Reforming the Doctorate in the Social Sciences:
A Report on Good Practice

Foreword

Recent decades have seen a rapid expansion of doctoral education in Europe. At the same time, a number of new challenges have emerged, not the least related to high levels of unemployment, coupled with the scarcity of financial resources in the educational sector. A different category of challenges relates to difficulties in simultaneously meeting the standards of scientific excellence and the expectations of many non-academic employers who do recognise the need for highly educated specialists, but who may be less convinced of the capacity of the traditional doctorate to provide the required qualities. At national and European levels, much attention has been given to the need to further develop doctoral education through, for instance, improved funding arrangements, doctoral schools, and other forms of structured PhD education, internationalisation, and increased attention on various 'skills' elements as part of doctoral education. One feature of these discussions and of the responses so far has been the predominant place that experiences from medicine and 'hard' natural sciences has had, simply because of the volume of doctoral education in those fields, as compared to, for instance, social sciences. The specific challenges related to doctoral education in social sciences have so far received much less attention.

In 2016, the European University Institute (EUI) reached the age of 40 years. Since 1976 the EUI has served as a European level institution for doctoral education in the fields represented at its four departments, namely economics, history and civilisation, law, and political and social sciences. Doctoral education, and the quest for excellence in it, remains the core business and main identity of the EUI. At its inception, the EUI was unique due to its European and international setup, its focus on social sciences broadly speaking, and the absence of undergraduate and master's students, allowing its faculty to focus on the provision of excellent supervision and PhD level teaching. The four decades that the EUI has been in existence have witnessed the emergence of structured PhD schools or programmes at national level, at top universities, or in the form of networks of universities, and of internationalisation through mobility of PhD researchers, exchanges between various national programmes and funded European-level schemes for various dimensions of Europeanised PhD education.

As a consequence, the EUI may be less unique than 40 years ago, but this does not mean it would have lost its cutting edge or its place as a vanguard and a role model. As a European-level and highly internationalised institution of doctoral education with experienced and committed faculty whose primary task is to supervise PhD researchers, the EUI remains a key actor in PhD education in social sciences. The developments that have meanwhile happened elsewhere may cause a need for the EUI to rethink what such a key actor role may mean in decades to come. The Institute may become more of a laboratory for new innovations in doctoral education, or a hub of networks across disciplines or across Europe, in exchanging experiences and reform ideas. This may translate into a more dynamic approach internally at the EUI, as to how its doctoral programmes will continue their quest for excellence.

The need to take stock of developments elsewhere and of contemporary challenges facing doctoral education led the EUI to launch a process of rethinking the doctorate in social sciences. Instead of rushing to improvised internal reforms it decided first to proceed with an 'external' dimension of the overall project. A small and distinguished Task Force of experts from across Europe was assembled to generate, develop, and assess examples and elements of good practice in the field of doctoral education in social sciences.

The work of the Task Force was greatly facilitated by interactions, including a full day of consultation with Brussels-based interlocutors that have vast experience of and great insight into doctoral education and related policy considerations. Warm thanks are extended to the Directorate-General for Education, Youth, Sport and Culture at the European Commission, to the European Research Council Executive Agency and to the European University Association and its Council for Doctoral Education. Hopefully, these European-level key actors as well as a range of national authorities such as research councils and ministries for education or research will find this report useful.

As EUI Dean and convener of the Task Force, I am much indebted to the willingness of the five external members to engage in a year-long process of information collection, brainstorming, and reflection. The external experts were recruited from all corners of Europe and the disciplines of the four departments at the EUI, namely Professor Sandra Fachelli (social and political sciences, Universitat Autònoma de Barcelona, Spain), Professor Gábor Kézdi (economics, Central European University, Hungary), Professor Sari Lindblom-Ylänne (higher education, University of Helsinki, Finland), Professor Linda Mulcahy (law, London School of Economics and Political Science, the United Kingdom), and Professor Jean-Frédéric Schaub (history, School for Advanced Studies in the Social Sciences, France). The Task Force has been not only a group of leading experts in the practice of doctoral education in social sciences, but also a 'network of networks' which has greatly served its aspirations to map good practices across Europe and to provide a good point of departure for further discussions within and between disciplines, and on national and European levels.

The Task Force members join me in thanking Dr Stefanie Rudig, who was recruited as a postdoctoral-level academic assistant to assist the Task Force and the Dean in the project. She collected and maintained a vast repository of materials that were made use of by the Task Force, prepared lists of discussion themes for each meeting and each 'basket', participated in the meetings with thorough knowledge and great insight but at the same time taking careful notes of the discussions, so that she then was able to produce draft versions of the various chapters of this report. A number of drafts were circulated to garner comments and amendments towards what now can be found in this report as the consensus view of the Task Force members.

What follows below, is not a prescriptive list of reforms that would need to be implemented in doctoral education in social sciences across Europe. Hopefully, this report will prove to be something more important than what such a list ever could be, namely a comprehensive and well-informed stock-taking of good practices across Europe, based on the identification and analysis of the current situation and of contemporary challenges. As such, the present report provides evidence-based assessment of a range of solutions that have been or are being verified in practice as solutions that constitute improvements in the provision of doctoral education in social sciences.

Florence, 10 February 2017,

Martin Scheinin
Professor, Dean of Graduate Studies
European University Institute

Executive Summary

This report responds to the changing nature of doctoral education and the need to engage in a reflection and reform process, especially during times of economic downturn when public university funding comes under increasing threat. It is based on a project that was initiated by the European University Institute (EUI) in late 2015 to provide a neutral forum for discussion. A distinguished Task Force of eminent professors from across Europe carried out the mandate to identify 'good practice' in doctoral education. As general discussions on the doctorate tend to pay main attention to medicine and STEM (science, technology, engineering and mathematics) subjects, this project was to focus specifically on doctoral education in the social sciences (broadly understood). This focus also distinguishes the present project from much important work that has been done by the European University Association (EUA), the largest representative body of higher education at a European level which seeks to promote European policies, networking opportunities, and the visibility of European universities more generally. The compilation of good practice in the present report has no regulatory function, as it was assessed and collected by active academics and not policymakers; but it is expected to be of use as a first necessary mapping of good practice in doctoral education in social sciences.

The project relies on eight structural principles, each discussed in a chapter that seeks to identify good practice in the respective area:

1) The Thesis: We stress that the thesis is the key output of doctoral education and identify central elements, including academic quality, scope, an oral defence, grading systems etc.

2) Supervision: PhD supervision needs to be fully recognised as professional work and regulated by the university, which assumes collective responsibility.

3) Coursework: Structured doctoral programmes include research and taught phases; at least three years are spent on individual research under supervision and end in the completion of a high quality thesis.

4) Academic and Professional Components: Doctoral education prepares PhD graduates for a number of senior positions in both the public and private sectors. Core skills are developed through the doctorate as well as in additional professional skills training.

5) Technology: Universities exploit the potential of new technologies and online resources for modern and innovative doctoral education, providing digital literacy training.

6) Mobility and Internationalisation: Institutions recognise the added value of exposure to different (academic) cultures and new ways of thinking by promoting international collaboration and networking.

7) Funding: The funding of PhD programmes and individual PhD candidates needs to be transparent and sustainable. Doctoral researches are recognised as professionals who deserve proper remuneration, including health insurance, pension rights, and social security benefits.

8) The Job Market: Institutions need to be explicit about the set of skills gained through doctoral education and to disseminate relevant information on professional opportunities both within and outside academia.

In a concluding chapter, the points that the Task Force has identified as good practice are collected and organised according to their addressee.

Introduction

The last two decades have seen major changes and challenges in the field of tertiary education. Institutional policymakers have been called upon to initiate fundamental reforms linked to the three-cycle degree structure of the Bologna Process. In 2000 in Lisbon, the European Council announced its strategic objective of transforming the European Union into "the most dynamic and competitive knowledge-based economy in the world" within a decade.[1] To this end, the European Commission launched its flagship programmes for research and innovation, most recently Horizon 2020, which will run from 2014 to 2020 with a budget of nearly 70 billion euro. At the same time, the global financial crisis has added to the pressures universities are facing. Institutions of higher education are increasingly being questioned about the relevance and impact of their programmes, in particular with regard to the employability of their graduates. In this context, the third cycle, the education of doctoral researchers, has come under keen scrutiny. PhD candidates are acknowledged as drivers of change and innovation who contribute crucially to the production of knowledge. Recognising the importance of doctoral and post-doctoral researchers in a knowledge-based society, many countries have implemented reforms to improve the conditions for doctoral education. Beyond that, we are witnessing the opening up of doctoral education, as the number of doctoral candidates has risen significantly in recent years. The OECD notes a 56 per cent increase across OECD countries at the beginning of the twenty-first century, from 158 000 new doctorates in 2000 to 247 000 in 2012.[2] These challenges have prompted initiatives to rethink doctoral education in and beyond Europe. Much of the attention in the general discussion has been paid to doctorates in medicine and the so-called STEM fields (science, technology, engineering, and mathematics), while concerns specifically relating to the social sciences and humanities have been obscured or have been only insufficiently addressed.

