value chain and it will undoubtedly enable us to make a steady progress towards achieving the objectives that we share with all other universities, and to fulfil our potential to the utmost, which is our commitment to society.

Josep Anton Ferré i Vidal
Rector de la Universitat Rovira i Virgili

Preface by the Vice-Rector for Scientific Policy and Research

A doctoral degree represents the highest level of academic achievement and as such is an exciting period of the life for any graduate devoted to investigating new challenges and producing new knowledge. Students undertake their doctoral studies with the support of one or more academics who act as their supervisors. Students usually are form part of the scientific community related to the doctoral program and, at the end of the research period, prepare and present a doctoral thesis to an expert panel, who evaluate the work and, if appropriate, confer the internationally recognised doctoral degree.

Policies to support professional development in the field of research must guarantee the continuous development of knowledge and transversal skills training for researchers, improve their scientific work and facilitate their inter-sectoral, interdisciplinary and geographic mobility. Thus, institutions need frameworks and strategies to facilitate this development and measure the impact of these strategies.

At the URV, doctoral studies have always received special attention and are regarded as the starting point of our researchers' professional career development. This development not only lays the foundations for the scientific training of the individuals involved, but also benefits the institution by creating future researchers for society and being a key element of the URV's research and innovation outputs.

The URV has been working in this area since 1994, when it began funding for an annual program to support doctoral research contracts. Over time, this has been complemented by other external funds and, in 2012, all funding was merged to create the *Martí i Franquès Programme* for predoctoral grants, which in 2017 received international recognition and a further financial injection through the Marie Skłodowska-Curie COFUND programme (Horizon 2020).

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In addition to this, over the years the URV has continuously implemented various other actions to reinforce this supporting strategy. Examples of these are the Regulations on good practices in knowledge transfer (2003), the recognition of 'Active Researcher' status and the staff commitment agreement (2005), the Manual for the Quality Management System in RDI (2007) (version 2017), the adoption of the European Charter for Researchers and the Code of Best Practices for the incorporation of researchers (2008), the Code of Best Practices in RDI (2013), the Manual for Managing Occupational Risk Prevention at the URV (2013), the internal Regulations of the Health and Safety Committee of the URV (2013), the HR Excellence in Research Award (2014) and the Teaching and Research Staff Training Plan, which devotes special attention to doctoral student training.

All these actions have been taken within the framework of the URV's scientific policy through its First (2001) and Second (2017) Strategic Research and Innovation Plans. Both plans state that one the URV's primary interests is people dedicated to research and innovation and, therefore, that we need to continue working on talent attraction and retention and developing the best possible professional careers for our future researchers.

The present publication on doctoral training is a good example of how doctoral studies can evolve to improve the excellence of our future doctoral degree graduates and I thank and congratulate everyone involved.

Josep M. Ricart
Vice-Rector for Scientific Policy and Research
Universitat Rovira i Virgili

Preface by the Director of the Postgraduate and Doctoral School

The training of new doctoral candidates, that is, the training of young researchers, is a key factor in the progress towards a dynamic society and an economy based on knowledge and innovation. Consequently, policies to promote and support doctoral studies in universities are particularly important because these are the only institutions that offer this level of training. With the aim of ensuring the constant improvement of doctoral studies, during the academic year 2012-2013 the Universitat Rovira i Virgili (URV) set up a programme based on six strategic pillars: Doctoral Training, External Funding, Talent Recruitment, Scientific Productivity, Internationalization and Employability.

A central element of this programme is to ensure that new researchers receive individualized care and supervision throughout their doctoral studies. Candidates are encouraged to share their areas of interest, hypotheses, approaches, expectations, concerns and so on with their supervisors. As a result, the 3 to 4 year-long doctoral programme becomes a cooperative endeavour in which students "learn to do research by doing it".

This training process has a series of important outcomes for doctoral candidates because it enables them to clearly define their competences and expertise and configure their future professional careers. The project is therefore not only valuable for young researchers, but also for their supervisors and in particular for the university and for the dynamics and progress of society. Serving all of these important goals, aspirations and expectations means that the necessary conditions must be in place to guarantee the success of the training programme and to minimize any obstacles and frustrations.

As university professors and researchers, doctoral supervisors are highly knowledgeable in their particular fields of expertise; however, this alone does not

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guarantee that they have either knowledge or expertise in other areas such as providing career guidance for doctoral candidates, supervising the acquisition of competences, detecting potential problems or proposing possible solutions, etc. All of these skills, in addition to scientific expertise, are necessary if students' objectives and expectations are to be met during the course of their doctoral studies.

In recent years, European universities have become increasingly aware of this deficit and have begun to provide courses aimed at helping supervisors to reflect on concepts such as transparency and awareness in the supervisory relationship, the clarification of expectations and roles, the prevention of doctoral failure, etc.

Realising this requirement, the URV, with the help of Dr Helmut Brentel of the University of Hamburg, started to design and deliver these types of course, which to date have been attended by almost 150 professors/supervisors. All this has been possible thanks to the tireless efforts of the four members of the URV's Training group for the Professionalization of Doctoral Supervision (GFPSD – URV), Joan Carvajal, Ercilia Garcia, Mar Reguero and Mireia Valverde, whom I would like to thank personally for their invaluable work. They should also be congratulated for their contribution to the internationalization of the URV's doctoral courses by providing this type of training in universities abroad.

Finally, the creation in Tarragona of the Tarragona Think Tank for Doctoral Education and the bringing together of the most important European experts in the field of doctoral supervision training have been excellent news for the university. The following pages also take great pleasure in reflecting the most significant ideas and discussions to emerge from that meeting. The present publication, edited by our GFPSD Team, is a source of pride and satisfaction for the whole URV doctoral community. Thank you all.

Francesc Diaz
Director
URV Postgraduate and Doctoral School

Introduction

Joan Josep Carvajal, María Ercilia García, Mar Reguero, Mireia Valverde

Group of trainers for the professionalization of doctoral supervision
University Rovira i Virgili, Tarragona (Spain)

Contextualizing doctoral supervision

Doctoral studies are the highest level of education that universities provide. This accords them enormous importance, but the interest of the PhD extends beyond its preeminent position within the education system. Indeed, a crucial characteristic that defines and differentiates doctoral studies from other university programs is the fact that they constitute a learning process that includes not only knowledge acquisition, but also knowledge generation. It represents, thus, the first step in a research career that requires doctoral candidates to make an initial contribution in their scientific fields.

The paradigm of the knowledge society as the current productive system points to doctors as key actors in the generation, transfer and relevance of R&D, by connecting institutions involved in research and innovation with the welfare society. In this context, there is a need to increase the number of people with research skills, and at the same time, a need to increase the visibility of their contribution to society and their employability. Universities therefore play an important role in preparing doctoral graduates for the current labor scenario. Specifically, the Dublin Descriptors (2004) establish that PhD graduates, in order to obtain their degree, should:

- have demonstrated a systematic understanding of a field of study and mastery of the skills and methods of research associated with that field;
- have demonstrated the ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity;

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- have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication;
- be capable of critical analysis, evaluation, and synthesis of new and complex ideas;
- be able to communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;
- be expected to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge-based society.

All these requirements make doctoral education a much more complex matter than it was 20 years ago. The doctorate has been supplemented with a number of additional demands, activities, responsibilities, duties and opportunities for all the stakeholders involved in the process. This represents a new challenge for academic and research institutions responsible for doctoral training, which need to professionalize all the stakeholders with a role in the doctoral process. In this landscape, the professionalization of supervisors constitutes a cornerstone, given that they lead the development of the doctoral candidates they advise, while following the directives of the institution's policies. Indeed, the Salzburg Principles II (2010) establish that doctoral supervision, understood as a collective and collegiate effort with clear responsibilities of the supervisor, the PhD student, the doctoral school and the university at large, must be at the core of doctoral education development. They also charge universities with the responsibility for providing the corresponding professional development to PhD supervisors and facilitating a shared common culture of research.

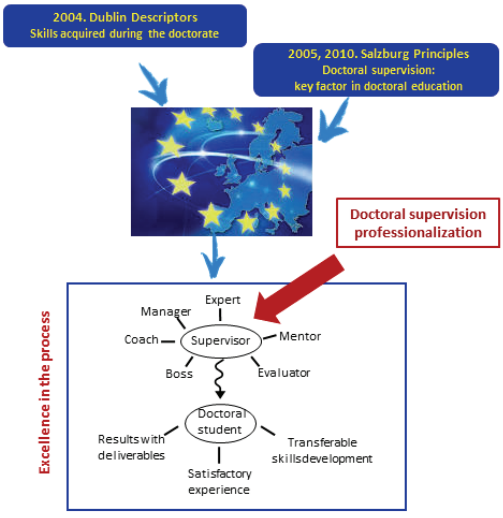
New perspectives in doctoral supervision

In the context described in the previous paragraph, PhD supervisors, along with their institutions, are responsible for preparing current and future generations of doctors to lead the European knowledge space. To undertake such a responsibility, the role of the PhD supervisor goes far beyond that of the lecturer typical of a teacher-student relationship. Moreover, the vision of the PhD supervisor as an authoritative distant figure centered solely on the research contents of a thesis is being superseded by the need for a professional doctoral supervisor who is not only an advanced researcher but also someone who can simultaneously handle the role of expert, mentor, coach, manager, evaluator and even career guidance counsellor. On top of this, doctoral education is a process that involves knowledge acquisition (through education) and knowledge generation (through research). Hence, it is essential that education and research be mutually reinforced. To this end, the role of the doctoral supervisor is key in both education and research.

Therefore, by professionalizing the skill-set of doctoral supervisors, we will endow them with the tools necessary to ensure that PhD students make a smooth transition from being good learners in their specialized topic to being capable of contributing to advancing science and contributing to society as researchers. Consequently, the supervisory skillset required by doctoral supervisors is by nature very broad. It involves a number of transferrable and soft skills above and beyond the technical aspects that supervisor-researchers are already acquainted with. Thus, it seems necessary to develop supervisors' expertise in terms of the complete set of transferrable and soft skills involved in supervision, as well as in the recognition of the acquisition of such knowledge, skills and competences so that PhD supervisors can transparently reflect this skillset in their CVs when moving between universities.

This much more sophisticated figure of the PhD supervisor requires a degree of professionalization in order to provide effective supervision. We understand the professionalization of PhD supervisors not only as a training endeavor, but also involving three elements: firstly, raising supervisors' awareness of the multifaceted role required by the current knowledge society; secondly, training them to acquire and develop the skills to perform the new role; and thirdly, providing them with ideas to allow them to self-manage and continue learning and generating their own PhD supervision tools as the needs of society continue to shape their role (see Figure 1).

Figure 1. The context and content of PhD supervision professionalization.



This training should help supervisors to effectively perform the relevant tasks of their new role. The most representative of these tasks include:

- selecting the most adequate candidates;
- building a professional relationship with doctoral candidates;
- directing doctoral candidates in their research projects;
- backing them in their personal and professional development;
- providing support throughout the doctoral process and in the completion of the thesis report and defense;
- evaluating the work and results of doctoral researchers;
- promoting the diffusion of knowledge generated during the doctoral process.

Until now, the skills necessary to perform these tasks have not been included in the training of supervisors. As set out in the EU's 'New Skills Agenda for Europe' (COM (2016) 381), "higher education institutions need to ensure that they equip graduates with relevant and up-to-date-skills," and it recognizes that "it is teachers and trainers who have most impact on learners' performance." It is precisely this key role of educational personnel that is highlighted as the first point in the 'Pursuing Modernization Efforts' section of the New Skills Agenda.

In this landscape, several initiatives for the establishment of supervisor training programs have emerged at different universities of continental Europe during the last decade. They are mainly inspired by those that have been developed in the UK and Australia since the 20th century. To date, training and development initiatives of this type are very inconsistent throughout Europe, and recognition efforts are next to non-existent in this regard. This state of affairs needs to be redressed, as the preparation of future doctors by professional supervisors is key for Europe as a leading knowledge society.

Towards the organization of the TTT

Within the European context described above, it became clear that there were already many initiatives for PhD supervisory training, but a more systematic approach to this task would be needed. An important initiative in this regard was the focus given by the EUA-CDE (European University Association, Council for Doctoral Education) in its 2016 annual workshop (Delft), which centered precisely on doctoral supervision, practices and responsibilities. This event allowed individual universities to present their experiences, and highlighted the need for more concerted efforts and practices. The

URV was one of the participating universities in this event, and host to the following EUA-CDE annual meeting. This created the opportunity to apply some of the ideas posed in the workshop and provide a space for further targeted discussion on the topic.

In this regard, we planned an informal follow-up meeting for experts with an interest and expertise in PhD supervisory training, the *Tarragona think tank on PhD supervisory training: challenges and good practices*, held on June 15, 2016, at Rovira i Virgili University (URV, Tarragona).

The objective of the think tank meeting was to share the experiences of universities that provide supervisor training through the testimony of people from those institutions, and to assess the feasibility of setting up a group of experts on the professionalization of PhD supervisors. Overall, our aim was to make a significant and lasting impact upon doctoral education in Europe by professionalizing the role of doctoral supervisors. Participants got a clear overview of how doctoral supervision is undertaken across the EU and why and how the role of the supervisor requires professionalization in order to meet the needs of contemporary society.

The participants shared ideas and experiences, lessons learned in specific cases, determinants of good practice, and identified a broad range of factors that lead to successful doctoral supervision. We compiled the latest developments in supervisor training experiences, concepts and practices.

The meeting was organized in two parts: The first part consisted of the description of individual best practice cases, including the characteristics of PhD supervisory training currently in place in each institution. Important highlights included how each of the programs came about: the stakeholders in the original initiatives, support that was needed, successes and challenges along the way, measures of the impact of supervisor training, etc. The second part of the meeting consisted of a moderated interactive session to reflect upon developments and think about the (hopefully common) future of PhD supervisory training, with the objective of setting an agenda for reaching a shared idea of an ideal scenario about the direction that supervisory education should take in the future in European universities.

This book is the first tangible outcome of this concerted effort.

This publication, thus, intends to present a sample of the topics dealt with at the Tarragona think tank on PhD supervisory training, reflecting its main ideas, structure and contents. It is made up of the following sections: The first part, *Scenarios for Doctorates and Doctoral Supervision* shows the general context of change in the situation of doctors in Europe, and highlights the issues relevant for doctoral supervisory training in the UK, one of the countries that pioneered these initiatives in the form of university procedures and culture. The second part of the book, *Sharing Best Practices*, describes the state of development of doctoral supervisory training in

four selected institutions: the University of Pau (France), the University of Surrey (UK), the University of Cantabria (Spain) and Rovira i Virgili University (Spain). Finally, the third part, *The Present and Future of PhD Supervisory Training: Outputs of the TTT*, includes the conclusions of the interactive session that took place during the think tank meeting, in which the topics addressed were challenges, impact assessment and the ideal future.

Looking forward, we hope this book and other outcomes of this event can help establish the basis for the development of a network or alliance among the participating organizations and stimulate an ongoing effort aimed at bringing the professionalization of doctoral supervisors to the forefront of education policy at the university level. In summary, we hope that this contribution can help materialize ideas into actions.

PART I: GENERAL SITUATION

Doctoral training, European Higher Education and European Research Areas

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Abstract

This contribution analyzes the evolution of the higher education and doctorate in Europe and Spain in the last decades, and its relationship with the evolution of the economy based on knowledge. It also analyzes the strong impact that doctorate has on the research activity and the tensions between the Bologna process, that is collaborative, harmonious and open, and the productive economy based on research, which is dynamic and competitive.

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Introduction

Doctoral education remains a matter of debate throughout Europe and is clearly identified as a key element in the development strategy of all countries. The discussion about the functional definition of the doctorate is still alive and controversial, even in countries in which the productive economy benefits most significantly from it.

As recently as June 2016, the Council for Doctoral Education (CDE) of the European Association of Universities (EUA) met at its annual assembly under the slogan "Doctoral education: a dilemma of quality and quantity?" The meeting enjoyed one of the largest participant turnouts for this forum, with more than 240 attendees from 29 countries. An even more explicit reference to the aforementioned controversy can be found in the title of the final round table: "Are there too many doctors or too few?" This is not a new question, both theses have been circulating for years (*Nature*, 2011: "The PhD Factory … Is it time to stop?"). On the one hand, the most advanced countries with productive economies based primarily on knowledge need to incorporate more and more researchers with highly developed research capabilities into their companies, and such capabilities are universally recognized as corresponding to the doctoral level. On the other hand, achieving a doctorate requires peer acceptance of an original contribution to knowledge, based on the doctoral candidate's own capacity for research.

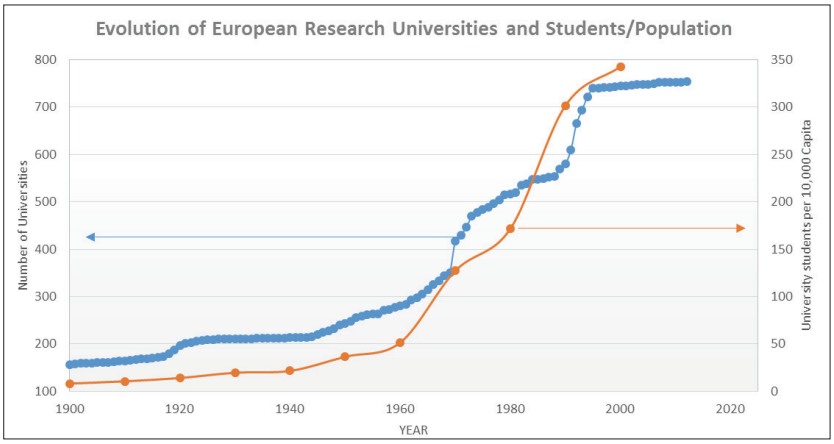
The dilemma of the title of the CDE seminar and the controversy it raises is that everything is true and false at the same time: Research training of new researchers must be incorporated into the productive economy and the admission procedure into the scientific community, always represented by the doctorate, is still indispensable. Do they always correspond to the same procedure? This is probably the bottom-line question. It is an issue that suggests the possibility of a different functional definition, which perhaps cannot yet be discussed at the European level and that would not make any sense at the regional level, but that must be expressed to provoke reflection and discussion.

The doctorate and the evolution of higher education and research in Europe

An image of the evolution of higher education in Europe over the last 100 years can be built using data from Schofer and Meyer (2005) and Rüegg (2004 and 2011), as shown in Figure 1. This graph shows how the number of research universities has fluctuated in different waves: a relatively small one after the First World War, which steadily grew until the late 1960s and early 1970s, when the first boom took place, and a third wave, perhaps definitive, in the early 1990s. The overlay with the evolution of the number of students normalized by population shows how the creation of new

universities responds to a previous increase in demand for higher education, probably due to significant changes in productive models. This evolution in higher education has gone from the exclusive training of the upper classes, to the training of senior officers and middle management and, finally, to the need for university education in numerous economic sectors, up to the current objectives of 40% of a cohort.

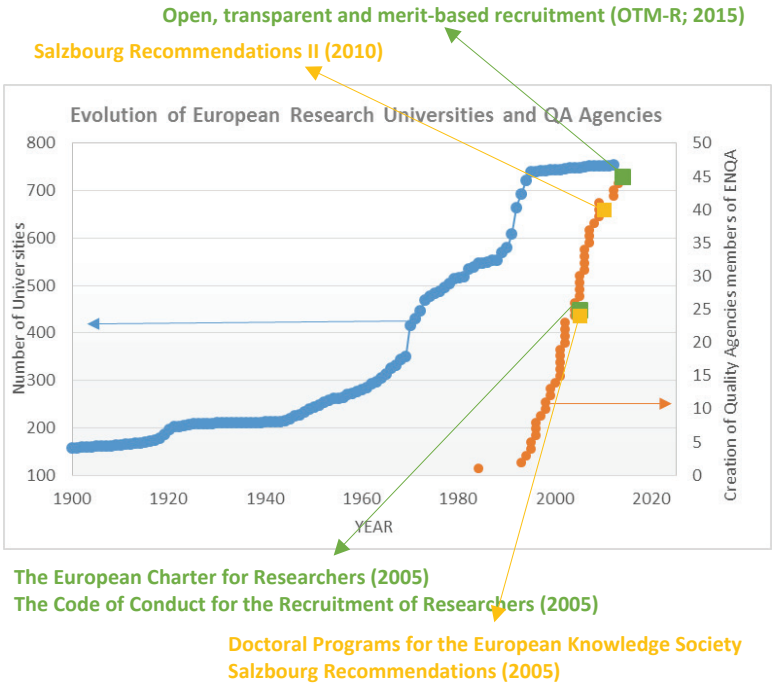
Figure 1. Evolution of research universities in Europe and the number of university students in relation to the population.



The last jump occurred in the 1990s, and was followed by a marked period of stabilization (perhaps it would be unreasonable to expect new future growth, given the current percentage of the population with a university education). This sharp upsurge has brought university education into a new dimension: It is a strategic resource for countries and at the same time difficult to manage, given the degree of autonomy universities require. This reality has given rise to a new framework, a mix of structural and political guidelines and recommendations, which link university systems and public administrations.

The Bologna Declaration emerged in 1998, right at the end of this third wave of growth, and has fostered the necessary harmonization of this expansive and diverse European university system. Since that time, university quality agencies have been established throughout Europe as essential instruments for harmonization, quality assurance and, therefore, for the generation of mutual trust. In parallel, European policy has promoted common guidelines and recommendations involving doctoral education, including joint degrees (within the framework of the European Higher Education Area, EHEA) and research (within the framework of the Area European Research, ERA). Figure 2 shows the precise evolution of the creation of agencies and the points at which major declarations and recommendations have taken place.

Figure 2 Evolution of research universities in Europe, quality agencies and European directives on higher education with a focus on the doctorate.



The successful and indispensable Bologna process has to do with the first mission of the university, higher education at all levels, and has led to an increase in the reliability of the system through quality assurance (creation of agencies, assurance of the quality of the agencies themselves, etc.) and harmonization. The Bologna Declaration makes specific mention of the doctorate, which is unique in that it also has great impact on research activity. After the definition of the EHEA that inspired the Bologna process, the Lisbon strategy (for the EU to become "… the most competitive and dynamic economy based on knowledge …") led to the creation of the European Research Area (ERA). Beyond coincidence in time and essential ideas, the Bologna and Lisbon processes are very different: one is collaborative, harmonious and open; the other is competitive and restricted to the EU. Both processes have an impact on doctoral training, but which is dominating in its definition and evolution?

Doctoral training, between EHEA and ERA

With a decisive intervention of universities through the CDE-EUA, in the last decade, doctoral training has become much more visible as the foundation of research activity that leads to knowledge-based, and therefore, globally competitive economic activity.

The recommendations of Salzburg in two editions (2005 and 2010) clearly convey three main messages, and invite the creation of specific structures (doctoral schools):

- Doctoral education occupies a singular place in the European Research Area and in the European Higher Education Area. It is based on the practice of research, which makes it fundamentally different from the first and second cycle.
- Doctoral candidates need independence and flexibility to grow and develop. PhD training is very personal and, by definition, original. The path of progress of the individual is unique, both in terms of the research project and individual professional development.
- Doctoral education must be developed by autonomous and accountable institutions that are responsible for cultivating a research mentality. *Institutions need flexible regulation to create special structures and instruments* and to continue advancing in European doctoral education.

The objective of the ERA was defined by the European Council in 2000 and established in the Treaty of Lisbon in 2007: to achieve "a unified research area open to the world, based on the Internal Market, in which researchers, scientific knowledge and technology circulate freely and through which the Union and its Member States strengthen their scientific and technological bases, their competitiveness and their ability to collectively address grand challenges."

The ERA is not particularly concerned with universities, but research universities are responsible for 72% of the knowledge production in Europe; and they are autonomous, which creates a permanent tension in defining the research system: universities hold the most responsibility for research activity and are only identifiable as individual entities. The high number of European research universities (approximately one thousand) precludes their direct participation in the definition of policies, a role that is only limitedly assumed by the EUA.

In 2011, the European Council called on all the parties, Member States and institutions involved to bridge all the gaps and complete the ERA by 2014, in order to create a genuine single market for knowledge, research and innovation.

In 2012, the communiqué "A Reinforced European Research Area Partnership for Excellence and Growth" identified five action priorities: more effective national systems of research; cooperation and better transnational competition; a labor market open to researchers; gender equality and gender mainstreaming in research; and optimal circulation, access and knowledge transfer, including the digital ERA.

In 2014, the second progress report of the ERA highlighted the primary conclusions regarding the European labor market for researchers. The messages mainly address universities, but seldom mention them, which again demonstrates the difficulty of a political relationship with these key autonomous institutions:

1. Although the number of doctoral candidates in the EU continues to grow, the evidence suggests that they are not equipped with the skills they need to work outside the academic sphere.
2. The implementation of the principles of innovative doctoral training in 2011 by Member States and institutions has helped researchers acquire new skills and improve their capacity for employment, especially outside of academia.
3. With 45% of EU researchers in the private sector, only 10% of doctoral candidates report having received training in intellectual property rights and entrepreneurship.
4. Some Member States have made use of the available structural funds for the co-financing of the new doctoral education structures. In addition, open recruitment has allowed research institutions to hire the best researchers in all professional stages and promote effective geographical mobility.
5. The impact of internationally mobile researchers is almost 20% higher than those that never moved abroad.
6. Evidence shows that openness and innovation go hand in hand; in other words, countries with open and attractive research systems are strong in terms of innovation.
7. The Member States agreed to establish working groups in cooperation with interest groups in order to develop a set of tools on open, transparent and merit-based recruitment based on good practices.
8. More than 40,000 research positions in more than 7,500 institutions were published in EURAXESS Jobs in 2013, with partnerships with leading online job search portals. However, there is still a great deal of disparity in the hiring practices among the Member States.

As these important conclusions show, the university is highly involved in doctoral training (100% of doctoral education, most of the 7,500 institutions and the 40,000 jobs mentioned are at universities), but it is ostensibly absent. In any case, there is a clear key role attached to universities in European policy as providers of the researchers required by the knowledge society.

The Spanish perspective on doctoral training

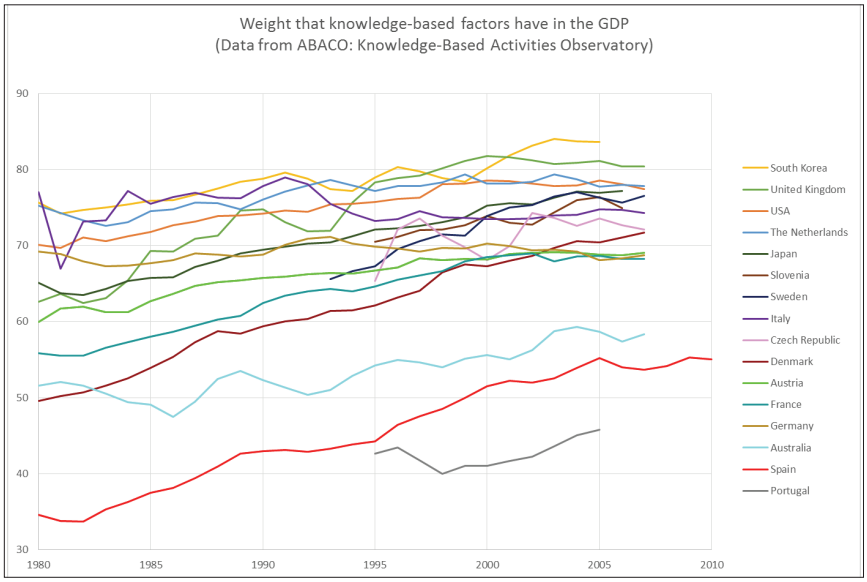
The doctoral training model that emerged from the recommendations of Salzburg (I and II) and the successive progress reports on the ERA responds to the needs of societies with knowledge-based economies. But, are all European economies equally

based on knowledge? Figure 3 provides an image of the differences between countries in terms of percentage of economic activity based on knowledge, according to data prepared by ABACO, an observatory of knowledge-based economic activity.

As Figure 3 shows, although Spain, like Portugal, shares economic and social models with the rest of Western Europe, its rate of knowledge-based activity is much lower, between 20 and 30 points below the leading countries.

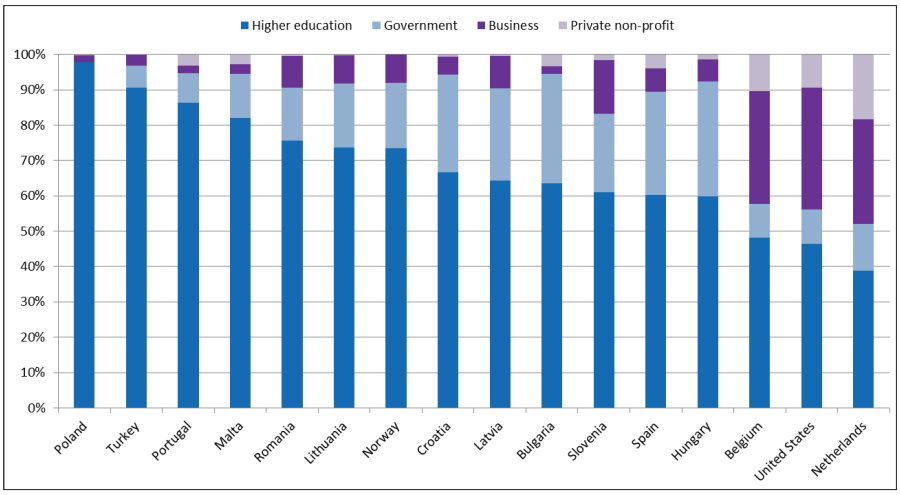
So, to what extent does the model of prevailing doctoral training in Europe adhere to the reality of Spanish universities and the needs of the society that supports them?

Figure 3. Evolution of the weight of economic activity based on knowledge in GDP.