Against this backdrop, the European University Institute (EUI) in Florence, Italy, has decided to launch a project to address that void by opening up discussions on the future of the doctorate in social sciences and humanities. The task is made no less important by the fact that the project was launched at a time when established practices in higher education systems are being called into question by the current economic climate in Europe.

As a non-national institution with a multi-national academic community, the EUI provides a neutral forum for identifying good practice in doctoral education in the social sciences (broadly understood). Under the leadership of the EUI Dean of Graduate

European University Institute

Established in 1976, the European University Institute (EUI) is a unique international institution for doctoral and post-doctoral studies and research. It was born out of an atmosphere of cooperation in recognition of the need to study Europe academically and to foster cultural exchange between EU Member States and beyond. Hosting a culturally diverse academic community of more than a thousand scholars from over sixty countries, the EUI provides structured doctoral programmes and supervision in its four departments: Economics, History and Civilisation, Law, and Political and Social Sciences. The EUI is also home to the Max Weber Programme for post-doctoral research and training as well as the Robert Schuman Centre for Advanced Studies, which focuses on inter-disciplinary, comparative, and applied policy research.

www.eui.eu

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1   EP (2000).
2   Science PhDs accounted for the largest share of new doctoral graduates (24%), followed by new doctorate holders in social sciences, business and law (21%); OECD (2014).

Studies, a small and distinguished Task Force of experts from across Europe was assembled to generate, develop, and assess examples and elements of good practices. The five external members of the Task Force are eminent academics who were recruited for their expertise, experience, and insight in running and coordinating doctoral programmes. Each Task Force member is affiliated to a key European partner university in one of the disciplines represented at the EUI, with one additional member representing university pedagogy as an academic discipline.

The Task Force

Martin Scheinin, EUI, project leader

Martin Scheinin is Professor of International Law and Human Rights and (in 2016-2018) Dean of Graduate Studies at the EUI. He was appointed at the EUI in 2008 after fifteen years as professor in Finland, first at the University of Helsinki where he also obtained his doctorate in law in 1991, and subsequently at Åbo Akademi University in Turku where he also served as the Director of the Institute for Human Rights in 1998-2008. During that time he was the founder and leader of a national Doctoral School in human rights research as well as of a Nordic School in human rights research. From 1997 to 2004 he was a member of the United Nations Human Rights Committee, an independent expert body assessing states' compliance with the International Covenant on Civil and Political Rights. He also served as the first United Nations Special Rapporteur on human rights and counter-terrorism, a position of trust he held from 2005 until 2011.

Sandra Fachelli, UAB Barcelona, sociology

Sandra Fachelli is a member of the Department of Sociology and the Research Group on Education and Work (GRET) at the Universitat Autònoma de Barcelona (UAB). She received her PhD in Sociology from the UAB in 2009. Her research focuses on higher education, social mobility, inequality and social stratification. She has taught at universities in Argentina, México, as well as at Spanish universities. She is Teacher Coordinator of the Master in Applied Social Research Techniques (TISA) at the UB-UAB. She plays an active role in promoting the realisation of International PhDs under the INCASI European Project (International Network for Comparative Analysis of Social Inequalities), a network of 19 universities (10 European and 9 Latin American) that addresses, among other issues, educational inequalities.

Gábor Kézdi, CEU Budapest, economics

Gábor Kézdi is Professor of Economics at Central European University (CEU) and Senior Research Fellow at the Institute of Economics of the Hungarian Academy of Sciences (IE/HAS), both in Budapest. He received his PhD from the University of Michigan in 2003. His research interests include labour economics, the economics of education, and household behaviour. Some of his research investigates the intersection of poverty and ethnicity, with a special focus on the Roma minority of East-Central Europe. He teaches data analysis, econometrics, labour economics and programme evaluation.

The Task Force (continued)

Sari Lindblom-Ylänne, Helsinki, university pedagogy

Sari Lindblom-Ylänne is Professor of Higher Education and Director of the Helsinki University Centre for University Teaching and Learning. She is also the Vice Dean of the Faculty of Educational Sciences, responsible for research and doctoral education as well as the director of the doctoral programme PsyCo (Psychology, Learning and Communication). Lindblom-Ylänne is a licensed psychologist. She was president of two international research associations: EARLI (European Association for Research on Learning and Instruction) from 2009 to 2011 and WERA (World Education Research Association) from 2014 to 2016. Sari Lindblom-Ylänne is actively involved in many international research projects. Her research focuses on student learning and teaching at university, for example, on approaches to learning and teaching, self-regulation, self-efficacy beliefs, motivation to studying, wellbeing and stress, assessment practices and quality enhancement in higher education.

Linda Mulcahy, LSE London, law

Linda Mulcahy is Professor of Law at the London School of Economics. Having gained qualifications in law, sociology and the history of art and architecture, Linda Mulcahy's work has a strong interdisciplinary flavour. Her research focuses on disputes and their resolution and she has studied the socio-legal dynamics of disputes in a number of contexts including the car distribution industry, NHS, divorce, public sector complaints systems and judicial review. Her work often has an empirical focus and she has received a number of grants from the ESRC, AHRC, Department of Health, Nuffield Foundation and Lotteries Fund in support of her work. A former chair of the National Socio-Legal Studies Association Linda Mulcahy is the Director of the newly created PhD Academy and ESRC funded Doctoral Training Partnership at the London School of Economics and Political Science.

Jean-Frédéric Schaub, EHESS Paris, history

Jean-Frédéric Schaub is Scientific Director at the School for Advanced Studies in the Social Sciences (EHESS), Paris, and Researcher at the centre *Mondes Américains* of EHESS. His research has covered various fields, including the situation of the kingdom of Portugal within the Hispanic monarchy, the Jewish community in Oran under Spanish rule, the Spanish roots of French absolutism, the British presence in the Atlantic and its relationships with previous Iberian experiences and, recently, the historical shaping of racial categories in the West. He has served on the directing board at Ecole des Hautes Etudes en Sciences Sociales, as assistant to the President (2000-2004) and senior assistant to the President (2004-2005).

Stefanie Rudig, EUI, project associate

Stefanie Rudig holds master's degrees in modern philologies from the universities of Innsbruck and Oxford. Her academic education included research stays in the UK, North America, Vietnam, and New Zealand. She worked as lecturer in English Literary and Cultural Studies at the University of Innsbruck, where she completed her PhD on nineteenth-century female migrants. She is currently employed as a postdoc-level Academic Assistant at the EUI, working with Martin Scheinin.

The Task Force was set up in the autumn of 2015 for a period of eighteen months. In 2016, it met four times, three of them at the EUI and once in Brussels to discuss doctoral education with key European-level stakeholders. Discussions were structured around what has been termed 'baskets' to give due consideration to the various interconnected aspects of modern doctoral education, spanning definitions of an excellent thesis to the exigencies of both the academic and non-academic labour market. The present report is conceived of as a catalogue of good practice in doctoral education in and beyond Europe, with a particular focus on social sciences. It is expected to have its own value as a first mapping of good practice in PhD education in social sciences. Various European, national and university-level actors are invited to make best possible use of it. For the EUI as the initiator of the process, this report is expected to constitute the 'external dimension' of a long-term reflection and reform process that will be taking place internally at the EUI. As a result, while the EUI is obviously motivated by self-interest to debate the future of high-quality PhD education, this report is not just intended for internal usage, but for a much broader audience and application.

Eight thematic 'baskets' served as the structural principles of the Task Force meetings. The present report utilises this structure and is hence subdivided into the following chapters:

1) The Thesis
2) Supervision
3) Coursework
4) Academic and Professional Components
5) Technology
6) Mobility and Internationalisation
7) Funding
8) The Job Market

Each chapter will discuss the principal findings the Task Force has agreed on and will be supplemented by information boxes containing relevant citations, statistics, or graphs. The final chapter Conclusions consolidates what the Task Force has identified as good practice in the text of the preceding chapters.

The notion of 'good practice' throughout this report carries three important connotations. *Firstly,* the Task Force has sought to conduct an inventory concerning actual practice in PhD education in social sciences, in various disciplines and in different parts of Europe. Identifying something as a good practice hence entails a claim that this something is already happening and that experiences therefore can be obtained and assessed. *Secondly,* the notion of good practice relates to what is, in at least one respect, characteristic or conducive of running a PhD programme in a successful way, without producing in any other respect negative side effects that would outweigh the benefits obtained. This low degree of normative assessment encapsulated in the notion of good practice also entails that in a specific issue there can be more than one good practice that on their own can be recommended as beneficial, so that the choice between them may be left to depend on other factors, such as synergies to be sought through combinations between different areas of good practice. And *thirdly*, using the term good practice throughout the report is related to the mandate of the Task Force: We are not policymakers and we do not have a mandate to select or even propose one model over others. We see ourselves as experienced practitioners in the field of running and designing PhD education in social sciences. Where we have been able to agree that something is a good idea, we have identified it as a good practice. Needless to say, the repository of good practice included in this report does not represent an institutional commitment either by the EUI or any of the institutions where the members of the Task Force are based.