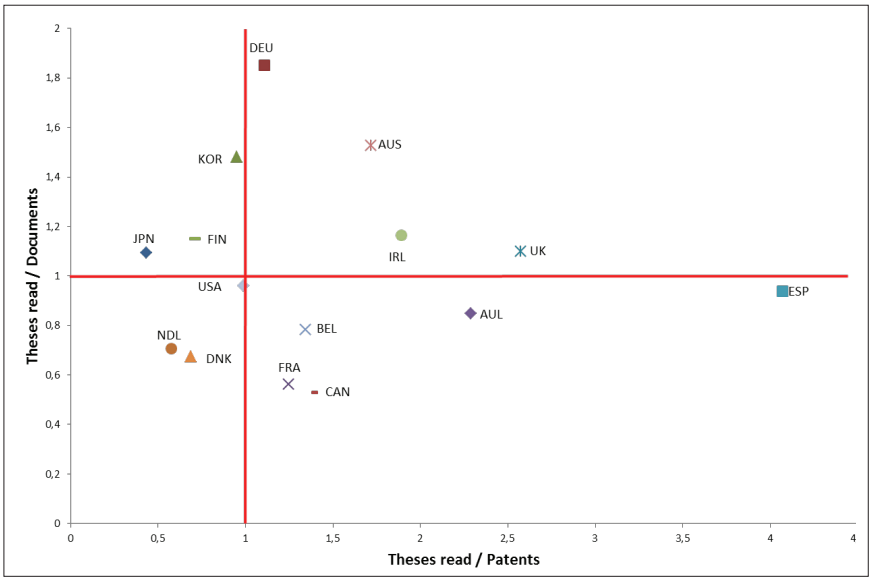
In coherence with the profile of economic activity, there are indeed many differences regarding the professional prospects of PhD holders in Europe, as shown by a study by the OECD/UNESCO (2010) on the employment and professional careers of doctoral graduates. The study includes a profusion of relevant information, including the distribution of PhD holders who work as researchers (Figure 4). As shown in the figure, Spain has a relatively low percentage of doctors working as researchers in companies, while more advanced countries in the knowledge economy, such as Belgium, the United States and the Netherlands, have percentages four to five times higher.

Figure 4. Percentage of PhD graduates working as researchers in different sectors.



On the other hand, Figure 5 shows another perspective of the same reality: the comparison of scientific production and protection of intellectual property in relation to theses read in different OECD countries.

Figure 5. Theses compared to scientific and patent production in OECD countries. (Created by the author based on data from OECD, WIPO, SCImago Journal & Country Rank)



As Figure 5 also illustrates, the Spanish scenario is very different from that of countries with more knowledge-based economic activity, so the productive sector is still far from demanding researchers at the levels which it occurs in these countries.

In spite of the aforementioned differences with leading European countries, Spain has been strongly committed to promoting and renovating doctoral studies in accordance with the recommendations of Salzburg, and using the structures of the doctoral school as the main instrument. Some necessary actions must undeniably be taken in order to shorten the distances between Spain and other countries in terms of knowledge-based economic activity, but in the meantime, the system must bear an additional burden, as doctoral education as it currently stands does not adequately correspond in extension or quality with the demands of the market.

Concluding remarks

Doctoral training today must be oriented towards ensuring the competencies associated with achieving this level of education. This requires institutional commitment and the development of an entire system aimed at ensuring that the personal training experience that every researcher must undertake in his or her field of research is accompanied by training in the competencies and abilities established in the Dublin Descriptors for the third cycle of higher education. In this system, doctoral schools play a leading role, above all to ensure that the personal relationship between the supervisor and doctoral student includes the necessary training elements. Among these, it is worth emphasizing some recommendations for universities:

- Provide adequate mentoring which includes:
  - developing written guidelines for mentors;
  - allowing for multiple mentors;
  - providing adequate preparation for mentoring (which may involve research into effective mentoring practices).
- Provide exposure to wide variety of career options:
  - publicize the careers for PhDs that exist in academia, business and industry, government, and non-governmental organizations;
  - teach students about the different missions of institutions in higher education, the roles of faculty and the different types of appointments;
  - encourage visits from professionals outside the university; faculty should go off campus to explore where their students go and the various applications of their PhD training.

- Prepare students to teach in a variety of settings; students need to acquire wide-ranging teaching skills.
- Produce scholar-citizens who view their specialized training as more closely connected to the needs of society and the global economy.
  - encourage graduate students to talk about how their professional work is connected to the needs of other disciplines, society, and the global community;
  - provide occasions for graduate students to explore the dramatic changes facing academia, the implications for their own careers, and changes in wider society and internationally.

European policy in the field of universities and research, and particularly in doctoral studies, is clearly oriented towards the needs of the knowledge-based competitive economy advocated by the Lisbon strategy and referred to in Europe2020. Spanish universities do not yet work within an environment strictly governed by this policy, but it would not be a good idea to define different objectives, not even in the field of doctoral studies.

Thus, in keeping with that expressed in an article currently in press (Grau, 2016), what is clear is that a more productive economy based on knowledge needs research in companies, either within the companies themselves or in research institutions, but with its own capacity for conception and direction. For this purpose, more PhD holders are needed, and they need to be employed by companies.

In fact, the European university system accepts the basic hypothesis that more PhDs are needed all over Europe, and with well-defined cross-disciplinary competencies, which are essential for their future professional activity and must be developed mainly in the productive economy. This hypothesis implies the need to transform the old, rather artisanal mechanisms of doctoral training based on an almost exclusive relationship between the doctoral student and the supervisor or, at the most, his or her team and colleagues, into an institutional responsibility. This type of supervision is exercised more collectively, focuses more on placing the candidate at the center of the process, on developing competencies and on assuring the quality of his or her training. These are the components that can lead Europe to the constitution of structures like doctoral schools, and to the consideration of doctoral programs within national strategies.

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Doctoral Supervision: Reflections, Perspectives and Anticipations

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Abstract

A constructivist reflection is presented here on how the experience of circumstances and challenges have oriented a view about what constitutes good supervision practice and supervisor training. It includes stories of early mutual support and influence which set the bar high when measuring later experiences. Perspectives are provided from different academic roles, held during a lifetime career, which required different skills and attributes of supervisors when challenged by unprecedented external influences, local, national and international. It paints a picture of supervisors who can be both saints and sinners, sometimes at the same time, to different players, including colleagues, students and managers within institutions and funders, future employers and the public in wider society. Assisting and encouraging the uphill struggle towards further development of the supervisor role, and the doctorate itself, in the face of change and challenge is explored. In contrast to a classical tale, Hope has always threaded through Pamela's toolbox, whatever the difficulties encountered in working alongside colleagues to develop more appropriate, context-relevant supervisory practice.

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Reflections

> The successive revelation of events invites the person to place new constructions upon them whenever something unexpected happens… The constructions one places on events are working hypotheses which are about to be put to the test of experience. As one's anticipations are successively revised in the unfolding sequence of events a construction system undergoes progressive evolution. (Kelly, 1955, Vol 1:72)

This quotation sets the scene for a tale told by a constructivist psychologist, embedded in a theoretical background that recognises that:

- Each of us views our worlds in an idiosyncratic way determined by our prior experience including our social context;
- We each anticipate our actions and responses to them based on that personal view – we have expectations about what leads to what;
- We can learn to amend our anticipations, our expectations about the world, as our views are challenged or reinforced by environmental responses to our actions;
- Changing worldviews is not necessarily easy, despite disconfirmation, because they may be dear to us and previously had survival value.

(More about how to recognise our own prejudices and explore those of others can be found in Denicolo et al 2016)

Thus this tale acknowledges that my early experience of doctoral education has had a profound effect on me as an academic, raising expectations about how I and others should, in turn, do the job of supervising and do it well. Nevertheless, I did learn from experience, some of which challenged my view in positive and some in less auspicious ways. I was, though, lucky to encounter colleagues as passionate about the job as I who contributed ideas and supported me in my quest.

My own doctoral degree was undertaken in the early 1980s in a research institution (IED, Institute of Educational Development) led by Professor Lewis Elton. A sense of the philosophy that pervaded the Institute at that time can be gleaned by reference to an article published in 1989 by Lewis and my doctoral supervisor (advisor), Maureen Pope (Elton and Pope 1989). They described and advocated a collegial approach to research, involving mutual learning and support between student, supervisors and other academic colleagues as well methods training for the former and exploration of new approaches to research by all. That was my norm. It is only in retrospect, as I later worked in other academic departments and institutions that initially conformed to the more general rubric (master-apprentice - or slave) of the times, that I recognised what an unconventional, innovative and formative experience I had undergone as a member of that research group.

In brief, the extensive research training programme in the IED emphasised that effective methodological choice depends on being conversant with the full range of options, their strengths and weaknesses. Supervision took the form of a joint endeavour, an evolving partnership in which the student's personal autonomy and responsibility for the research were gradually developed; collegiality was evidenced in formal seminars and informal debates to which students were expected to contribute as peers and were encouraged to argue their case. The ambience was one in which we, students and staff, were all learners engaged together to improve teaching, learning and research across all sectors of education, albeit that each one of us individually had a specific research sub-focus on a particular sector and/or aspect of education. This was the crucible in which my own academic career, as an adult educator and academic staff developer, was founded

Later in other professional contexts, firstly as a supervisor and then as a Director of Postgraduate Research and Training, I strove to emulate and then disseminate the good practice I had experienced as a student, despite inhabiting environments in which research training was by tradition focussed on the skills necessary to complete a particular research project while supervision consisted mainly of passing on the wisdom of the discipline and suggestions about how to construct a thesis. My colleagues were neither reactionary nor were they dinosaurs. They had good intentions but many of them clung to the familiar, personally experienced and well-understood traditions of postgraduate research supervision and training, while much else around them in the professional arena was subject to change.

In the undergraduate arena, as numbers grew rapidly, new styles and structures of courses were being introduced and increasingly monitored internally and externally in terms of quality; at the same time academics' own research was also subjected to external quality assessment and increasing internal demands that it bring in money to the system. During that time, spanning the late 80s/early 90s, bowed by these pressures, most of my academic colleagues were content to send their doctoral researchers to a faculty-wide research training course organised by myself and a colleague. However, some of those coleagues came voluntarily to discussions about how we could each improve our supervision skills, or at least requested the hand-outs afterwards. However, it was clear that any compulsory training of supervisors would be met at that time with hostility in the UK, although distance lands requested such workshops from us via the British Council. We were prophets in our own land, and thus less welcome.

Perspectives

Research degrees are much more visible now as they play a pre-eminent role, not only in the transmission of academic tradition but, more importantly, in the current economic and political climate, in the generation of new knowledge and intellectual capital for the benefit of all. The transition from the mid-90s has been tumultuous for all of us in global academe.

There has been diversification in the range, background and motivations of students participating at this level of education adding to the worldwide demand for attention to be paid to content and quality in research student education (Zuber-Skerrit and Ryan 1994). Originating in staff and student dissatisfaction with traditional, unstructured and inadequately funded and monitored support procedures, change gained momentum as governments recognised that graduate students have a strong contribution to make to the economic capital of the nation through their future research either in academia or elsewhere.

Researchers throughout the last decade of the 20th century had already challenged the traditional stereotype of the full-time, funded, young research student (e.g. Denicolo and Pope 1994, Deem and Brehony 2000) when government policy began to focus on widening participation in university education generally. At the same time universities themselves, though an economic imperative, sought to increase student numbers at all levels within the system, but particularly in the high fee area of postgraduate research by overseas students. Burgess (1997), in a book entitled 'Beyond the First Degree', noted that the shift from elite to mass Higher Education since the 1980s had resulted in major debates between researchers, practitioners and policy makers about the purposes and nature of postgraduate education and training. This was acknowledge also by Barnett (2000)

> In short, professional life is increasingly becoming a matter not just of handling overwhelming data and theories within a given frame of reference (a situation of complexity) but also a matter of handling multiple frames of understanding, of action and of self-identity. The fundamental frameworks by which we might understand the world are multiplying and are often in conflict. (Barnett 2000:6)

Thus, by the turn of the century, it was clear that it was no longer sufficient for research students to become learned in the specific literature and proficient in the philosophy and methods relevant to their chosen project. They must also be able to demonstrate broader research skills across a range of methodologies and techniques and even disciplines, having been supported both practically and intellectually in their institutions to acquire them. That in itself made it fitting that supervisors expand their own horizons and skills as they came to work with an increasingly diverse population

of researchers. Those of us eager to improve supervision began to establish training for new supervisors in our institutions, hoping that more experienced ones would volunteer later, and to join national groups with common interests (such as the UK Council for Graduate Education {UKCGE} and the Society for Research into Higher Education Postgraduate Interest Network { SRHE PIN}).

By 1999, in the same year that the Bologna treaty was being signed by European respresentatives of university education, the UK Quality Assurance Agency published a Code of Practice in relation to quality and standards in postgraduate research degrees; simultaneously the Funding Councils produced exacting standards for research training to be met by institutions seeking recognition for their courses for funding purposes. Research too had become increasingly directed towards the doctorate itself, providing evidence to the policy makers; completion rates, student selection, research training programmes and supervision procedures all received attention (for example, Hockey 1994, Black et al 1994, Acker 1999), with anomalies, disparities and areas of neglect being increasingly made explicit. In the conferences of learned societies, such as those cited above, academics produced papers and discussed at an unprecedented level their experiences of supervision and research degree examining. Eager to promote development, perhaps we should have been careful about what we wished for.

Within the higher education sector, the micro-politics within institutions (Ball 1987) inevitably comes to bear as the balance of power is disturbed. Knowles (1999) made the point that, although power issues are seldom made explicit in the daily workings of Higher Education, academic power and the problems associated with it are ever present. This is so, even if the supervisory relationship is based on expert rather than coercive power (Aguinis et al 1996).

Governments too began to take both more notice of and further steps related to postgraduate, particularly doctoral, education: for instance in the UK there was: a White Paper (2003) – 'The Future of Higher Education', then the Roberts Report (2003) – 'Set for Success' and the government's response of pump-priming funding for professional skills training; similarly we were alerted to a communication from the Commission of European Communities to the Council and European Parliament (2003) –'Researchers in the European Research Area: One Profession, Multiple Careers' – pursuing a similar theme. In addition to proposing that training aspects will need to be strengthened considerably across the sector, and that funding will be dependent on achieving this, each document acknowledged the central importance of developing mechanisms for supporting and developing doctoral supervisors. Just as in the training of research students, a number of models have been developed from institution-wide approaches to provision at Faculty, School or Departmental level while now inter-institutional and inter-sectoral doctoral training is becoming common

(Denicolo 2016a and b.) Similarly, the educational philosophies underpinning these developments and the parallel provision for supervisor training are eclectic (MacDonald & Wisdom 2002).