This report has no regulatory or normative function. The Task Force has no larger mandate than to respond to the request by the EUI to identify 'good practice' in PhD education in social sciences, in Europe and possibly beyond, towards eventual reform initiatives that will need to be launched separately, including by defining their aims and objectives. In this report, the notion of 'good practice' refers to existing or at least emerging experiences and solutions that have proven to work in practice, contributing to PhD education in social sciences that represent academic excellence, contribute to improved motivation amongst PhD researchers and supervisors, promote academic literacy, interdisciplinarity and/or better integration between academia and the evolving labour market for social science PhDs, and are cost-efficient.

The European Charter for Researchers

This report touches on rights and obligations that are laid down in the European Charter for Researchers, published by the European Commission in 2005 with a view to making research an attractive career. Instead of making repeated references to the Charter, we recommend the perusal of the whole document to researchers, employers, and funders.

The European Charter for Researchers is a set of general principles and requirements which specifies the roles, responsibilities and entitlements of researchers as well as of employers and/or funders of researchers. The aim of the Charter is to ensure that the nature of the relationship between researchers and employers or funders is conducive to successful performance in generating, transferring, sharing and disseminating knowledge and technological development, and to the career development of researchers. The Charter also recognises the value of all forms of mobility as a means for enhancing the professional development of researchers.

The entire Charter and Code of Conduct for the Recruitment of Researchers (EC 2005) can be found on: https://euraxess.ec.europa.eu/jobs/charter

1.
The Thesis

THE THESIS is the key output of doctoral education. The function of the thesis is the creation of a scholar who is equipped with the necessary skills to conduct original, rigorous, and independent research. In a successful doctoral programme the researcher will be provided with the necessary training to become an independent and highly skilled researcher.

During the Bologna Process, over 300 participants met in Salzburg in 2005 to discuss and develop recommendations for doctoral education that would ensure the quality and competitiveness of this third cycle in the field of higher education. The result was the establishment of ten basic principles known as the Salzburg Principles. The first of these contends that "[t]he core component of doctoral training is the advancement of knowledge through original research" (cf. the information box on the following page)[3]. Doctoral theses are expected to furnish contributions to their field and to the creation of new knowledge or knowledge transfer. While it is thus clear that the thesis remains – and should remain – the central aspect of doctoral education, the first Salzburg Principle adds: "At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia." This second aspect usually translates into methodological and transferable skills training, which has been introduced as part of structured doctoral programmes.[4] Such programmes often reflect an ambition that goes beyond the production of a PhD thesis that meets traditional academic requirements, and beyond the production of PhD students who are only destined to work in the academy.

What may be ignored when adding additional elements to PhD education is the professional dimension of research *per se*. Acquiring a PhD can be understood as an apprenticeship in research. Policymakers are encouraged to reflect on the extent to which a doctoral programme can be burdened with further skills training without compromising the quality of the research work. Doctoral research already equips PhD candidates with a set of valuable skills, notably creativity, problem solving, critical and analytical thinking, intellectual autonomy, and flexibility. The best PhD programmes will give PhD candidates the time and opportunity to focus on these skills. It is suggested that allocating 75 per cent of the time available to produce a thesis to these core tasks should be viewed as good practice. Accordingly, in a four-year programme three years would be devoted to undertaking research and writing the thesis, while coursework and individual activities, such as international collaboration, would best be limited to one full academic year in total.

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3   EUA (2005).

4   Depending on the (geographical) context, different terms are used in literature to refer to transferable skills, alternatively called professional, generic, or soft skills, to name the most frequent variants; cf. Pukelis and Pileicikiene (2009), p. 78. On skills training see also chapter four.

The Salzburg Principles

1. The core component of doctoral training is the advancement of knowledge through original research. At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia.

2. Embedding in institutional strategies and policies: universities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges and include appropriate professional career development opportunities.

3. The importance of diversity: the rich diversity of doctoral programmes in Europe – including joint doctorates – is a strength which has to be underpinned by quality and sound practice.

4. Doctoral candidates as early stage researchers: should be recognised as professionals – with commensurate rights - who make a key contribution to the creation of new knowledge.

5. The crucial role of supervision and assessment: in respect of individual doctoral candidates, arrangements for supervision and assessment should be based on a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors and the institution (and where appropriate including other partners).

6. Achieving critical mass: Doctoral programmes should seek to achieve critical mass and should draw on different types of innovative practice being introduced in universities across Europe, bearing in mind that different solutions may be appropriate to different contexts and in particular across larger and smaller European countries. These range from graduate schools in major universities to international, national and regional collaboration between universities.

7. Duration: doctoral programmes should operate within appropriate time duration (three to four years full-time as a rule).

8. The promotion of innovative structures: to meet the challenge of interdisciplinary training and the development of transferable skills.

9. Increasing mobility: Doctoral programmes should seek to offer geographical as well as interdisciplinary and intersectoral mobility and international collaboration within an integrated framework of cooperation between universities and other partners.

10. Ensuring appropriate funding: the development of quality doctoral programmes and the successful completion by doctoral candidates requires appropriate and sustainable funding.

The *conditio sine qua non* for any PhD thesis is for students to acquire expertise in methodology. Sound research practice is based on a clear articulation of the theories and methods that underpin one's work and the justification for the choices made. This holds true regardless of the form a thesis may take, that is, either a monograph or a cumulative thesis (variably called thesis by publication). The choice for one format or the other is usually informed by discipline-specific and/or local practices.

In a cumulative thesis, that is, a thesis typically consisting of three to five published or publishable articles, the additional submission of an overall paper summarising the overall contribution to knowledge, the main research findings and the key ideas across the papers is critical.

As far as the scope of a monographic dissertation is concerned, good practice does not necessarily translate into a certain number of words or pages and thesis length will vary according to local or national requirements and conventions. What these requirements have in common is that they stipulate the presentation of a coherent argument and a 'reasonable' length in relation to three or four years of full-time doctoral study. If limits are explicitly stated, they most frequently fall between 60,000 and 100,000 words in the social sciences. Some universities may express the requirements in page numbers, e.g. maximum 250 pages. However, where a discipline favours or otherwise entertains the use of quantitative methods, such as economics, the volume of a PhD thesis can be significantly lower when expressed through a word count.

With regard to their future (academic) careers, PhD candidates need to be wary of the benefits and pitfalls of co-authorship. There is a huge variation between disciplines, as to the prevalence of single authorship or co-authorship, as well as to the role of journal articles published or submitted for publication as building blocks of the PhD thesis. In the latter case it is often required that the doctoral candidate is the first (main) author of a defined number of articles. There need to be clear rules about authorship.

We regard the fully funded full-time PhD as the ideal, but recognise that part-time study may be more suitable for those without funding or with caring responsibilities. A part-time PhD also allows doctoral candidates to adapt themselves to the labour market. Whatever the reasons for studying part time, it is critical that institutions offering a part-time option can support the needs of part-time students and adapt teaching and supervision timetables to ensure that the same experience of advanced research and training can be offered. Not all institutions will be equipped or able to do this.

It is considered good practice that universities, faculties, or departments provide written guidelines of what is expected of a successful PhD thesis within the respective disciplines. It is also considered desirable to have exchange and dialogue about what constitutes good practice in different fields.

A number of expectations about the standard of PhDs are now recognised internationally. Most importantly these include the expectation an original contribution to knowledge, coupled with qualities such as coherence, clarity, creativity, and an engagement with existing approaches in the field. The Dublin Descriptors for the doctoral level provide a systematic framework for the expected attributes.[5] These were formulated as part of the Bologna Process, first published through the Joint Quality Initiative in 2002 for bachelor's and master's degrees and in 2004 for the third cycle. When compared to the qualifications of successful master's graduates, the third-cycle Dublin Descriptors stipulate not just familiarity of tools and methods in one's field, but mastery. They further stress the attributes of autonomy and originality.

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5   For details see Hutchinson, Lawrence, and Filipović-Carter (2014), pp. 17-20 and pp. 253-57.

Dublin Descriptors

The doctoral degree is awarded to candidates who

- 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;

- 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;

- are capable of critical analysis, evaluation and synthesis of new and complex ideas;

- can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;

- can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge-based society.

These characteristics of a PhD thesis are clearly well-suited when speaking about work produced within a specific discipline, addressing a research question pertinent in that context, and applying methodologies of that same discipline. With the recognition of the value of inter- or multidisciplinarity in academic scholarship the general validity of the same criteria may sometimes be doubted. In particular, multidisciplinary problem-oriented fields of research may emerge and become so well established that a question arises whether traditional discipline-based PhD programmes should be complemented by multidisciplinary or thematic PhD programmes, including transdisciplinary methodological training. The theme of *migration* is often mentioned as an example where a whole range of different social science disciplines may contribute towards not only a multidisciplinary research environment, but also to creating added value so that it is possible to fully meet traditional academic standards but also to raise the level of ambition through the emergence of new questions, new methodologies and new original results.