All the recent documents previously cited include a recommendation that, instead of sole supervision arrangements, students should in future be supported by supervisory teams or committees. This is in acknowledgement, not just of the increasingly multi or inter-disciplinary nature of new research projects, but also of the problems caused when a supervisor becomes ill/leaves employment, or when the student-supervisor relationship otherwise becomes unsatisfactory. Further, in the UK at least, all supervisors have to attend initial training and are strongly encouraged to attend updating training. Some institutions make such attendance part of an institutional 'licence to practise' supervision and/or doctoral examining. More widely across Europe and, indeed, globally, discipline groups or institutional groups are working together to identify and promote good doctoral degree practice. The following are a few examples summarised from Denicolo 2016b:

ARDE (accountable research environments for doctoral education): An EUA project that aimed to gather information about existing structures, good practice and areas of concern in assuring and enhancing quality in doctoral education.

FRINDOC (framework for internationalisation of doctoral education): An EUA coordinated project – five international universities- providing a statement of good practice and online tool to assess and improve internationalisation strategy and practice.

LERU (League of European Research Universities): Documenting some of the doctoral education practices of the 21 universities that demonstrate commitment to excellence in formal research training, developing independent researchers, career development activities and promoting innovation.

NAIRTL (National Academy for the Integration of Research, Teaching and Learning): Five Institutions in Eire collaborating with Social Infrastructure Funding to devise, inter alia, an institutional framework for supervisor support

ORPHEUS (Organisation for PhD Education in Biomedicine and Health Sciences in the European System): A worldwide organisation that provides support, guidance & information to members to enhance for PhD education by promoting co-operation, strengthen career opportunities and influence policy.

SEP/GRADnet (UK South East Physics Network, doctoral level): Nine research-intensive Physics Schools collaborating on skills training incorporating a wide range of employer & public engagement to elaborate on supervisor support.

Anticipations

Twenty-five years previously the loud cries of the few stalwarts devoted to trying to improve the learning/support of postgraduate research students and their supervisors had seemed to fall on deaf ears within and without the academy. Suddenly, towards the turn of the century, it seemed that higher and external powers had caught some of the echoes, at least those that resonated with the then current economic imperatives, with the result that this once neglected sector had become the focus for radical change. There followed a complementary increase in research focussed on supervision and mentoring (for example: Delamont et al 1997, Wisker and Sutcliffe, 1999, Lee 2008, Boud 2009, Halse 2011, Bogle 2014, Cuthbert and Molla 2015, Kemp and Nurius 2015).

Thus have others reflected my own researcher experience: as a supervisor, Director of Research, Director of a Graduate School, Leader in a consortium Doctoral Training Partnership, consultant supervisor trainer. Supervisors are generally good folk, attempting to juggle an expanding number of responsibilities, such as those listed previously, but now with additional requirements, *a)* to work with employers to develop students' professional skills, and *b)* to encourage students and motivate themselves to produce research products that are explicitly 'impactful' and which they can explain to the public (Public Engagement and Impact agendas). Simultaneously, supervisors face a strong pressure to ensure that their supervisees submit and complete 'on-time'. The days of the contemplative ivory tower are well gone so it is little wonder that, amid all this challenge to the identity of mastercraftsperson in their discipline that they originally espoused, some supervisors are motivationally disengaged, others are reluctant engagers in all of these new activities while yet others are stubbornly antagonistic towards gleeful adopters or crusaders in the new regime. In truth, none of us can be enthusiastic all the time, in all circumstances. Supervisors with some experience will recognise that there are times when other duties supercede supervision, when the supervisee-supervisor relationship is not one crafted in heaven or, indeed, when mental skills are just not enough for a new nuance in the task. We are human after all.

Nevertheless, we must recognise that times change and, indeed, that most other professions engage in continuing professional development to remain fresh and competent. From my experience of what has worked well in the past, I would suggest that powers in authority, in institutions and countries, strive to replace old academic identities with identities that are personally and professionally relevant, recognising the inherent importance of the supervisor role, normalising training to achieve and maintain it. And effort must be made by all involved to build an appropriate professional culture. The intellectual effort required of the role should be overtly acknowledged through

the provision of work models that include time for reflection and creativity, eschewing traditional management models more suitable for the factory production line than for challenging received wisdom and moving forward the frontiers of knowledge.

Supervision is a demanding role with its own intrinsic rewards but that should not absolve university employers valuing it through appropriate promotion and salary rewards, as well as collegiate respect. Both they, as employers, and we, as supervisors, have something to learn from Nelson Mandela in his 2002 address to mark the 90th birthday of Walter Sisulu:

It is the difference we have made to the lives of others that will determine the significance of the life we live.

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PART II: BEST PRACTICE SHARING

Embedding a Culture of Supervisor Training and Collaborative Support for Researchers through University of Surrey's New Doctoral College Initiative

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Abstract

The University of Surrey has provided supervisor training for many years, in the last ten years under the auspices of the Researcher Development Programme (RDP). This year RDP has become part of the University's new Doctoral College initiative, designed to bring together and facilitate all aspects of researcher training and support across the University. Therefore, within this paper I will begin by discussing the content, experiences and challenges of training supervisors through RDP to this point and end with a vision of how this will be facilitated and expanded through the new Doctoral College. It is an exciting time for researcher support at the University of Surrey; therefore, it is timely to learn from and share our experiences with colleagues as we work towards the creation of an ever more collaborative and open culture of support for both doctoral researchers and those who supervise them.

Various authors, *Good Practices in Doctoral Supervision: Reflections from the Tarragona Think Tank*, Publicacions Universitat Rovira i Virgili, Tarragona, 2017, p. 45–53. ISBN: 978-84-8424-653-4. DOI: 10.17345/9788484246534

University of Surrey Supervisor Training Content and Structure

At the University of Surrey since academic year 2013/14 all supervisors are required to attend a workshop on Doctoral Admission, prior to participating in the doctoral interview procedures. Furthermore, those new to supervision participate in two full days of training covering the whole doctoral researcher journey from admissions to final viva. Prior to becoming internal examiners for the University of Surrey, academics new to examining in the UK must also take part in Internal Examining training. Beyond this, we do bespoke sessions for different departments and programmes at their request focusing on topic areas they are interested in exploring and developing and have piloted sessions for experienced supervisor. All training sessions are delivered by myself, as head of RDP, in collaboration with an experienced supervisor, who is there to share experience and advice. Other experts contribute to training as appropriate.

RDP also delivers a wide range of training to doctoral researchers to develop their understanding of the doctoral process and enhance their transferable skills. The fact that the same programme is responsible for the training and support of both the doctoral researchers and the supervisors ensures that both groups receive consistent messages about the University's expectations and regulations. Furthermore, it enables us to share the (sometimes contrasting) perspectives of the different parties to foster empathetic understanding. It also allows us to develop relationships with both doctoral candidates and supervisors, so that both know there is a place for them in which they can discuss any issues they have in a supportive way that respects their different perspectives. Throughout our training, we work to establish shared expectations, open discussion, effective feedback, within a collaborative research culture where supervisors, doctoral researchers and University support staff all come together. Below I will share detailed examples of the format and style of the training we provide, along with some insights we have gained over many years of delivering this training, particularly highlighting areas where these groups may differ in their expectations or in which conflicts may sometimes arise. Next I share our ideas for expanding our support for supervisors under the new Doctoral College initiative.

Inspiring Discussion and Establishing Shared Expectations

The doctoral researcher-supervisor relationship is of key importance for a positive researcher experience throughout the doctoral journey (Wisker *et alii* 2007). The literature shows that this relationship is complex and can break down at a variety of different points during the doctoral degree process (Gunnarsson et al. 2013; Wisker *et alii* 2007; Wisker *et alii* 2003). Although there are examples in the literature of studies which find that doctoral researchers may feel undervalued and unappreciated by their

supervisors, research examining the supervisor perspective and our own experience suggests that most supervisors do, in fact, care very much about their doctoral researchers and through a variety of methods work to develop their researchers in the best way they know how (Grant *et alii* 2016; Gurr 2001; Wisker *et alii* 2003). Therefore, a key component of the all the workshops we deliver for supervisors (and for doctoral researchers) is that they are interactive, going beyond a basic understanding of regulations to open up discussion and experience sharing. Discussion allows supervisors to explore tacit expectations and underlying assumptions, discovering similarities and differences with colleagues within their department and across different disciplines. So much of the practice of doctoral supervision is based on each academic's single experience of being supervised themselves (Gurr 2001). Discussion allows these practices to be extended and varied as well as scrutinised.

Expectations at various stages of the doctorate are a key topic for discussion woven throughout our supervisor training sessions as, in our experience, it is often a disconnect between supervisor and supervisee expectation that underlies most problems. We address such questions as:

What are our expectations of incoming doctoral researchers? What skills or attributes should they be entering the doctorate with? What can be developed along the way? How can these skills, attributes and traits be identified during the admission process? How do expectations change as they advance in their study?

Over the years of delivering these workshops, we have found that there is a surprising amount of commonality in terms of expectation at this initial stage across disciplines. Interestingly, the skills and attributes that emerge in the discussion reflect those from the research that was done to inform the creation of the Researcher Development Framework (Vitae 2010). Specifically, the need for enthusiasm about subject area and resilience in the face of challenge have been mentioned in every session delivered. However, when supervisors are asked about what they believe is expected of them as supervisors, there tends to be a higher degree of variability (and shorter lists).

One interesting observation is that the expectations of doctoral candidates about supervision are often different to what supervisors expect of themselves. This is especially true when we explore what people mean by such expectations as 'availability' (Bøgelund 2015; Parker-Jenkins 2016; Sidhu *et alii* 2014). Doctoral researchers may expect that their supervisor should be available whenever they knock on their office door, whereas a supervisor may expect to be available for their scheduled monthly meetings and to answer the occasional email. One worrying insight is that some on our supervisors expressed a concern about even bringing up the word 'available' to their supervisees because they were concerned they could never hope to meet expectations due to their many other commitments. In workshops, we discuss ways in which words

such as 'availability' can be defined and negotiated so both parties come to a mutually beneficially understanding of what can be achieved in terms of availability. We do this in supervisor training and in training for our doctoral researchers, so that both parties understand how important it is to make these expectations explicit and to find a common ground that is suitable and realistic for all parties. A key point is that any lack of discussion about an expectation does not make the expectation any less real in a person's mind.

Throughout the workshops we also work to bring to light potential origins of expectations. Often these are derived from the academics own experience of being supervised, and they either follow this practice 'because it worked for them' or they drastically change this practice because they found their experience of being supervised to be a negative (Gurr 2001; Wisker *et alii* 2003). In either case supervisors tend to decide on a supervisory style that did or would have best suited them as a doctoral student. The problem with this is that other doctoral researchers may have different needs totheir own. This is especially true as the diversity of those undertaking a doctorate grows (Bøgelund 2015; Sidhu *et alii* 2014; Walsh 2010). Learning to recognise our innate unconscious bias and our instinct to do what would have been best for us is key to becoming a dynamic, successful supervisor. To emphasis this point participants are first given case studies written from the supervisor's perspective of students who are struggling with their doctorate. Participants are asked to discuss how the supervisor should handle the situation. After this discussion, the participants are then given the same scenario, but written from the doctoral researcher's perspective. Often this changes the way they would respond to the situation. These case studies work well to bring out the importance of not making assumptions, and developing open communication with students.

How expectations change over the course of a doctorate is also a key area we cover in supervisor training, and discuss with our doctoral researchers as they progress with their studies. Overall our supervisors do expect their doctoral researchers to become increasingly independent, consequently reducing number and lengths of meeting as the doctorate progresses. However, we note that some doctoral researchers expect supervision to stay the same as they progress (Parker-Jenkins 2016). This difference may lead to doctoral researchers feeling that beyond this first year, their supervisor is no longer interested in their progress, instead valuing their newer doctoral researchers. Again, this demonstrates the importance of making expectations explicit.

Giving and Receiving Feedback

Working with doctoral researchers, we recognise that feedback is a critical issue, both in terms of timeliness and quality. Interestingly, one striking theme that has come out of our supervisor training sessions is that most academics' experiences of receiving feedback as a doctoral researcher themselves was not at all positive. Given that most supervisors draw on these past experiences to inform their current practice, this is an area of great importance for supervisor training.

One telling exercise we use during supervisor training is to ask our participants to reflect on their own experience of receiving feedback as a doctoral researcher and to feedback specific words that describe this process. Words such as 'traumatic', 'soul-destroying' and 'absent' are not uncommon. As a result, some supervisors construe feedback as naturally traumatic, and, therefore, do exactly what was done to them; others avoid giving feedback because they do not want to damage the enthusiasm of their budding doctoral researcher. Very few have an understanding of how to make feedback a more positive and rewarding process.

Within training we look at how supervisors can use constructive, descriptive feedback approaches, utilising both positive and negative feedback to help develop their researchers. A key message is to work on moving away from judgement, and instead using critical questions and personal reflection on the part of the doctoral researcher to help them gain skills necessary to evaluate their own work (Basturkmen *et alii* 2014; Boud and Molloy 2013). The power of positive feedback is emphasised as many participants have little experience with giving or receiving constructive positive feedback (Basturkmen *et alii* 2014). However, is incredibly helpful for a doctoral researcher to have a supervisor point out part of their work that is done well and describe why.. People need a benchmark and, more importantly, need to feel they are capable of reaching this benchmark (Hattie and Timperley 2007). At doctoral level feedback is not about the supervisor evaluating, it is about the supervisor helping the doctoral researcher to learn how to self-evaluate and thus become an independent researcher.

Workshops activities such as these will continue as we develop our practice in the new Doctoral College.

Doctoral College: Supporting an open, collaborative approach to supervision

Traditionally, much of the supervisor process has been done in isolation. The apprentice and the master is the model many of our supervisors are used to. However, changes to the research environment and University, alongside national expectations of the development of doctoral programmes, are forcing this model to change. Supervisor training is a mechanism by which Universities can introduce the possibilities and advantages of a more collaborative and open approach to doctoral supervision. Furthermore, these sessions allow groups of supervisors to come together and participate in the formation of new shared expectations and create environments where both the supervisors and the doctoral researchers have multiple resources for support. It is within this context that the new University-wide Doctoral College intends to work across disciplines and the various University support services, bringing together a variety of people and expertise in order to provide a comprehensively supportive environment for our doctoral researchers and supervisors alike.

Today's supervisors are under increased pressure to get their doctoral candidates to complete in shorter periods of time with high quality publications, yet ensure they have developed a wide range of transferable skills and are supported in understanding a variety of career options. Further, there is increasing pressure to engage with the public and broader stakeholder groups to deliver cultural, societal and economic benefits from research. This is a heavy burden for a supervisor to shoulder independently, especially as academic time is increasingly stretched by a variety of other commitments. The Doctoral College aims to help bring together a variety of experts, both academic and professional, creating a collaborative research culture where no one person has to tackle these challenges alone.

Furthermore, we seek to work with the different departments/schools/research centres to help create a research culture where doctoral researchers are not only encouraged to discuss and share their research with each other and with the department and school, but also more broadly across disciplines and with members of the community from a variety of different employment sectors. This broader research environment will enable researchers to receive feedback and discuss ideas with a variety of people and also create a space for serendipity that can lead to new research innovation. Doctoral researchers gain experience and receive feedback about their work and their transferable skills by talking to others and this can reduce the pressure on supervisors this more vibrant research environment providing multiple sources of feedback. With today's increased and varied demands, it takes a collective to prepare the dynamic researchers of tomorrow.