In the view of the Task Force members, carefully designed thematic doctoral programmes may represent good practice, provided that the well-established quality standards for a PhD thesis are secured. A single PhD thesis may be multidisciplinary, but its quality stands and falls with a solid interconnectedness between a research question, a methodology (or a successful combination of methodologies), and an original outcome. In practice this means that there usually needs to be a main discipline that determines the (main) methodology of a thesis. As a consequence, also a central dimension of supervision will therefore be stemming from that discipline. This does not however preclude that PhD programmes can be built on a thematic basis, i.e. as a multidisciplinary undertaking. Proper disciplinary focus for each emerging PhD thesis needs to be secured, and this of course requires the designation of a (main) supervisor from within the pertinent discipline. Hence, the principles presented earlier in this chapter, including the allocation of three years of work for research and thesis writing as a rule of thumb concerning the academic standards for a PhD thesis, will apply also for thematic doctorates in order not to compromise their level of academic ambition. That said, pursuing a PhD within a multidisciplinary research environment or a thematic PhD programme may often be particularly well-suited for emerging scholars whose career plans are outside academia, for instance in international organisations.

For a successful PhD experience a number of quality assurance mechanisms need to be in place, not just at the very end but throughout the doctoral journey. Every institution naturally wants to attract the best students. Selection procedures are frequently tied to national or supra-national funding provisions, however, which may impose certain restrictions. It is safe to say that an almost universal example of good practice is the compulsory submission of a research plan prior to the acceptance into a PhD programme; exceptions prove the rule, as is the typically the case in economics. Usually, the proposed research topic is formulated directly by the PhD candidate instead of being dictated by the (potential) supervisor(s). Requiring the applicant to demonstrate the ability to craft a solid PhD thesis proposal is often understood as a threshold condition for admission, and indeed this requirement can be identified as a form of good practice. Other good admissions practices which help to select the best candidates include the submission of an additional piece of written work and an interview. A good relationship between supervisors and PhD researchers is critical to the success of doctoral programmes and applicants should not be accepted unless the institution can be sure that the supervisor is able to provide expert guidance for a given topic and particular doctoral candidate. That said, it is not uncommon that, once admitted, PhD researchers then are expected to remain flexible about the focus of the thesis as they research it in more depth. Funding schemes where the supervisor (or principal investigator) presents a project plan that comprises also PhD theses, to be authored by researchers yet to be identified, may be problematic and should at a minimum allow for flexibility to secure that the PhD researchers will conduct independent and original research.

Given the high attrition rates for PhD researchers in many countries, it is necessary to have rigorous quality control checks before the end of the PhD, both in written and oral form. In the interest of everyone involved in the doctoral process, early quality assurance measures constitute good practice. Typically, doctoral candidates submit work which is reviewed by experts at the end of their first year if studying full time. This crucial threshold is sometimes referred to as the first-year upgrade or prospectus defence.

Further evaluations of progress once per year also constitute good practice. For practical reasons, any pre-submission defence or mock viva may want to exhaust internal resources first, before external examiners are invited. These rehearsal defences can provide valuable critical input and help doctoral candidates prepare for their final examination(s). Peers could be involved, but at least one professor in addition to the supervisor(s) should also be present to guarantee the efficiency of such a mock defence as a quality assurance measure.

The *viva* is an integral part of the doctoral process. It can take a number of forms including a final public defence, a private defence in front of externally appointed experts or a ceremonial formality after the academic examination of the quality of the thesis. While some countries, such as Australia, dispense with any final oral examination, it may be said that in the European context the public defence continues to constitute an important event, signalling the entry of a former research student into the ranks of the most highly trained scholars. In addition, the defence functions as the final and usually public check against plagiarism. The opportunity to present, defend, and discuss one's thesis in depth also offers the chance to demonstrate acquired skills, to clarify or elaborate, and to receive new ideas or even publication advice. There are different models concerning the role of the supervisor(s) in the PhD defence. Despite this, the Task Force recommend that the thesis supervisor(s) should not take an active part in the defence. They may, for instance, be a member of the jury, but without a vote. It is vital that the defence does not turn into a discussion between the internal/external examiners and the supervisor(s). It is also suggested that good practice involves the inclusion of an independent chair in the PhD defence.

There are considerable variations across Europe as regards the grading of a thesis. Some countries use no grades at all, but only 'pass' or 'fail', while others differentiate between as many as seven different grades, and some delegate the matter to universities or even their internal units. Where formal grades are not used, a certain kind of distinction

can take the form of a thesis being 'approved with distinction' or 'recommended for publication' by the jury. Some institutions also award annual prizes for the best thesis. A degree of flexibility with regard to grading appears useful. Not only would it be difficult, but it might also be counterproductive to eliminate local traditions in view of their link with the respective national job markets. In the academic job market, articles published in international, peer-reviewed, and, ideally, highly-ranked journals or books published with leading publishers are the most prominent marker of quality.

2.
Supervision

The success of a PhD usually stands or falls by the quality of SUPERVISION. Strong research supervision is indispensable to the quality of a PhD programme and its provision is a core strategic task for research universities. With the transformation of doctoral education, the nature of supervision has also changed and is no longer solely characterised by a hierarchical one-on-one interaction between the supervisor and the supervisee. Firstly, the roles of supporters and people involved during the PhD journey has multiplied. In addition to the supervisor, one may benefit from the expertise and advice of one or more co-supervisors or even a larger supervisory team including external members. Learning takes also place within one's cohort, as doctoral candidates receive and offer peer support in their disciplines and even beyond. At university level, there may be services or centres that support PhD researchers across disciplines, for instance in linguistic, computing or professional skills. On a formal level, the head of department, doctoral programme director, or dean of graduate studies can provide assistance, clarify regulations, and mediate if necessary. Secondly, these evolutions have impacted on the supervisory relationship. With the introduction of doctoral schools, structured programmes, and institutional or departmental codes of good practice, supervision has become more contractual in nature and includes rights and duties on both sides. In many contexts the doctoral experience may have developed into a more collegial way of learning and advising.

Doctoral supervision requires experienced academics who support PhD candidates to become autonomous researchers and thus prepare them for responsible, professional roles in academia, industry, and society. Good supervision encompasses subject-specific and methodological expertise in order to help the doctoral candidate complete a high-quality thesis within a reasonable period of time, typically between three to five years. To this end, effective supervision monitors the supervisee's progress with a view to ensuring that the research advances and appropriate results are achieved. As the final product of a PhD is the mature researcher as well as the thesis, good supervisors further familiarise their supervisees with good scientific practice, cultivate the research mindset of doctoral candidates and help them integrate into national and international academic communities. They are expected to offer further support by assessing the qualification and training needs of their supervisees. In many cases supervisors will be the primary points of contact for career guidance and will need to provide mentoring about professional opportunities either themselves or by referring doctoral candidates to a career service.[6]

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6   Under the headline "How to Achieve Outstanding Quality in Research Supervision," Helmut Brentel (2016) lists other aspects that may also be considered elements of good practice (p. 10).

The Main Supervisor's Responsibilities

The exact role of the supervisor will differ depending on the university, discipline, the main supervisor's style and workload, as well as the role that the rest of the supervisory team play. However, typically supervisors should:

- ensure that supervisees understand what is expected of all parties involved in supervision
- have regular supervisory meetings with supervisees
- help supervisees formulate a research plan
- ensure that supervisees are aware of how their research fits into any research groups or projects
- help supervisees to co-ordinate the supervisory team
- give guidance about literature, training, ethics, research techniques and academic conventions
- help supervisees develop their critical thinking
- provide constructive feedback on written work
- give feedback on supervisees' overall progress
- advise on courses, both specialist and concerning professional development
- facilitate access to advice on career development and the range of career opportunities
- help set realistic deadlines and to submit the thesis on time
- advise doctoral candidates on where to present work, at conferences, and for publication
- read and comment upon manuscripts and the whole of the final thesis.

The Doctoral Researcher's Responsibilities

While the supervisory team is a key resource in the conduct of a doctorate, ultimately the responsibility for the project rests with the doctoral candidate. Their exact role is likely to be detailed in the university's regulations. Typically the doctoral researcher is expected to:

- take responsibility for finding out what is expected
- take the initiative in alerting their supervisor to problems or difficulties
- meet the deadlines set for them
- give serious consideration to the advice received
- discuss with the supervisory team how to make guidance more effective
- agree, organise, and attend mutually convenient meetings, contribute to their agenda and circulate work in advance; set realistic deadlines
- undertake research training as agreed and where a need is identified
- undertake recommended reading; ask when one does not understand
- produce written work as agreed
- comply with reporting procedures and inform supervisors of the progress of the research
- tell supervisors about difficulties encountered in work
- arrange for informal sharing of information and practice
- generate one's own ideas
- plan when to submit the thesis and ensure that it is submitted on time
- ensure that the thesis complies with institutional regulations

Adapted from Vitae (2016).