Challenges

When academics engage with training, the outcomes are almost universally positive; however, getting the engagement in the first place is one of the greatest challenges for supervisor development from our perspective. We are very lucky at the University of Surrey having a dedicated researcher development programme that is well embedded in the University and has now been made a key component of the new Doctoral College. We also have the advantage that initial training for new supervisors is required according to the University's regulations. However, with teaching loads and research demands, it is hard for academics to find the time to come to training. Therefore, we deliver the sessions three times throughout the year, at least twice outside of undergraduate teaching terms. With this flexibility and as the culture of initial supervisor training has taken hold, we now do have the majority of new academics engaging with supervisor training at some point within the first year of taking up their role at the University.

The biggest challenge is to engage more experienced supervisors in training. As discussed previously, the nature of the doctorate is changing at the national and international levels. Furthermore, reflecting national new Quality Assurance expectations, the University's regulations and Code of Practice for Research Student Supervision have also changed dramatically in the last 5-10 years. Sadly, those who have been supervising for longer than this may still be practising in an outdated way. Even those that take into account the changes, may not understand the reasons behind them or how to use the new procedures to best benefit the student and themselves. Therefore, they treat developments in practice as added bureaucracy. Reaching out to these more established academics to engage them in discussion and best practice sharing is the next step in creating a true culture of collaborative and open doctoral supervision.

Looking to the Future

For the University of Surrey, our next steps are to utilise the new Doctoral College infrastructure to ensure that all supervisors meet the requirements for training, to better engage our more senior supervisors in continued professional development and to work to bring together expertise to create this vision of a collaborative research culture so that our early stage researchers are better supported. Although the Doctoral College was launched in Autumn 2016, over the previous year we had undertaken pilot sessions for advanced supervisors. While the actual numbers attending these sessions were low, the feedback was highly positive and we were able to gain advice and guidance about topics that may be of interest and how to structure the sessions. Building on the information gained in these pilot sessions, we are introducing a series

of short (60-90minute) best practice sharing sessions around specific topics, such as: Dealing with Unsatisfactory Progress, Supervising PGRs (Post Graduate Researchers) with Autistic Spectrum Disorders, Supervising PGRs with Depression or Anxiety, Getting You PGR to Write!, Regulations Update Session. For each of these sessions, we will bring in expertise from across the University to help facilitate the session and to provide the supervisors with known contacts for support.

With the new Doctoral College initiative, firmly supported by the University authorities, we are in a strong position to move forward on our support for supervision. Culturally, as more and more of our new supervisors participate in training and spread word of its value, we are finding a greater appetite for the expansion of this type of training. We believe the key to success is to truly listen to the needs of our supervisors and to utilise them as a community that can support each other by sharing experiences and best practice. We also want to ensure that supervisors are fully supported by and able to take advantage of the array of support services across the University. By bringing this wider community together in a training environment, we hope to enhance the experience of all of our researchers, from doctoral candidates and early career researchers to the academics who supervise and manage them.

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Ideal PhD - attainable?

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Abstract

The Doctoral School of Exact Sciences and Their Applications of the University of Pau and Pays de l'Adour is presented as a good example of how an institute can set up thesis projects in line with current regulations and to the satisfaction of PhD candidates and their supervisors. This satisfaction is assessed after each thesis defense and is a part of the quality assurance principles implemented in our doctoral program and corroborated by the awarding of the ISO 9001 certification. PhD supervisory training was implemented after validation by the university's Scientific and Administration Councils. This training is particularly well suited for young researchers applying for accreditation to supervise research.

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General context

The University of Pau and Pays de l'Adour (Université de Pau et des Pays de l'Adour – UPPA a) is located in the Aquitaine region of south-western France. The city of Pau has at present 80,000 inhabitants (240,000 including the surrounding towns) and has been the capital of Béarn since 1464. This historic town is also the birthplace of the French King Henri IV. Pau is well known as an English-style town, famous for its healthy climate and splendid views. In the 19th century, Pau attracted many families from Britain, Russia, North America and South America. The area is also a well-known center for sports: golf (the Pau Golf Club is the oldest club in continental Europe), car racing (Grand Prix de Pau), horse racing and cycling competitions (Tour de France).

The University of Pau, which has 13,000 students and 1,200 employees, is a multidisciplinary university with three main specialties:

- Science and technology
- Law, economy, management
- Humanities, languages, sports

The UPPA has a strong environmental focus in all its areas of expertise, which include petroleum, materials science and aquatic resources. Another focus is international collaboration; the UPPA has 164 Erasmus bilateral agreements and works with 56 different partner countries. Many of these countries are involved in petroleum exploration and production. Foreign students represent 12% (1,450) of the student body.

The College of Doctoral Schools of UPPA includes the Doctoral School of Exact Sciences and Their Applications (Université de Pau et des Pays de l'Adour – UPPA b) and the Doctoral School of Social Sciences and Humanities (Université de Pau et des Pays de l'Adour – UPPA c). There is an average of 550 PhD students, with about 90 theses defended per year. Of our doctoral students, 43% are from outside of France, and 14% of all theses are completed under the joint supervision of two thesis supervisors from two universities in two different countries: France and another partner country.

Some principles: How should doctoral education be structured?

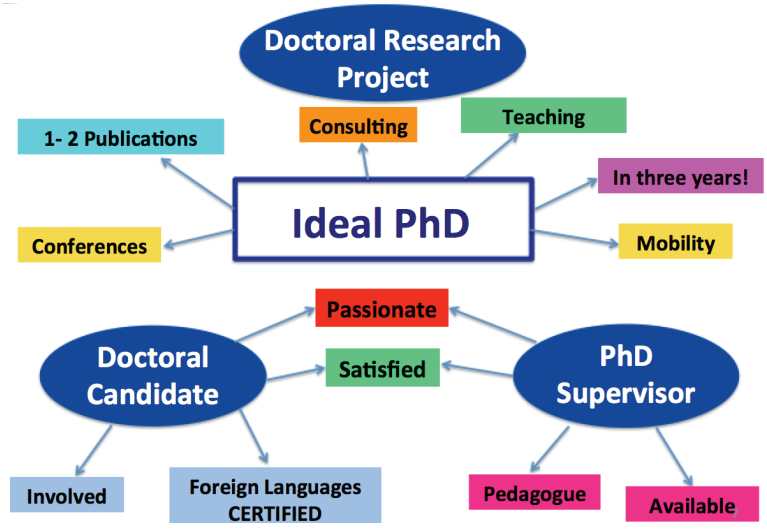
Our work is based on French national decrees of 7/08/2006 (Legifrance a), 23/04/2009 (Legifrance b) and 05/25/2016 (Legifrance c), which establish a national framework for doctoral training and procedures leading to the awarding of a national doctoral degree. We also work under the Salzburg Principles and recommendations, Quality Assurance in Doctoral Education – results of the ARDE project (Accountable

Research Environments for Doctoral Education Project, European University Association, 2004) and the European Commission recommendation (11/03/2005) on:

- The European Charter for Researchers (European Commission, Researchers in Motion)
- A code of conduct for the recruitment of researchers (The European Charter for Researchers)

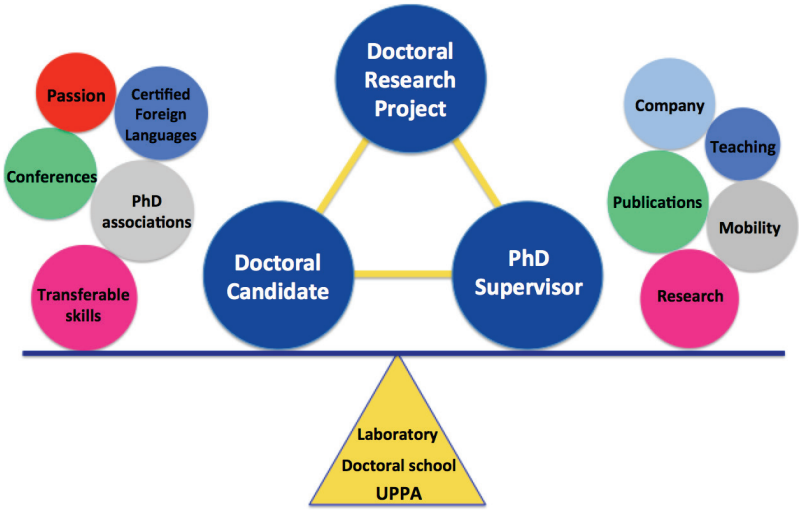
In summary, we believe that the ideal PhD (Figure 1) requires a committed team made up of the doctoral candidate and a PhD supervisor, both of whom need to be passionately involved with an ambitious doctoral research project. Doctoral candidates have 36 months to not only work diligently on the development of their scientific research, but also to publish and disseminate original results at international conferences. Candidates also spend a few weeks or months in a foreign laboratory and enhance their collaborative work (international mobility). They must learn English (and obtain a Cambridge Certificate) or Spanish (DELE) or French (DELF). If their future project involves an academic position, we recommend that they gain teaching experience through, for example, tutorials, courses or practical work (64 hours per year). The PhD supervisor should have the qualities of a good teacher, but above all must be available! After a successful PhD defense, the team should enjoy greater job satisfaction, which in turn has a positive influence on their scientific ambitions.

Fig. 1. Ideal PhD conditions and outcomes.



This ideal scheme gives candidates the experience of working under pressure, which in turn can lead to difficulties with their projects. To ensure success, candidates need to learn to maintain a balance, set up by the laboratory, the doctoral school and the university authorities, during their three years of work. Ideal PhD support can be represented by a 'golden triangle' for a successful doctoral project (Figure 2).

Fig. 2. 'Golden triangle' for a successful doctoral project.



The importance of doctoral supervision is thus quite obvious. Many of us, PhD supervisors, think that we are the best, that our methods are relevant, that we are flawless and have nothing more to learn. This attitude is often reinforced by important scientific positions and recognition. Yes, we have many qualities, but we do not often enough take responsibility for the difficulties of our doctoral students. Often, if something does not work, we think it is the students' fault – it is their problem, not ours. This situation can arise from incompatible personalities, or because the research project is not well structured (for example, it is too ambitious). But we rarely discuss the faults of supervisors or doctoral candidates; they are in most cases initially very enthusiastic and believe in their joint venture. Failure is most disappointing and will scar team members for a long time. We must remember that part of our role involves training young researchers and we should aim for the highest degree of mutual satisfaction. Fortunately, at UPPA, we enjoy many doctoral research project successes and few failures.

Training supervisors and providing tools for more professional management

To make management of thesis projects easier and more efficient, we propose a 'Training for PhD Supervisors' (and future supervisors) program. The program objectives are to:

- provide support for doctoral supervisors, in the current context of university legislation and organization;
- give the supervisory function a dimension of management/coaching;
- allow the PhD candidate to flourish without having his or her research force the direction of all the work; lead him or her gradually towards independence and mature research;
- work within a framework of mutual respect.

Through this training program, the thesis supervisor constructs a methodology to mobilize existing tools to best manage the relationship with his/her PhD candidate. This should be set in a multi-year framework in order to ensure the current context of the legislation and organization of universities and graduate schools, and their recent developments. *That means that we can always learn, and that we are always concerned with continuous improvement.*

The training starts with presentations of participants' expectations based on their experience and what they feel the function of a PhD supervisor is. This is followed by a short explanation of the role and importance of a supervisor in the training of a young researcher in a 'manager/coach' capacity, with some explanations of the concepts and issues.

Another part of the 'Training for PhD Supervisors' program focuses on different psychological profiles, and in particular those of the supervisor and the doctoral candidate. This is particularly important given the three-year timeline of the joint project. In addition, the program emphasizes the need for true satisfaction for both supervisors and the supervised. This includes not waiting until the final months of a PhD program to address significant challenges, which may include incompatibilities in personalities or management styles.

It is thus essential to adhere to a well-designed protocol when recruiting a candidate. This is not a question of finding an excellent candidate, but of discovering the candidate's particular research interest through a face-to-face interview. The candidate must also be a good match for his or her supervisor's personality. To achieve such success, supervisors must be well aware of their own personalities and how they wish to work and interact with their PhD candidates.

Our 'Training for PhD Supervisors' program encourages supervisors to explore their own psychological profile and in turn to determine what to look for in a doctoral candidate to promote a good working partnership and mutual trust. This includes analyzing which psychological profiles supervisors should avoid among their PhD candidates – a very important first step in the development of a solid team that will grow over three years of scientific work. The 'golden triangle' in Figure 2 illustrates the central importance of an optimum supervisor-candidate team and choice of research project.

PhD supervisors often wish to repeat their own doctoral experience with their PhD candidates. Their past experiences, however, even the very good ones, are often no longer pertinent given recent changes in doctoral program requirements. One example is the addition of transferable skills as a new priority. These changes encourage selection committees to consider more than a candidate's scientific potential. The importance of a guide for job interviews, along with different types of interviews, is highlighted during the 'Training for PhD Supervisors' program. The presentation of the 'manager/coach' practical work with the construction of a dashboard and indicators for the whole period of the PhD project means that this relationship is inscribed in time: birth, life and death of the relationship ... Is there life after death? Of course there is, and the satisfaction of creating new doctors is huge. They will fly with their own wings and appreciate the education they have received. Our role is fully accomplished, we can start another scientific project, conducted efficiently and professionally.

How can the quality of doctoral education at the UPPA be preserved?

Quality Assurance in Doctoral Education consists of:

- listening, taking expectations into account;
- vigilantly enforcing regulations;
- assessing and monitoring as a means to improve performance;
- measuring performance to identify strengths and weaknesses;
- proposing solutions by anticipating failures and for continuous improvement;
- managing and supervising theses – each actor has a specific role;
- facilitating employability, career tracking (this is also our business!);
- emphasizing the importance of doctoral training – our responsibility;

- recruiting suitable PhDs – essential for the three-year collaboration to reach our common goals;
- formalizing working methods to make everyone more efficient in their daily activities.

In 2014, the Doctoral School of Exact Sciences and Their Applications (ED 211) was awarded the ISO 9001 quality assurance accreditation for its course practices and running of programs from the initial stage of thesis registration to final awarding of the degree.

Fig.3. ISO 9001 quality assurance accreditation.

Conclusions - good practices

- Build an administrative structure to evaluate performance.
- Consider doctoral education as a very important part of an institution's research strategy.
- Adapt doctoral education to the global research context and international PhD market.
- Promote the international aspect of scientific PhD collaboration.
- Stay open to future evolution.
- Always work with and for PhD candidates and researchers.

With good organization and appropriate structures there should be no dilemma between quality and quantity.

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PhD supervisory training at the Doctoral School of the University of Cantabria: challenges and good practices

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Abstract

In this article, I present the situation of doctoral studies at the University of Cantabria, within the new Spanish PhD framework, and specifically with regard to supervision, training of supervisors and good practices in research training.

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The University of Cantabria

The University of Cantabria (University of Cantabria, 2016) has 14 centers (11 of its own and three affiliated centers) encompassing the five broad areas of arts and humanities, life sciences, experimental and mathematical sciences, social sciences and engineering. It has also four research institutes: the Institute of Physics of Cantabria and the Institute of Biomedicine and Biotechnology of Cantabria (shared with the Spanish National Research Council), the International Institute of Prehistoric Research of Cantabria, and the Institute of Environmental Hydraulics of Cantabria.