The supervisor performs a variety of key roles during a researcher's doctoral trajectory, both in terms of the research results and the academic development of their supervisees.[7] This rich performative diversity is also reflected in the different terms for the supervisor across Europe. Some translations into English include 'tutor', 'coach', 'advisor', 'father' or 'mother' (German), 'conductor' (Finnish), 'topic guide' (Hungarian), 'the one who shows you the way' (Norwegian) or 'the one who leads you by the hand' (Swedish). Even the English term can be reimagined as 'super-vision'. Given the complexity of the task, it is helpful to conceptualise supervision as a highly specialised form of teaching rather than as a mere add-on to research.[8] Even if supervising activities typically fall under a senior academic's official duties, it is an instance of good practice to explicitly recognise such engagement in PhD programmes. Adjusting teaching or administrative obligations in line with the supervisory workload is one important way of acknowledging the work performed by doctoral supervisors. Prizes or awards for excellent supervision can be further means to honour a professor's commitment to doctoral education.

Role of Supervisor*

Director	Determining topic and method, providing ideas
Facilitator	Providing access to resources or expertise, arranging field-work
Advisor	Helping to resolve technical problems, suggesting alternatives
Teacher	Of research techniques
Guide	Suggesting timetable for writing up, giving feedback on progress, identifying critical path for data collection
Critic	Of design of enquiry, of draft chapters, of interpretations or data
Freedom giver	Authorises student to make decisions, supports student's decisions
Supporter	Gives encouragement, shows interest, discusses student's ideas
Friend	Extends interest and concern to non-academic aspects of student's life
Manager	Checks progress regularly, monitors study, gives systematic feedback, plans work
Examiner	Internal examiner, mock vivas, interim progress reports, supervisory board member

*from: LSE 2016, p. 4

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7   In this respect it may be useful to conceive of doctoral education as an academic "rite of passage"; cf. Amran and Ibrahim (2012).
8   See Brown and Atkins (1988), p. 115.

Good Practice Example from Norway

In Norway professors have an annual work plan which includes total working hours and a defined supervision quota within them (e.g. a professor spends 60 or 70 hours/year per PhD supervisee). For instance at UiT, The Arctic University of Norway, the total allocation of working by a professor to supervise a PhD thesis from beginning to completion is recognised as 280 working hours in the course of four years. This practice amounts to an explicit recognition of supervision as professorial work, thus preventing professors from being burdened with additional duties and running the risk of having to work overtime and/or neglecting their supervisees. Furthermore, there is an annual assessment following the contract model. The assessment comprises an individual confidential part by the PhD candidate, but also another part produced jointly by the supervisor and the supervisee. Essentially, it is a report on the progress of supervision. While this has been identified as a good practice example in terms of monitoring and quality assurance, an online (or offline) supervision log can be used as an alternative, which would not formalise supervision to the same extent.

For the PhD contract used at UiT, see UiT (2015).

Recognising PhD supervision as an important part of professorial work helps to counter the misperception that PhD degrees would be a cost-free add-on into the functions of a university. The number and quality of PhD degrees is an important performance indicator of universities that may directly or indirectly have major effect on funding – even at private universities funded through tuition fees collected from students. Providing good PhD supervision requires considerable allocation of a university's resources, be it primarily in the form of appropriate alleviation of the other workload of faculty members involved in it. Some universities have also moved to designating a category of research professors who do not participate in teaching or supervision for undergraduate or master's students.

On a formal level, a combination of a code of good practice and an individually tailored memorandum of understanding for each PhD student is considered good practice. The former needs to be provided by the institution, while the latter is an agreement between supervisor and supervisee. Universities need to establish an appropriate and effective reporting and benchmarking system in order to monitor progress and respond to problems identified. Obligatory surveys for all PhD candidates, preferably on an annual basis, have become an integral part of many quality assurance systems. It is further good practice to use both teaching evaluations and supervision assessments as criteria when deciding on professorial promotions, without compromising the importance of excellence of research in such determinations.

With regard to the various models of PhD supervision, the Task Force discussed the pros and cons of single versus shared supervision. Whether one format or the other is more effective is highly individual and varies according to the context, yet current trends seem to point towards joint supervision. The shared responsibility, combined expertise, and scope for broader discussion and debate can be beneficial for both the supervisors and the doctoral candidate. In the case of single supervision problems may arise if the supervisor falls ill or if the supervision proves to be suboptimal. In addition, given that supervision does not only affect the thesis but also the individual, shared supervision may be more instructive from a pedagogical point of view. For example, demonstrating disagreement in front of doctoral candidates can help make them understand that they too will need to find their own path. The main risk of shared supervision arrangements is conflicting advice without a framework for resolving the conflict. Joint meetings with both/all supervisors at the same time are one solution.

There is no universal best practice across Europe in the issue of single versus shared supervision and different cultural sensitivities play a pivotal role in how the supervisory relationship is defined. While in some cases hierarchy and distance may be beneficial to fostering independence, a more informal working relationship works better in other contexts. International co-supervision may provide added value, yet there are often considerable bureaucratic or financial difficulties, in particular when the task of external co-supervisor is an honorary one and there is no budget even for direct expenses.

For a long time supervisory training was only empirical ('learning by doing'), but in recent years an increasing number of universities have introduced more formalised training for supervisors. Providing access to supervisor training and networking is good practice. Practice varies as to whether this is optional or compulsory and training may be offered in the form of peer discussion and induction courses for all new staff as well as annual refresher sessions for more experienced faculty.

Even where the model of a single supervisor remains to be applied, it constitutes good practice that PhD supervision is also seen as a collective responsibility of the faculty or the broader academic community. Particularly PhD researchers that seek to make use of diverse categories of sources or of multiple methodologies will need academic advice beyond what the main supervisor can provide. Hence, availability for and interest in PhD researchers should be seen as a responsibility of all members of the faculty. Further, the department, faculty or university will have a collective responsibility for the regular evaluation and quality assurance of supervision and PhD programmes.

3. Course-work

There are two main models of doctoral training, largely distinguished from one another by the organisation of the COURSEWORK component in a given PhD programme. The first, commonly referred to as the apprenticeship model, is an individual programme based on a working relationship between the supervisor(s) and supervisee with no structured coursework phase. The second programme model is typically organised within doctoral or graduate schools and characterised by two phases: a taught phase, comprising doctoral-level seminars and workshops, and a research phase. These two phases usually overlap and a typical structure would be 1+3, while the apprenticeship model may be accommodated within just three years.

While the harmonisation envisioned through the Bologna process relates to doctoral education, this third tier does not follow the same route as in first and second cycle degree programmes. Neither a specific structure nor a certain number of ECTS credits have been recommended. Instead, the objectives of the Bologna process are achieved within a common framework, as encapsulated by the Salzburg Principles. As a result, the organisation of doctoral education shows a large diversity at an international or national level or even within the same university.

In response to the rapid expansion of doctoral education in recent decades coupled with an increasingly competitive academic and non-academic job market for newly graduated PhDs, universities across Europe have engaged in reflection and reform. Universities and departments are increasingly faced with the challenge of aligning their programmes with the learning needs of a large and diverse cohort of doctoral candidates and preparing them for career opportunities inside and outside the academy.

In practical terms, the redesign of doctoral education has tended to lead to the introduction of structured PhD programmes across European universities and countries. While the researcher's individual project remains the core component on which the doctoral degree is awarded, a recommended 25 per cent of a doctoral programme (e.g. one out of four years) is often used for more structured training. The format, scope, and sequencing of this taught provision in a structured or semi-structured programme may vary greatly and can also include non-course-based activities, such as internships. In order to secure the required academic quality of a PhD thesis, three years should continue to be allocated, but caution is needed in expanding the coursework or similar activities beyond what correspond to one academic year. While institutions vying for the best students are under considerable pressure to offer competitive programmes, a potential course overload will most likely be counterproductive.

Structured PhD programmes offer intensive and systematic supervision, usually by a team of supervisors from one or more departments. In contrast to individual doctoral study, candidates in structured programmes do not exclusively depend on the time and resources of one person, but receive advice,

mentoring, and support from different people within the department or university. An integral part of a structured programme is the inclusion of a curriculum of doctoral-level courses, which are often either methodological or interdisciplinary in focus, promoting the acquisition of additional expert knowledge and qualifications. Taught courses on relevant subject matters and methodology as well as skills-oriented professional development training are geared towards enhancing the doctoral researchers' employability in and outside academia.

As far as the pacing and amount of coursework is concerned it is, again, desirable to allow for some flexibility and diversity. While some training is best sequenced early on in a PhD programme, spreading coursework evenly or restricting coursework to the first year may not be the best solution for everyone. For instance, it is sometimes only when one is confronted with a particular problem during one's research that one realises what methodological training is needed. In such cases the possibility of undertaking further training beyond the first year is critical. Doctoral candidates will often require some guidance on what training is needed, as in some institutions this is undertaken as part of a formal training needs analysis by the supervisor(s) which is repeated every year.

The best departments and faculties offer research-oriented seminars in which doctoral researchers are exposed to the ideas of other researchers and able to present their own work for comment. Where there is a large PhD programme at a university or collaborative PhD school between universities, it may also be possible to offer specific seminars for PhD students only. In some cases it will be necessary to accommodate advanced master's students and PhD students in one of the same research seminar, with tailor-made modifications to accommodate the needs of each participant. The purpose of research-led seminars is that candidates will not only benefit from hearing the content of such presentations, but will also be given the opportunity of contemplating different approaches to a problem. To some extent, we also encourage the official recognition (in the form of credits or otherwise) of researcher-driven activities, such as working groups or reading groups, and of team-teaching, together with postdoctoral fellows, for example.

In light of the changed nature of doctoral education it is recommended that the coursework component of a PhD programme encompasses methodological, subject-specific, and professional development training. It is argued that the acquisition of these skills can improve performance as a successful academic as well as being of value for those who choose not to enter academia. This training is best designed with a high degree of flexibility. Too rigid formal training without a well internalised individual justification concerning its benefits may lead to frustration and may be seen as an unwanted deflection from a PhD candidate's research project.

Even though a PhD degree becomes a qualification for expert-level jobs outside academia, this does not necessarily mean that doctoral education should be less academic, less specialised, or more vocational. When there is a demand for doctoral degree holders outside academia, it is precisely because of their academic skills. For those who do not want to enter academia after their PhD, it is important that their various skills are recognised on the labour market, and that the years of advanced research during their doctoral education are acknowledged as work experience.

On the question of using or introducing ECTS credits in doctoral training, the Task Force does not believe that the advantage of transferability outweighs potential disadvantages. Among other limitations, a credit system might encourage a course selection on non-academic grounds and may result in inflexibility as to the proper extent of coursework in individual cases (some may need less than a year as optimal complement to their

Good Practice Elements in Doctoral Training

The League of European Research Universities (LERU) published an advice paper in 2014 on good practice in doctoral training. The paper documents good practice elements, subdividing them into four different categories:

Formal research training: The set of skills developed during a PhD comprises

- intellectual skills (including the ability to think analytically and synthetically; to be creative, inquisitive, and original; to take intellectual risks; to deploy specific technical research related tools and techniques),

- academic and technical skills (including the ability to understand, test and advance complex theories or hypotheses and to deploy sophisticated concepts, methodologies and tools in the chosen subject to a very high level; to use critical judgment in an objective manner based on verifiable evidence; to manage a high degree of uncertainty both in method and ion outcomes; to transfer new knowledge to scholarly communities and communicate it to society), and

- personal and professional management skills (including the ability to persist in achieving long-term goals; to manage projects with uncertain outcomes in diverse settings and organisations; to take a project through all its stages; to be self-motivated and autonomous; to work in a team; to speak and present effectively in public).

The paper stresses that these skills may be developed during the research phase, but can be further honed if specifically addressed in formal training.

Activities driven by doctoral candidates, such as skills awareness and self-assessment, international research networks, candidate-led workshops, conferences, and other activities.

Career development: Disseminating information on both academic and non-academic career opportunities.

Concepts and structures: Organising doctoral education into Graduate or Doctoral Schools and Centres, including mechanisms for interdisciplinary, national, and international cooperation.

See: LERU (January 2014).

PhD thesis, while some others may need more than a year, for instance when a PhD thesis applies multiple methodologies). Yet, according to the ECTS Users' Guide, published by the European Commission in 2015:

> Defining learning outcomes for specific milestones in the third cycle could in some cases allow candidates who interrupt their studies to have some certification of what they have achieved up to that point. It can also be valuable in demonstrating to future employers the achievement of specific high level generic and subject specific competences.[9]

It is true that some official documentation of achievement may be beneficial, but this does not necessarily have to translate into ECTS credits. Apart from the fact that universities across Europe are far from systematic in allocating ECTS, there is the risk of even greater bureaucratisation through the use of ECTS. Furthermore, since ECTS credit points are meant to measure a certain amount of work load, their use seems restricted to the coursework component, as working hours spent on the thesis vary greatly and are highly individual. Flexibility is thus recommended, also with regard to the assessment of transferring courses. Ultimately, it is only at the receiving end, i.e. at the university where the PhD thesis is defended, that the added complementary value of courses taken elsewhere can be assessed, closely involving the supervisor. At the doctoral level attendance may be a more constructive course requirement than formal examinations.

Judging from trends across Europe, one may conclude that the varying forms of structured doctoral programmes jointly represent the future of doctoral education. There are also critical voices, however, who fear that the requirement of taking mandatory courses might lead to a narrowing down of critical approaches to 'successful' and 'popular' ones.[10] This does not have to be the case; quite to the contrary, good course leaders will aim at fostering their students' intellectual autonomy. Such courses will broaden and not restrict a researcher's theoretical and conceptual repertoire.

Irrespective of the forms and scope, some structured taught phase provides added value. At the very least, courses bring together researchers physically and hence help to create a cohort identity or otherwise facilitate the organic emergence of arrangements for peer supervision and support. Doing social science is a social activity and weighing different arguments against each other among one's peers helps nurture a research mindset. The social isolation that doctoral candidates frequently experience is directly related to high attrition rates and needs to be taken seriously.[11] As has been pointed out in the article "Arguing for PhD Coursework" (2000): "The loneliness of PhD scholars should refer to their independence of thought as one questioner in a socially active community of scholars offering dialectic questions to each other['s] arguments." [12]

Teaching skills and experience also appear to have become part of the training often expected in a PhD programme. It constitutes good practice that doctoral candidates are offered opportunities of teaching, either at the home institution or elsewhere as this prepares them for academic life and improves their presentation skills. Making resources and training in teaching available for interested PhD researchers and offering them a teaching certificate is good practice. Given that the majority of time during a PhD programme needs to be devoted to one's individual research, additional activities such as teaching need to be organised in such a way so as not to interfere with one's research schedule. If teaching activities are optional, those who do not aim at careers in higher education will appreciate the possibility of opting out of such training.

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9 EC (2015), p. 27.
10 See for example, Pelger and Grottke (2015): pp. 122-23.
11 Cf. Jones (2013): p. 84.
12 Metcalfe (2000): p. 56.

ECTS Credit Points Allocation at the Doctoral Level (examples)

The most common structure for third-cycle degrees is 6 semesters and 180 ECTS, used for example in several universities in Austria, Croatia, France, Germany, Italy, Slovenia, Sweden etc.

Below is an example of a typical three-year PhD programme structure, taken from the Center for Doctoral Studies in Social and Behavioral Sciences (CDSS) of the Graduate School of Economic and Social Sciences (GESS) at the University of Mannheim:

	Admission			
Year 1 (fall)	Introductory Course: Mathematics for Social Scientists	Core: Current Research Perspectives	Core: Crafting Social Science Research	Core: Theory Building and Causal Inference
	Elective: Methods	Elective: Discipline		Literature Review
Year 1 (spring)	Elective: Discipline · Elective: Methods · Elective: Methods		Dissertation Proposal Workshop	English Academic Writing · Bridge Course
	Dissertation Proposal			
Year 2 (fall)	Work on Thesis		CDSS Workshop	Research Colloquium
Year 2 (spring)	Work on Thesis		CDSS Workshop	Research Colloquium
Year 3 (fall)	Work on Thesis		CDSS Workshop	Research Colloquium
Year 3 (spring)	Work on Thesis		CDSS Workshop	Research Colloquium
	Submission of thesis and defense (to be accepted by dissertation committee)			

See:

gess.uni-mannheim.de/doctoral-programs/social-and-behavioral-sciences-cdss/cdss-programs.html

ETCS allocation varies greatly. The credit rating for a full-time structured PhD in social sciences at the National University of Ireland in Galway, for example, is twice as high, encompassing 360 ECTS for a four-year programme.

Cf.: http://www.nuigalway.ie/colleges-and-schools/arts-social-sciences-and-celtic-studies/phd-research-degrees/structured-phd/

A modification of the 3+1 model, applied in Norway, is that a university may receive from the national research council full funding for the three years of a PhD candidate that correspond to the research for and writing of a PhD thesis. The university itself will then provide one year of funding, often by employing the PhD candidate in a position that includes teaching activities. The obvious advantages of this model are that it facilitates the acquisition of teaching skills, as well as the candidate's integration into the life of the department or faculty. The main downside may be a risk of exploitation, as the university will need to be careful that the degree of teaching duties does not compromise either the course component of the PhD programme or the continuous progression of the PhD thesis.