There are approximately 12,000 undergraduate students, and 2,000 postgraduate students, 600 of whom are enrolled in 20 doctoral programs. There are 1,300 permanent lectures and research staff, about 350 contracted researchers, and about 600 administration and services staff.

The University of Cantabria is the primary partner in the International Campus of Excellence, which has a multidisciplinary character focusing on six areas of excellence: water and energy; biomedicine and biotechnology; banking, financing and business; heritage and linguistics; physics and mathematics; and technology.

New framework of doctoral studies in Spain

Spanish framework

In February 2011, a new framework for doctoral studies was introduced in Spanish universities, regulated by Royal Decree 99/2011 (RD, 2011). The main objective of the framework was to adapt the third cycle of university studies to the context of the European Higher Education Area, and to address the new challenges of a knowledge-based, globalized society in need of highly skilled professionals, in accordance with the revised Lisbon Agenda outlined in the Green Paper of 2007 (Lisbonne, 2007). In this context, doctoral studies are placed at the center of the triangle of knowledge consisting of education, research and innovation.

The new framework for doctoral studies takes into account the recommendations discussed in the various meetings and activities of the European University Association, particularly those of the Council for Doctoral Education (EUA-CDE, 2016). The recognition of doctoral studies as the first step towards a career in research, which is the aim and purpose of the doctorate, would encourage the formulation of an institutional strategy at the university level to produce professionals capable of coping in complex environments, with good action-taking and decision-making skills that are relevant in all sectors of society and the economy. These types of transferrable skills are considered an integral part of the training of doctoral students.

Maintaining a high level of quality in doctoral programs requires close cooperation among researchers. Internationalization has been clearly linked to research quality, and researcher mobility has been established as a means to achieve it. Intersectorial mobility has a significant impact on quality as well.

The European framework for the new doctorate aims to tackle high levels of academic neglect, the lack of jobs (particularly outside academia, and with substantial differences between the different countries of the European Union), the lack of social recognition of doctoral students and thesis supervision, the low level of funding, and the significant differences between areas of specialization, among other issues. It aims to improve transparency, achieving a guarantee of quality and demanding a code of good practice both in the admission to programs and in the supervision, monitoring and evaluation of the activities of doctoral students.

RD 99/2011 allows Spanish universities to create doctoral schools for the purpose of organizing, within their sphere of management, the teaching and activities of doctoral training. Doctoral schools are charged with playing an essential role in the new model of doctoral training, based at the university, but integrated with other collaborating agencies, organizations and institutions involved in R & D both nationally and internationally, in line with European recommendations embodied in the Berlin Conference (2003) and developed in the Conference of Bergen (2005). The basis for the new European doctorate follows the recommendations put forward at the Salzburg meeting (2005), which were reformulated in 2010 (Salzburg II Recommendations, 2005-2010).

The evolution of the number of doctoral schools in Europe (17% of universities in 2005, 65% in 2010) indicates a clear tendency towards their firm establishment. There have been many different models, both at the institutional level (intra-university, inter-university, extramural) and in terms of the disciplinary nature (specialized, transdisciplinary, multidisciplinary/interdisciplinary), size, etc. No general consensus has been reached as to whether to adopt one model or another, and decisions are generally made based on the characteristics and experiences of the corresponding university.

University of Cantabria framework

The strategy of the Cantabria International Campus (CCI) fits perfectly into the objectives of the new framework for the doctorate and therefore for the new doctoral school, which was created in November 2010 – the first doctoral school created in Spain within the new context of RD 99/2011.

In fact, the CCI's goals establish the importance of general actions to improve human resources, facilities and equipment, organization and knowledge management, and cooperation with the environment. Specifically, the CCI works within the framework of the European Higher Education Area offering courses of study based on societal demand and oriented towards internationalization.

A very important aspect of the CCI is its alliance with 16 strategic agents in addition to the University of Cantabria and the International University Menendez Pelayo, within a stable framework of cooperation with the Government of Cantabria. The CCI is firmly committed to scientific and academic excellence, and includes the Spanish National Research Council (CSIC, 2016) among its partners.

Given the size and the setting of the University of Cantabria, a multidisciplinary/interdisciplinary doctoral school model was chosen, encompassing all areas of doctoral studies. That choice aimed to set the course towards excellence for the various doctoral programs, while at the same time maintaining their specificity. Collaboration with the institutions participating in the CCI confer upon the doctoral school many of the attributes characteristic of the CCI project itself: uniqueness, feasibility, participation, strategy, and international competitiveness.

The academic project includes specialized training programs and general training, giving doctoral students a global vision of the aspects that might facilitate their incorporation into the professional world. The transferrable skills program (Ruiz, Merino, Etayo and Quintana, 2013) includes doctoral training in the European High Education Area, scientific ethics, scientific and outreach communication skills, research funding opportunities, licensing and technology transfer, research in industry, and interdisciplinary workshops.

Supervisor training

The implementation of the new doctoral framework in Spain represents a substantial change, particularly in relation to the supervision of new researchers. We are moving from a structure based on the research supervisor-doctoral student dyad to a new structure more oriented towards global supervision, both specific and general, promoting the acquisition of skills for the labor market, in addition to research work. New supervisors generally do not have sufficient training to deal effectively with their new responsibilities.

Aiming to enable supervisors to reach a highly productive and satisfying supervisory relationship and thus to improve the overall quality of doctoral education and establish a sustainable culture in keeping with international directives, the University of Cantabria started a series[1] of PhD supervisory training workshops on the professionalization of PhD supervision in October 2014.

Eight workshops have been held up to now, in June and October 2015, and May and October 2016, with a program that covered the different stages of supervision of doctoral training, from the selection of candidates to the conclusion of the doctoral thesis, as well as the establishment of the training program, the roles of supervisor and doctoral candidate, and the detection and resolution of conflicts (see, for example, Lee, 2012; Remenyi and Money, 2012).

The workshops were designed for multidisciplinary groups of fifteen new supervisors, were voluntary and were held over two intensive days in a highly participative format.

Complementary to those training workshops, several one-day professionalization of PhD supervision follow-up workshops were held about six months after the training workshop, attended by the participants in the earlier workshops.

We also held a dedicated one-day workshop called Supervision Training for Doctoral Candidates-Understanding and Conducting Productive and Supportive Research Supervision Jointly, for doctoral candidates supervised by people participating the professionalization of PhD supervision workshop.

Other workshops on training trainers of supervisors are also being planned.

One important goal is also to establish a team of trained supervisors who will organize workshops and discussions on supervision issues, and monitor the impact of the training derived from all these activities.

Good practices

Since the implementation of the new framework, a contract document has been established between supervisors, doctoral students and the institution, which includes the following points: research program, obligations of the parties involved and institutional responsibilities, resource availability, thesis application deadline, progress evaluation procedure, confidentiality, intellectual and industrial property, consultation and repository of the doctoral thesis, and conflict resolution.

1 Designed and imparted by Prof. Dr. Helmut Brentel (Goethe University, Frankfurt am Main).

We have also adopted a code of good practice for doctoral training and supervision that correlates with the corresponding aspects of the code of ethics in research that must be respected by all university researchers. This code includes:

- principles of the educational activity of research, and personal obligations on the part of supervisors, academic committee members, and doctoral candidates;
- principles of the research training activity, establishing responsibility in the use and administration of the resources and facilities related to research training, as well as data management;
- honesty, conflicts of interest and deviations from good practices in research;
- management of data, intellectual property, industrial property and state-of-the-art protection;
- publication, protection and dissemination practices: revision of errors, non-published results, fragmented or repeated publication, third-party bibliographical references, acknowledgements, institutional credits and funding, presentation in mass media, premature presentation to mass media outlets, emergency presentation;
- authorship of publications, recognition of prior authors;
- institutional environment: information on research conditions, evaluation criteria for research in training personnel, non-discriminatory conditions.

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The professionalization of doctoral supervision at URV: the training of supervisors from a *glocal* perspective[1]

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Abstract

We present here the evolution of the process of professionalization of the doctoral supervision in the University Rovira i Virgili, the public university of Tarragona (Spain), and describe the programme of courses developed for the professionalization of the doctorate, to be delivered to doctoral supervisors and PhD researchers.

1 The authors acknowledge the English translation of this chapter by Carlos Mario Quintero.

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Context

The Universitat Rovira i Virgili (URV) is the public university of Southern Catalonia, created in 1991, restoring the 16th century Tarragona University. From the very first day, its aim has been very clear: to place knowledge at the service of society in order to contribute to the social and economic development of its environment. One of its characteristic features is a considerable social and territorial implication with its surrounding region, which has been recognised by international bodies such as the European University Association (EUA) and the Organisation for Economic Co-operation and Development (OECD).

In spite of being a young university, the URV is ranked as the world's 76th best university under 50 years of existence, and it is among the 500 best universities according to the Times Higher Education 2017.

The URV is structured in 12 faculties offering more than 100 programmes of study in a broad variety of knowledge areas for over 15.000 students spread amongst 47 undergraduate degrees, 49 master degrees (20 of which are interuniversity, and 5 recognised as International Master's Programmes by the Catalan Government) and 23 doctoral degrees.

The URV employs more than 1100 professors and almost 700 staff. To comply with the University's mission of generating knowledge and to respond effectively to the needs of society in the current context of crisis and reformulation of the model of economic development, the URV is applying an active policy that aims at reinforcing the research profile of the institution by increasing visibility, and providing support to research, development and innovation.

Particular mention should be made of the Campus of International Excellence Southern Catalonia (CEICS[2]) promoted by the URV and recognised by the Spanish Ministry. The CEICS represents the strategic union of different organisations and structures involved in teaching, research, knowledge transfer and the productive sector in Southern Catalonia. Its objectives are to become an international benchmark in knowledge and competitiveness within the areas of Tourism, Heritage and Culture, Oenology, Nutrition and Health and Chemistry and Energy. It also seeks to become the heart of an authentic region of knowledge that can play a key role in the future growth of the region and its productive network.

Certified under the requirements of ISO standard 9001:2008, the URV's quality management system ensures the quality of the research, development, innovation, and knowledge and technology transfer carried out by the institution's 108 research groups and 5 innovation centres. The URV also enjoys the HR-Excellence in Research

2 Campus d'excel.lència internacional Catalunya sud (CEICS).

Certification from the European Commission. It ensures the implementation of a Charter & Code, and shows the commitment of the URV to implement best practices regarding researchers.

In terms of doctoral education, the Doctoral and Postgraduate School (EPD)[3] at the URV deals with over 1200 PhD students at any given time and is responsible for organising the URV's doctoral programmes. The Doctoral School works to promote synergies between the various knowledge areas with interdisciplinarity as the driving force behind innovation and continuous improvement. In fact, doctoral education has been recognized as a strategic tool to consolidate the position of the university in the international arena and to create innovative synergies within the socioeconomic local context.

For this reason, the development of a research culture within the university considering all the stakeholders involved in the doctoral process has been a priority for the URV in recent years. It is in this context that providing specific training for PhD supervisors has been identified as a first step towards the quality assurance of doctoral education.

The process at the URV

The URV has developed a whole process of professionalization of doctoral supervision. External referents were followed, but adapting them at the same time to the needs and characteristics of our university and to our closest university context, where this culture of professional supervision did not exist yet. One of the actions of the EPD of the URV consisted in the setting up of a stable structure to guarantee the training of this group of professors, which has become the engine of this process: The Group of trainers for the professionalization of doctoral supervision (GFPD[4]). The description of the different stages that have made possible this development from a chronological point of view are outlined below.

The origins: initiatives

The initiative of promoting the programs of training for supervisors at the URV was generated in a non-rushed way, almost unintentionally at the beginning, but soon was considered as a necessity that had to be supported by the institution.

In the first Forum of the Campus of International Excellence of Southern Catalonia (CEICS, <http://www.ceics.eu/es/>) in November 2011, an entire session was devoted to doctoral studies, given that it was perceived as a strategic aspect for the

3 Escola de Posgrau i Doctorat (*EPD*).

4 Grup de formadors per la professionalització del doctorat (GFPD).

future of the URV and for the research agents of the CEICS. The state of the art and the hot topics of the time were presented, highlighting among those the development of a new model of schools of doctorate that had been successfully implemented in Europe in recent years. In this context, the executive director of the Doctoral School of the University of Frankfurt, Dr. Helmut Brentel, was invited for his long experience in this area. He commented on the importance of doctoral supervision and remarked that it needed to be considered as one of the strategic axes for universities willing to increase the impact of their research.

From his participation in the forum, arose the opportunity to offer the first workshop on doctoral supervision at the URV promoted by the CEICS in the spring of 2012. This workshop was well received and showed that it was necessary to generate a sufficiently important number of doctoral supervisors to promote a cultural change that would allow to systematically incorporate the training for doctoral supervision in the institution. The first edition was a complete success and the participants' satisfaction was so high that the experience was repeated in 2013 in the framework of the CEICS. In these two years more that 80 doctorate supervisors participated in the intensive 2-day programme of training in supervision.

As can be seen, the initiative emerged without a previously established plan, and little by little, without pressure, spread within the organisation. It was not necessary to convince the managers of the institution because this initiative was perceived by all as "a success". Then, when the URV set up its new EPD, inspired by the model of the leading modern Doctoral Schools in Continental Europe, a turning point occurred. The new Direction of the EPD, led by Dr. Francesc Díaz, brought a change of mentality on the importance of this type of training for the institution. What was happening at the URV-CEICS was unique in Spain and not widespread in Europe: an annual systematic program of training for PhD supervisors. From that moment on, the professionalization of doctoral supervision was prioritized and considered a strategic axis in the mission of the EPD, supported and promoted by the whole group of coordinators of the doctoral programmes and the indispensable collaboration of the rector's team.

First tests: the initial training courses

The first edition of the supervisors' training course was addressed mainly to unexperienced supervisors because it was considered that this type of training programme would have little to offer to the senior supervisors, given their long experience and probably their already established ways of working. Senior supervisors might have perceived differently the importance and the need of these training courses.

However, from the beginning, the effectiveness and attractiveness of this training programme caught the attention of the most experienced professors, who actually showed a special interest in taking part.

In parallel, it seemed necessary to actively involve the coordinators of the doctoral programmes, since they were the direct contact with the supervisors and were also responsible for the quality of the programmes. Therefore, their disseminating role of this training activity was fundamental. It was with such purpose that a specific worshop was organised where Dr. Brentel presented the content and objectives of the training given to supervisors to the coordinators of the doctoral programmes. This initiative generated a rich internal debate on whether it was suitable to recommend this training to all the thesis supervisors. Without any doubt, it would impact on the quality of the supervision provided, on the reduction of conflicts among PhD candidates and supervisors, in a better programming of the theses development, which would ultimately allow to finish the theses in the established deadlines, and globally, on the prevention of candidates quiting their PhD with unfinished theses.

Regarding the structure and orientation of the training program, it consisted of two levels, one of initial training (two full days long) and one of follow-up (a full day long), to be completed in the academic year next to the initial course.

Finally, to disseminate the culture of doctoral supervision as a task of professionalitzation and to close the circle of agents involved in the doctorate, Dr. Brentel also gave a half-day course addressed to PhD candidates.

Making it ours: creating the URV's team of trainers

As Picasso wisely said once, "inspiration exists but has to find you working". The training courses and workshops promoted by the CEICS represented the continuous and sustained work preceeding this inspiration. The integration in the organisation of a systematic training programme well accepted by doctorate supervisors was a capital antecedent, when the direction of the EPD created a tailor-made training programme for the URV.

It was necessary to adjust this programme to our own cultural and idiomatic idiosyncrasy, adapting it to the type of interrelation established in Spain between PhD researchers and supervisors. These adaptations included also additional topics like the administrative processes that have to be followed by both PhD candidates and supervisors, given that the changing governmental laws and regulations are not always well known.

Therefore, the advocated model consisted in creating our own training materials and team of trainers, integrated in the EPD, and transferring the leadership of the project from the CEICS that acted as the perfect incubator to the URV Postgraduate and Doctoral School.

With this aim, Professor Helmut Brentel designed a specific program for the URV team of trainers, featuring different experiences. This personalised program contributed to a deeper understanding of all the tasks and challenges of doctoral supervision, to prepare the future trainers to be able to develop their own methodologies and materials.

Given the strategic importance of this initial training of the trainers, the EPD also invited Professor Pam Denicolo, from the University of Reading, engaged in the quality agencies of the doctoral supervision in the United Kingdom, to give a course to the trainers' team to broaden their perspective on the international developments in the professionalization of doctoral supervision.

A university with its own model of doctoral supervision training

Following the plan of the EPD, the URV group of trainers designed tailor-made training programmes for the professionalization of the doctorate at the URV, to be delivered to doctoral supervisors and PhD researchers.

Specifically, the training addressed to supervisors consists of an initial course on the basic topics of good practices in doctoral supervision and a group of thematic follow-up workshops, centred in other relevant subjects for the supervision not treated in the initial training course.

Figure 1. Collaborative work during the training courses and workshops on the Professionalization of Doctoral Supervision carried out at the URV where the classroom is organized in different ways according to the different training activities programmed.

Each module of these workshops starts with a short presentation of the main concepts that will be covered, followed by interactive exercises performed by the supervisors in groups, working in round tables, as it can be seen in Figure 1.

The introductory training course includes the following contents:

- *Introduction to good practices in supervision*. This part offers a general insight to the current international context of the professionalization of doctoral supervision, going through its historical evolution, the concept of supervision, the need to produce doctoral theses of high quality and the implications of the professionalization of doctoral supervision.
- *Supervision, a multidimensional task*. The main functions of supervisors are analysed: guidance and academic and professional support, and follow-up of these tasks.
- *From the "ideal" to the "real" candidate*. The aim is to identify the main preferable characteristics in the profile of the ideal doctoral candidates, and to assist supervisors with the design of tools to remediate the competency disadjustments of their PhD candidates, thus helping them in the development of their future professional career.
- *Supervision, a question of style*. The characteristics and roles of an effective supervisor are described, as well as the importance of an effective relationship between supervisors and PhD candidates. Special attention is given to the expectations of both supervisors and supervisees and to the diversity of styles that can facilitate an effective supervision.
- *Problems in supervision: symptoms, diagnosis and treatment*. The focus is on the anticipation of the identification of potential sources of problems and conflicts that can emerge throughout the living cycle of the doctoral thesis. Tools to help solving these issues are presented and discussed.

In addition, the course includes a description of the new administrative and evaluation procedures integrated in the different phases of the doctorate where supervisors take part in. In general, it is the EPD staff of the URV who provides this description, what shows again that the task to set up a doctorate of quality is a collective effort.

The basic training programme consists of a two-consecutive-days immersion course, in sessions of 8 hours per day, in a modular classroom that allows different participant distributions according to the conditions required by each training activity. The objective is that there is a "before and after" in one's own conception and awareness of their supervisory role. To achieve this, emphasis is given not to the conceptual contents, but above all to the process based on the experience.

Supervisors of different disciplines and with different degrees of experience work together in a collaborative way. This methodology allows supervisors to create their own tools that facilitate and systematise the process of supervision. Attendance is therefore indispensable in the development of this training programme, with the added value of making possible the interaction between peers and creating a forum of dialogue on the doctoral supervision as a professional practice, which up to now did not exist in our university. This diversity between participants is beneficial because it reveals that, despite the very different ways of working in different areas of knowledge during the doctorate, the main challenges and problems are common to all. Therefore, although the task of the supervisor is often very individual and solitary, the training activities provide room for meetings and support that many times continues and goes beyond the duration of the workshop.

These training activities are not aimed at giving global and magic recipes to become a good supervisor. Quite the opposite, what is looked for is that the participants are able to create their own tools to perform a systematised follow-up of the process of supervision when needed, and always adapted to their specific needs in a continuous evolutive process.

This first edition of the new training program was given at the URV during the academic course 2015-2016. Since then, the URV offers two editions of the initial training course and one edition of the follow-up course per academic year. Regarding the latter, it is offered to the supervisors that have already taken part in the initial training course, in a format of a single session. It treats topics as co-supervision, remote supervision, supervision of singular PhD candidates etc., and it is backed up by experts in the specific treated topic.

It is necessary to highlight the novelty that represents to address a course to doctoral supervisors. This is an initiative that had no precedents neither in the URV nor in its closest university environment. Usually the improvement of the teaching quality is based on activities addressed directly to the students, but in this case the improvement of the quality of the doctorate is achieved through the professionalitzation of the supervisory task of the theses' directors, making supervisors aware of the importance of the doctoral supervision at personal and institutional level. This task is usually carried out solely through not codified tacit knowledge, reason why one of the objectives of this programme is to express it in an explicit and systematic way.

Regarding the course for PhD researchers, it is targeted mainly at candidates of the first year of their doctoral period and is given in a 4-hour single session, following the same methodology of the courses for supervisors described previously. The aim is to offer PhD candidates insight and tools to manage their project, their research

education, their work/life balance and to collaborate with their supervisors. The structure of this training includes the following points:

1. Doing a PhD: what got you here and what you expect from it.
2. The supervisor: expectations and roles.
3. Challenges and potential problems throughout the PhD.
4. Your career plan.

The capacity of improvement of these training programmes can be summarized in the following final objectives of the course:

- Become aware of the new roles of supervisors in the context of the new doctorate.
- Give tools for the early identification of potential conflicts and resolution of the existent ones in the relation between the supervisor and the PhD researcher.
- Develop a culture of supervision that is simultaneously productive and supportive of the PhD candidate.
- Help achieving satisfactory doctoral experiences, for both supervisors and PhD candidates.
- Advocate on the quality, efficiency and excellence of the doctoral education.
- Create a common and generalised research culture.

The impact on people at the URV: the community of good practices in doctoral supervision

As a result of the training courses that they had attended, a group of supervisors considered that it would be necessary to carry out, on a continued basis, training actions or initiatives on the professionalization of doctoral supervision. The CEICS, as promoter of the first training programme, considered that this idea had to be encouraged and supported, and consequently, a first meeting of interested supervisors was organised in November of 2013, with the aim of creating a community of good practices on this subject. This meeting served to present what a community of good practices is, how it works and how it is organised (Figure 2). The community was in fact created with the common aim of "making the doctoral supervision an exceptional experience at human and research levels at the URV departments, at the URV itself and at the CEICS".

Figure 2. Objectives presented to the Doctoral Supervision Community of practice.

The topics on which the community wanted to learn and address were the following:

- structuring the supervision: candidates selection, supervision teams, co-supervision
- strategy and supervision rules: optimum number of PhD candidates per supervisor, prizes for percentages of theses completed, …
- dedication (time and commitment) and status of the supervision task: incorporation of the supervision as a teaching task, affording quality time to supervise, recognition of the efforts and quality of the supervision, prioritization of dedication to other efforts
- learning to supervise: evaluation and improvement of the supervision practice, available resources, categorisation of supervisors, good practices, skills for resolution of conflicts and problems
- interaction candidate-supervisor: clarifications on expectations and on the relationship candidate-supervisor, giving and receiving feedback; detection, treatment or avoidance of problems
- professional career: identification of weaknesses, skills development, courses offerings, support to individual career paths, knowledge of the labour market for doctors

- research environment: being exposed to a stimulating and interdisciplinary environment; having a wide vision of the scientific context, ethics, carrying out good and responsible laboratory practices, respecting common values
- progress and output of the candidate: planning and monitoring, thesis defence, quality evaluation and process quality, socialising, presentations and publications
- recruitment and selection of candidates: criteria, strategies and techniques, testing skills and competencies already at this initial stage.

Likewise, PhD candidates, former PhD researchers and the employers of PhD researchers and Doctors were also identified as potential members of this community of supervisors of doctoral theses.

The meetings were organized including a social event, to strengthen the personal relationships between supervisors of the institution, followed by a short presentation on a relevant aspect of interest in supervision given by a keynote speaker. The meeting finished with some interactive activities related to practical questions in the task of supervision. Figure 3 shows different moments of one of the meetings of the community.

Figure 3. First Meeting of the Community of good practices on Doctoral Supervision at the Institute Pere Mata (Reus).

Resulting from this initiative, it was agreed to request an interdepartmental teaching innovation grant to the Education Sciences Institute of the URV. The aim was to develop this community of good practices, as a non-formal process, that allowed innovating at the doctorate, to develope doctorates of excellence, providing PhD

candidates with a good professional level and transversal and social competencies, as well as developing theses of high scientific and social impact. Expected outputs of this project were a portfolio of actions for doctoral supervision, production of innovative mechanisms for learning and generating ideas, and enhancing the relations between the members of the Community. A total of 26 supervisors coming from 12 different departments of the URV took part in this project, thus showing its transversality.

Eventually, the project did not progress, but the grounds for the action are already built, waiting for a core group to mobilise again the community.

Conclusions and future perspectives

Resulting from the process described, an important critical mass of trained doctoral supervisors has been created at the URV, representing practically 50% of the total of potential supervisors of this university. This has brought the culture of the supervision beyond the scope of the individual to widely achieve the institutional level.

The impact of the good results obtained has motivated other national and international universities and academic organisations of higher education to request this training. Background and externalitzation has given us an experience that has allowed us to be part of the network of leaders in the professionalization of the doctorate. Thus, the exchange of experiences and good practices in this context creates synergies that constantly enhance the scope of the doctoral project at the URV. The training programme reinforces the institutional strategy of the professionalization of the doctorate, becoming an example of good practices that the URV disseminates in national and international forums of doctoral education.

The development of this project is consolidating the fundamental steps in the process of achieving doctoral excellence at the URV, regarding the task of supervisors as well as the results obtained by the PhD researchers, but also regarding the shared experience that, if satisfactory, favours the quality of the doctorate.

The professionalization of doctoral supervision also contributes to the improvement in the efficiency of the results obtained during the doctorate (outputs), including publications and curricular skills. One of the distinctive characteristics of the training carried out at the URV is the special attention given to the development of the professional career of the PhD candidates from the beginning of the doctoral programme. The supervisor is directly involved in the process of planning a professional career taylor-made for each of the PhD candidates. Through a first analysis of the initial competencies already shown by the PhD candidate and of the occupational options for a doctor, the pairing "supervisor-PhD candidate" focuses on designing a

plan for the acquisition and improvement of competencies with the aim of increasing the employability chances of the PhD candidate beyond the purely academic field.

The evolution of the vision of the doctorate in Europe indicates that raising awareness of the quality of the doctoral process must come hand in hand, in the very near future, with the employability of PhD researchers. Therefore, the URV, through this training initiative, is a frontrunner of this evolution.

This experience is one more example of how a young and relatively small university, like the URV, gains visibility at international level, thanks to the development of a strategic objective and the coordinated action of the members of the university community, the corresponding organisational units (EPD and CEICS) and the support of the rector's management team, thus becoming a reference of good practices in the field of the doctoral supervision.

Now it is necessary to consolidate this leading and innovative position working in different areas. On the one hand, we must go deeper in the dissemination of the culture of professionalization of doctoral supervision in our own university, making all actors involved take active part in this process: supervisors, PhD researchers, coordinators of doctoral programmes, research groups, the EPD and other administrative units as well as the rector's management team.

Besides, it is necessary that the rest of the external agents involved see the value of the doctorate, by means of the definition of new professional profiles for our PhD researchers. Such professional profiles should improve the employability of these PhD researchers and increase their impact on a knowledge society. These efforts must continue, being in line with the university policies defined by the European Union but also by taking part in the established forums and contributing to their development to define how to evaluate the impact of the professionalization of doctoral supervision.

PART III: TTT DISCUSSION

The present and future of PhD supervisory training: outputs of the TTT meeting

All participants of the TTT meeting

Abstract

We present here the outputs of the closing discussion session of the Tarragona Think Tank on PhD supervisory training (TTT), where the participants reflected about the present and future of PhD supervisory training. The session focussed on three topics: future challenges to the development of professionalization of doctoral supervision; what the optimal situation of doctoral supervision would look like; and how the impact of professionalization practices can be assessed.

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Introduction

The preceding pages of this book have served several purposes: They have introduced the *Tarragona Think Tank on PhD supervisory training: challenges and good practices* initiative, presented an overview of the situation of doctoral education in Europe, and described the provision of PhD supervisory training at different European universities to professionalize the role of doctoral supervisors. In this final chapter, we present the outputs of the closing discussion session of the *Tarragona Think Tank on PhD supervisory training* (TTT) meeting, which allowed the participants to share reflections about the present and future of PhD supervisory training.

In order to coordinate and enrich the exchanges between the participant experts on PhD supervision training, the session focused on three topics:

a) Future *challenges* to the development of professionalization of doctoral supervision.

b) The '*dream*': what the optimal situation of doctoral supervision would look like.

c) How the *impact* of professionalization practices can be assessed.

Challenges

Undoubtedly, the examples of good practices that we have seen throughout this book have not succeeded without challenges along the way. Beyond the specific challenges that each institution has overcome, the group of TTT participants identified the most common challenges that universities may face when developing or consolidating their PhD professionalization efforts. These were grouped into three main themes: first, a series of challenges related to the changing reality that doctoral education represents and the need to rapidly adapt to this dynamic evolution, which we have clustered under the theme of 'transformation'; second, the challenges related to maintaining the momentum gathered by initial efforts, within the theme of 'sustainability'; and third, and coinciding with one of the questions that we proposed ex-ante for this last part of the TTT, related to the challenge of demonstrating the value of PhD professionalization initiatives, under the theme 'impact'.

Transformation

Higher education in general has undergone a profound transformation in the last two decades. This has been structured through the Bologna Process and manifested in the Salzburg Principles for doctoral education, which is now itself involved in a process of evolution. This transformation affects doctoral education as it has been known up to now in terms of its methodology and purposes, both educational and social.