Ideally, research seminars, skills workshops, and other coursework components are specifically tailored to the needs of doctoral candidates. However, as mentioned, depending on the institution and size of individual departments it will not always be possible to offer all the training at PhD level. In such cases, taking advanced master-level courses appears to be a good alternative. Masters-level training may further be appropriate where PhD researchers are new to a methodology or are doing interdisciplinary training. Most advanced courses are mixed for very good reasons.

It is further recommended that the professional development part of doctoral training is not devalued as an add-on component. Neither is it helpful to impose many categories of compulsory training in generic or transferable skills. Rather, institutions are primarily advised to offer opportunities to hone skills. This can be done in a creative way that is entirely compatible with the completion of a high-quality PhD. In some institutions attendance at skills-oriented training is recorded in a portfolio or rewarded with a certificate, but training should be seen as having intrinsic value, so that doctoral candidates feel motivated to develop or enhance different skills, which will help with the completion of the PhD and beyond.

4.
Academic and Professional Components

In response to the changing nature of the PhD, there is a debate in the critical literature on the ideal balance between ACADEMIC AND PROFESSIONAL COMPONENTS in doctoral education. Within academia there may exist both legitimate and unfounded concerns that some policymakers might wish to instrumentalise doctoral education by turning it into job market training and lowering its academic ambitions. There are scholars who speculate that the demand for a broader and less academically focused PhD degree will lead to more formal and structured training as part of the postdoc period.[13] Others warn, however, against lowering standards in research training at the doctoral level in favour of more industry-orientated training. Deferring research training to the postdoc phase cannot be considered good practice. A PhD is not just another master, but demands a completely different and more advanced set of writing and research skills.

The Task Force has identified as a good practice approach to include professional skills components in an academic PhD programme, rather than moving towards vocational or so-called professional doctorates as an alternative to a traditional academic doctorate. In order to have added value, the advanced-level professional skills that can be built into social science PhD programmes as optional or even mandatory elements will need to be grounded on the uncompromised academic standard of the PhD programme itself. More than anything else this relates to the quality requirements of a PhD thesis.

It is true that many skills components in a PhD programme may prove particularly useful for PhD graduates who will find their careers outside academia. But many of exactly the same skills, such as those related to CV writing, being interviewed, media relations, project proposal writing, publication strategies, or new technologies, are equally beneficial for those who will pursue a career within academia. Even more importantly, the most important "skill" that a PhD graduate has obtained in a PhD programme is represented in the PhD thesis itself, as a demonstration of one's capacity, as an advanced professional, to conduct methodologically rigorous systematic research and to craft a complex but coherent line of argument. Hence, an academic PhD programme may, without any compromises, prove to be a gate opener for a number of senior positions in both the public and the private sectors. Of course, PhD programmes will need to be revised and redesigned in order to meet changing challenges, and this relates also to their skills components. But there is no justification for the claim that a move of emphasis from academic research to professional skills would be an adequate solution to the need to think of broader job markets beyond academia. It is however good practice that PhD programmes become more explicit in specifying what skills they offer and how they are relevant in various segments of the job market.

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13   See Melin and Janson (2006), p. 116; OECD (2012), p. 35.

Academic and professional development training that institutions frequently offer in the form of taught courses include the following:

- Academic Writing Skills
- Creative Academic Writing
- Communication Skills
- Using Social Media for Professional Purposes
- Writing for Publication and Publication Strategies
- Academic English
- Foreign Language Training
- (Academic) Presentation Skills
- Time Management
- Teaching in Higher Education
- Grant Applications
- Project Management
- CV and Job Application Writing
- Mock Interviews

Crucially, a range of core skills are acquired in the course of the supervisory relationship and through the studies at doctoral level; they are not necessarily tied to separate taught courses or workshops.

In the United Kingdom, the Economic and Social Research Council (ESRC) and the Research Councils UK (RCUK) have identified some of the significant skills that are developed through the doctorate:

- The ability to work independently as well as working under supervision
- Self-motivation and -discipline
- Specialist and generalist knowledge within the given field
- Time, project and document management, ability to prioritise tasks
- Critical thinking, analytical and writing skills
- The ability to read and synthesise a range of documentation
- Research skills
- Developing initiative
- Communication, presentation and interpersonal skills
- Problem-solving, flexibility in the face of change and creative thinking
- Networking
- Professionalism and ethical practice
- Team work (e.g. in scientific team-based studies, or as part of seminar groups, conference organising)
- Computing and information searching skills
- Teaching skills
- Taking responsibility for one's own learning and learning how to learn, seen to support lifelong learning for the future.[14]

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14   Raddon and Sung (2009): p. 15.

The completion of a multi-year project like the doctorate requires grit, determination, and resilience, which equip doctoral graduates better to meet professional and other challenges. Even employers who do not specifically target PhD holders for recruitment will value the set of skills gained through doctoral education. In particular, they value, according to a study on the impact of doctoral careers, "doctoral graduates' deep specialist subject knowledge, excellent research and analytical skills, their capacity for critical thinking, as well as their ability to bring fresh perspectives to problems or the organisation."[15]

National funding bodies may tend to ask for doctoral research to have tangible impact and may criticise what they perceive as a lack of relevance of doctoral education. Expecting too broad a set of "skills" could dilute the depth and rigour, the very hallmarks of the PhD. The impact and value of knowledge cannot be gauged solely by an economic barometer or short-term influence either. Instead of tailoring PhD programmes to the uncertain exigencies of the labour market, universities and research institutions would benefit from a more explicit recognition of the skills gained from academic study which are relevant outside of higher education. The future is difficult to predict, but graduates with advanced qualifications are doing well and will benefit in the long run.

The social sciences are routinely subject to strong pressures of legitimation and can lead to defensive justifications of their existence. We will discuss issues related to the academic job market later on in this report. Here, in the context of "skills", it is however pertinent to quote Gail Craswell (2007) for her criticism of the employability discourse:

> The employability discourse is an essentially reductive discourse that presents no solid evidence to justify erection of a deficit model now being used to push workplace skills training for HDR [higher degree research] students. Although some training of this type is certainly in order, discriminating too closely what these skills might be is to be avoided given the instability in the KBE [knowledge-based economy] literature. Furthermore, whole areas of HDR knowledge production are obscured in the employability discourse, thus undercutting and devaluing a diversity of ways of knowing, and skewing workplace skills training towards the perceived needs of science students.[16]

Rather than succumbing to the imperatives of the employability discourse, academics are advised to communicate more effectively the wide spectrum of skills that is already integrated into doctoral education, as mentioned above. The European Science Foundation (ESF) emphasises the value of skills that PhD candidates acquire as an integral part during their research training, defining them as transferable skills as follows:

> Transferable skills are skills learned in one context (for example research) that are useful in another (for example future employment whether that is in research, business etc.). They enable subject- and research-related skills to be applied and developed effectively. Transferable skills may be acquired through training or through work experience.[17]
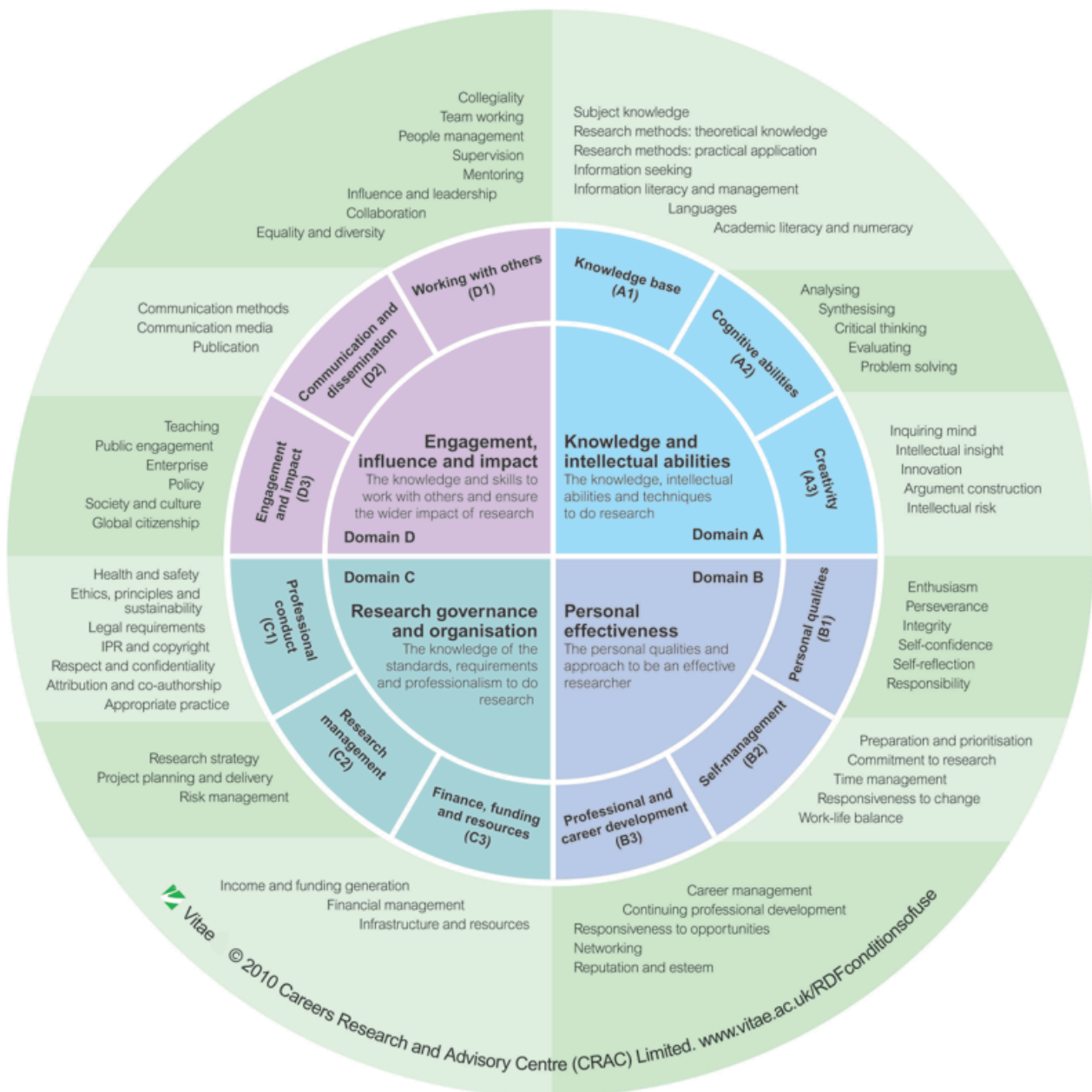
To a large extent, the skills listed by the ESF are congruent with those articulated in the more detailed Researcher Development Framework (RDF), as designed by the UK-based Vitae organisation. The RDF offers a graphic