- *Educational purpose*. The award of a doctoral degree has become a much more complex matter in today's world. Although the research process remains at the core of doctoral education, it is no longer the sole focus of a PhD, rather the research project has been supplemented with a number of additional demands, activities, responsibilities, duties and opportunities for doctoral candidates. This implies shifting the outcome from a thesis-only perspective towards a person perspective, inter alia involving the development of transferable skills, including abstract aspects like emotional intelligence.
- *Social purpose*. Universities must produce doctors with a range of different profiles in order to satisfy eventual professional and academic demands. This implies that supervisors must develop a wider view of what the doctorate is for, and prepare their candidates for different career possibilities. One of the handicaps of this view is that most often supervisors do not have professional experience outside academia. Thus, the institution needs to develop suitable tools to ensure that supervisors and candidates have enough knowledge of employment opportunities both inside and outside of academia. While this also places the onus on doctoral candidates to be aware of the need to plan their professional careers in order to become more employable, supervisors and the institution must also build strong university-business collaborations and ensure that doctoral candidates have the time to engage with them.
- *Collegiate responsibility*. The previous point indicates that the doctorate must be understood as a collective effort, with responsibilities distributed among different bodies, including the institution from its main policy-making ranks, doctoral schools, departments, research groups and supervisors, in order to develop a positive supervisory culture across the institution. Thus, there are numerous stakeholders in the production of PhDs, and they all need to understand this broader view of the doctoral process and its inherent responsibilities.

Sustainability

To enable supervisors to excel in this new context, universities must provide PhD supervisory training and all its accompanying measures. Once established, a key challenge will be securing resources, institutional support and cooperation among all the stakeholders involved in order to consolidate and sustain a system that can ultimately be beneficial for everyone involved. The main aspects of the challenge of sustainability involve:

- *Institutionalization*. At some institutions, postgraduate schools lead the efforts to implement a culture of professionalized doctoral supervision among potential supervisors. This, in fact, might be considered a practical situation towards which all universities should gravitate in the near future. Depending on the degree of development of the training culture and on the role assigned to the postgraduate school, this transition might be smooth and easy, or it might constitute a great challenge.
- *Budget*. The creation of PhD supervision professionalization programs can be, in many cases, based on the goodwill of a group of interested members at the institution. Nevertheless, to ensure the continuity and development of actions, an institutional budget must be established. A small budget would be enough to develop one-off courses for doctoral researchers and supervisors, but more funding would be required to create a comprehensive and sustainable program.
- *Running the program*. As in the first point of this section (institutionalization), different realities have been identified regarding the profile of the people in charge of the development of the program: the head of a doctoral school, who manages the resources necessary to run the program and organize its development; the staff of the institution who are assigned the task of developing the training programs internally; external consultants who run tailor-made programs for different institutions; or a combination of these depending on the resources and expertise available as well as the size of each doctoral cohort. Each institution should consider which model is more suitable and sustainable for it, to ensure continuity and to be able to assess the quality of the training program.
- *Resistance*. In some cases, it is necessary to break the inertia restricting the changes introduced by the professionalization of PhD supervision. Some professors are used to working in a more traditional way, and they would prefer to keep working in the same way. Others may only have their own supervisors as role models whose outdated practice they emulate, knowing no other way. Another point that contributes to this resistance is the lack of recognition of the utility and value of daily supervisory duties for the successful completion of the doctorate.
- *Satisfaction*. To ensure the sustainability of the program, it is necessary to reach a critical mass of satisfied trained supervisors who will act as advocates for the program, spreading the word among peers and becoming allies in support of the continuity and further development of the program.

- *Quality assurance*. A further challenge is to devise ways in which the training program can be evaluated in several respects: its value to individual supervisors, for instance how interesting and illuminating they find the sessions and how well they implement the lessons learned; its value to the students, for instance in what ways they feel better supported to complete their studies; and its value to the institution, for instance in the ability to attract good candidates and support them both in the successful completion of their degrees and in finding suitable employment thereafter.

A third and last group of challenges has to do with the need to show the impact of supervisor development initiatives. Because this coincides with our last thematic block, we will deal with this important challenge separately in section 4.

The 'dream': The ideal doctoral supervision organization

In this activity, the members of the TTT were asked to reflect upon, generate and design a scenario of what the optimal situation for doctoral supervision might look like. This scenario would represent a gold standard for which universities should aim. The characteristics of this ideal benchmark include the aspects that follow.

Moving beyond institutional support

As highlighted earlier in this chapter and illustrated by some of the case studies included in this book, the support of the institution is a key element for both the initiation and the sustainability of PhD supervision initiatives. In order to reach an ideal situation, we should aim for fully-fledged institutional integration, that is, the professionalization of doctoral supervision should be fully integrated into the strategy of the university.

- *Institutional integration*. This would bring about two key aspects:
  - Normative integration, that is, doctoral supervision in all its facets should be integrated into university regulations, such as in their training policies, detailing provisions such as its voluntary/obligatory status, HR permissions and recognition of hours invested and incentives for the work, links between the level of PhD supervision training and experience required or recommended and the stages of the supervisory career, etc.
  - A substantial regular budget for this specific purpose, integrated into the university's permanent cost structure.

- *Comprehensive professionalization of all stakeholders involved in the doctoral process*. The doctoral experience is made up of the actions of many agents in an endeavor that should be cooperative and collegiate. Thus, a positive doctoral experience requires 360º training that involves all the key actors who contribute to doctoral education, including supervisors, the staff ascribed to doctoral schools, internationalization and careers centers, and other services that interact with PhD candidates and supervisors. The profile of doctoral researchers, their supervisors and those who provide their support and training should be accorded due recognition as significant contributors to the university's primary purpose, its key reason for existing: the creation and dissemination of new knowledge.

Agreeing on international standards

In today's globalized world, and given the high level of mobility inherent within the higher education sector, convergence is necessary in order to create an international community that works to establish common criteria for the assurance of excellent standards that can act as benchmarks for PhD education. To reach this level of development, efforts must be directed towards a broad range of aspects, as follows.

- *International community for the professionalization of doctoral supervision*. Based on the already existing associations that bring higher education institutions together, it would be desirable to consolidate and enlarge the communities interested in the professionalization of doctoral education supervision. Ideally, this would consist of the creation of a community of colleagues that work together to identify and improve good practices, develop new policies and, when necessary, organize strategic lobbying of key budget holders and policy-makers, both nationally and internationally.
- *Transferable accreditation of PhD supervision training*. This is needed for two reasons. First, the high degree of mobility among academic personnel, both nationally and transnationally, means that individual professors may work at several universities during the course of their academic careers. Second, the initiatives for doctoral supervisor training differ greatly among institutions, both in terms of content and quantity and quality. In this context, we envisage the need for an accreditation scheme that determines not only the number of hours of training received, but also the areas and topics covered, as well as level of competency acquired. Such international accreditation would facilitate the transferability of supervisory skills and ensure that certain standards are met. These transferable accreditations would be easier to establish if a strong international community already existed.

- *Transferable evaluation standards of PhD theses*. At present, many supervisors do not have a clear understanding of what examiners ask for during the evaluation of a PhD thesis due to a lack of explicit common standards and criteria. Although the fact that each doctoral project and each doctoral candidate is unique is widely recognized, each discipline has different paradigms and requirements for successful completion. Nevertheless, there are universal qualities that determine the 'doctorateness' of a thesis and of a candidate, which are overlaid with the specific disciplinary requirements that each candidate should demonstrate on completion, whatever their starting point and circumstances. Thus, it is clear that, for the future, the development of a common, explicit, transparent and detailed corpus of criteria for examinations should be developed so that supervisors can work towards them with their supervisees. As in the previous point, this common corpus would be most easily implemented by working together in an international community.

Broader scope of PhD supervisory training

The TTT participants considered it important to move beyond the specific idea of training towards the broader concept of professionalization. This change in concept involves thinking about PhD supervisory training not as a single-stop learning activity, but as a continuous process of professional development. This process of professionalization must be built on the basis of trans-disciplinarity and continuous learning experiences.

- *Life-long learning experience*. The professionalization of doctoral supervision should not be thought as a specific, isolated training action, but understood as a continuous process of progression towards improvement by means of periodic support and monitoring of the quality of supervisory activity. Basic training is an absolute requirement, but extended training in self-reflective practices for seasoned supervisors is also when the real magic starts to happen. This development in learning must be both an individual and a collective effort to help supervisors improve their practice rather than stagnate and become obsolescent.
- *The involvement of all disciplines*. The points addressed up to now should be developed jointly across disciplines. This practice would enrich the dialogue and make discussions more fruitful, since supervision is by nature a transdisciplinary practice, while contemporary problems that demand research can only be addressed from the perspectives of several disciplines.

A protagonist role for supervisors

As key stakeholders in the PhD process, supervisors should become aware of the full extent of the importance of their role, thus moving beyond simply participating in the provision of PhD training, and taking further initiatives as individuals and as a group to ensure a satisfactory and enduring PhD experience for their supervisees.

- *Proactivity of supervisors towards professionalization*. The ideal situation for the effectiveness of this scenario would one in which supervisors commit to the professionalization of their endeavor, in terms of perceiving the added value of training programs, feeling motivated to follow them, and becoming architects of the quality of the doctoral experience in their institutions. This would imply actions like generating tools and forums that facilitate the interchange of experiences, and providing feedback to continually improve the doctoral program.
- *Research community evolving together*. To provide a positive doctoral experience, supervisors must be aware of the influence that they have on PhD researchers, realizing that they determine the first steps of the professional career of these young researchers. Thus, supervisors should be aware of their responsibility to build at least a satisfactory and at best an inspiring experience for PhD researchers to be remembered throughout their lives.

Impact: How can effectiveness be demonstrated?

There has been increasing public investment in universities, which makes society require accountability and evidence of the benefits achieved. Thus, one of the key short-, medium- and long-term future challenges is how to assess the impact of the professionalization of PhD supervision. A wide range of issues must be evaluated, such as the satisfaction of all stakeholders involved in the process, the results achieved by PhD graduates, their employability, their contribution to institutional development and to society in general, etc.

The members participating in the Tarragona Think Tank focused their thoughts on the mechanisms that could be designed and established to evaluate these matters. A brainstorming activity was used in this part of the discussion to generate insights on how the system worked, so that this feedback could then be applied to the evaluation and improvement of the professionalization process. These actions should allow the generation of outputs that form qualitative measures of the impact of the training programs. The ideas that arose are summarized below, and should be understood as a first working draft of the possible actions envisaged.

The value of a professionalized supervisory role can be appreciated through the impact on the supervisors themselves, but also through results that pertain to PhD graduates, the institution as a whole, and beyond, in the form of the employability of PhD graduates and their contributions to society.

Impact on supervisors

The impact of supervisory training can be assessed at different levels and in various time frames. The Think Tank meeting revealed the need to establish evaluations at different points after the supervisors completed their training programs. The participants in the Think Tank agreed that the evaluation should be supervisor centered using some of the following guidelines:

- *Satisfaction*. This is the most immediate evaluation of the outcomes of the supervisory training and the first indication that the efforts to implement the training have succeeded. It would be important to know if the training program increases supervisors' confidence in the performance of their tasks, especially for junior supervisors, and whether this generates a better level of personal and professional satisfaction that influences their motivation and their commitment.
- *Transfer from training to practice*. It is even more important to ascertain whether and how the performance of supervisory tasks has evolved after training. A survey can be drawn up to assess how supervisors conduct their tasks and roles before the training program, and whether the training is capable of generating any changes or improvements to their performance. It would also be important to know if the supervisor acquired or generated any particular tools or habits that have helped to improve the PhD supervisory process.
- *Effectiveness in the supervision process*. The effectiveness of the PhD supervision process could be evaluated based on several aspects, including: the completion of successful theses within the planned time; the quality and diversity of the outputs generated during the thesis period, with emphasis on the development of the researcher and their skills (as opposed to a focus on research products only); quality time devoted to supervisory tasks; the optimization of the interaction with other institutional stakeholders involved in doctoral education, which would indicate the level of supervisor engagement in the institutional commitment to PhD professionalization. This would facilitate the creation of a research culture in the institution that would provide easy access to an institutional repository of resources

(knowledge, norms, funding, etc.) that facilitates improved knowledge of the people and aspects of the institution relevant to the PhD process. This was summed up in the TTT meeting with the motto: 'Good supervisors imply good research'.

Impact on PhD graduates and beyond

The ultimate impacts of PhD supervisory training must be assessed on the immediate stakeholders who will benefit from the effects of an improved supervisory role, namely the PhD graduates as they enter the labor market, the university and its PhD programs, and the organizations where they are employed. To this end, it is necessary to:

- Assess the value, suitability and utility of the transferable skills transmitted during doctoral education for professional careers. A survey should be conducted to identify, map and grade, from the point of view of PhD graduates, the relevant skills for their professional development. This survey should be addressed in a period of 3-5 years after graduation to obtain data corresponding to real jobs.
- Identify PhD graduates that undertake research-related tasks outside of academia. This information is valuable to overcome the myth that doctoral education and doctoral skills are not necessary or valuable outside of the academic context. It would promote adjustment of the higher education programs, supervisory tasks, research lines, and institutional strategies to the employment reality of graduates.
- Assess the satisfaction of employers. Achieving the satisfaction of employers represents the perfect complement to validate the institutional professionalization system of a PhD. It means recognizing the adequacy of the training undertaken, and it promotes the employability of PhD graduates, giving back to society the investment made and contributing to a transformation towards a knowledge-based society.

Above and beyond these impact indicators, the acid test of enhanced supervisory practice must be a positive doctoral experience. If both supervisor and supervisee report having had a positive, stimulating, less stressful experience during the doctoral process, this is a clear indication of the success of all the efforts devoted to PhD education. The participants of the TTT summed this up by proposing the goal 'contributing to making people happier'.

Concluding thoughts

Enacting change in established cultures is never an easy task. People recognize good ideas but they are already, they contend, extremely busy. There will therefore inevitably be those who are advocates and early adopters of new attitudes and practices, those who join in rather than be left out and seen as 'old-fashioned', and those who cling tightly to the old ways that they perceive as safe and well-tried. But all professionals need to reflect on and improve their practice and many professions already have continuing professional development (CPD) obligations. The TTT participants suggest that it would be wise to develop our own CPD requirements and processes before others with a lesser understanding of the system and situation do it for us.

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Within the European context, there are many initiatives for PhD supervisory training already in existence, but a more systematic approach to this task would be needed. In this landscape, we took the initiative of organizing an informal meeting for experts with an interest and expertise on PhD supervisory training, the *Tarragona Think Tank on PhD supervisory training: challenges and good practices*, hosted by University Rovira i Virgili (URV, Tarragona). This event allowed both the presentation of individual university experiences and the undertaking of a collective reflection on challenges, impact assessment and the visualisation of an ideal future for PhD supervisory training. Noting the need for more concerted efforts and practices, the present book is precisely a first tangible outcome of this concerted effort. Looking forward, we expect that this book can help setting the basis for the development of a network or alliance between the participating organisations and an ongoing effort aimed at bringing the professionalization of doctoral supervisors to the forefront in education policy at the university level. In sum, we hope that this contribution can help materialising ideas into actions.

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