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15   CFE Research (2014): p. 4.
16   Craswell (2007): p. 388.
17   ESF (2009), p. 47.

illustration of the competencies and attributes of successful researchers (see below). While it constitutes a useful tool for evaluating and promoting the professional development of researchers, Vitae's RDF is also specifically targeted at employers "to provide an understanding of the blend of skills unique to researchers and their potential as employees."[18] Hence, the RDF demonstrates how professional skills build upon the academic quality of a PhD, rather than becoming an alternative to it.

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18   Vitae (2010).

Much can be gained from an awareness and full recognition of the set of skills gained naturally in the course of a well supervised doctoral degree. Being taught by good teachers facilitates teaching skills. Being involved in an externally funded project may teach a whole range of skills related to project planning and administration, grant writing, media relations etc. Having one's own paper critiqued and being present in discussions concerning papers by others equally provides a window to a range of skills, including those related to oral expression, clear argumentation and civil discourse. Others specialist skills and competences may need to be acquired independently of the supervisory relationship, e.g. advanced methodological training, teaching skills, presentation skills. Where this is the case, the institution should ensure that they provide support in the acquisition of those skills. It is further recommended that researchers can take control of their own skills development by choosing training in the form of workshops, internships, mobility programmes, or collaborate research opportunities, to name the most prevalent formats. The extent to which any skills need to be compulsory should depend on the experience and needs of the PhD candidate, which can be assessed during a training needs analysis. However, some institutions require compulsory training of certain skills, such as ethics or dealing with difficult situations when on fieldwork.

5.
Technology

Technological advances and new tools for learning, writing, teaching, and research highlight the potential of TECHNOLOGY for modern and innovative doctoral education. Social media, online learning opportunities, big data, and open research have changed the ways we research, learn, and collaborate. In 2016 the EUA published a new set of recommendations on doctoral education called "Taking Salzburg Forward – Implementation and New Challenges," in which technology is put forward as a central issue. This document, building on the Salzburg Principles of 2005, identifies three key challenges, which have gained importance and which have been neglected in earlier recommendations: research ethics, digitalisation, and globalisation. Given the ubiquitous nature of technologies in our social and professional lives, it is worthwhile reflecting upon how educational reforms can address and exploit the potential of new information and communication technology (ICT).

The extent to which digitalisation has changed society and infiltrated our daily lives has led the OECD to talk about the "e-society." In its recent overview Trends Shaping Education 2016, the OECD notes how integral a part of life the digital world has become and how (mobile) internet use has increased across all OECD countries within the last decade.
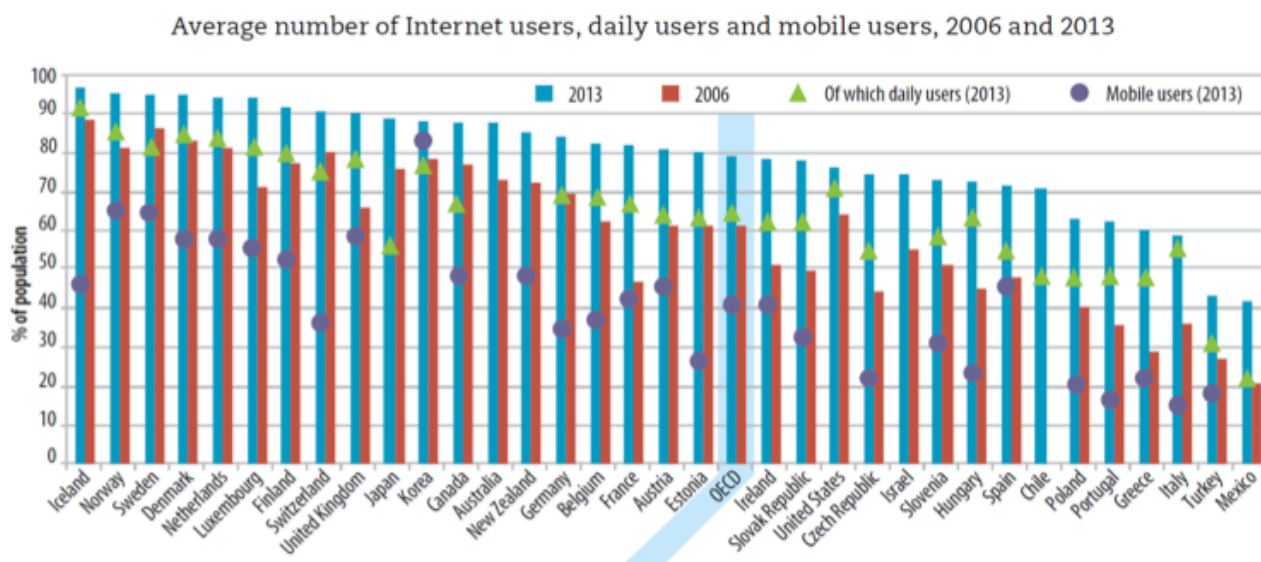
The beginning of the twenty-first century is characterised by "a new culture of learning," which is enhanced by technology and organised around active and collective learning experiences rather than passive consumption of content as delivered by someone else.[19] Possibilities of online teaching and learning are vast and may be increasingly linked to institutions' pedagogy, sustainability, reputation, and branding. In this context, educational reformers need to evaluate whether students and doctoral researchers are being adequately equipped with the skills necessary to take advantage of the opportunities offered by new technologies. Academics may likewise require upskilling in order to effectively use relevant technology in their subject area.

Universities will need to strategically decide the level of resources they want to invest in developing and engaging with online platforms, opportunities for distance learning, or massive open online courses (MOOCs). Depending on the contextual framework, online learning and MOOC-type education may often only be of marginal relevance at the doctoral level. More generally, a LERU advice paper on "Online Learning at Research-Intensive Universities" highlights:

> A major risk for universities is that they become strategically led by what digital technology can do, rather than requiring digital technology to enhance their educational and research missions within a defined academic strategy. […] Online learning initiatives should be driven by a mission to open up and enhance education, to vitalise the blended learning environment, and to maximise the potential for distance learning, OER [Open Educational Resources], and crowd-sourcing initiatives.[20]

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19   See Thomas and Seely Brown (2011), p. 3; Lee and McLoughlin (2010), p. 49.
20   LERU (June 2014), p. 4, 16.

Universities follow good practice if they stay abreast of technological developments, so as not to miss out on opportunities for possible partnerships and collaboration in an increasingly networked and interconnected world.

Average number of Internet users, daily users and mobile users, 2006 and 2013

Source: OECD (2016c), p. 102.

In a similar vein, doctoral programmes may want to actively encourage researchers to engage with new technology as well as to hone their critical capacity to evaluate, use, and also contribute to the wealth of information that is available online. Universities are changing radically and technology is a major element of opening up new possibilities in applying data collection and analysis, disseminating research results, building networks, and facilitating access to resources, such as archives. While many PhD candidates may, in fact, be at the very forefront of developments in ICT, departments have a responsibility of providing researchers with appropriate training on digital tools and techniques in their respective disciplines as part of methodological training. In order to stay in touch with new developments, this part of methodological training will even more than in other areas be driven by the interest and input of the PhD researchers. The critical and proficient use of analytical online tools and the continuous updating of the tools in use can help them advance both as scholars and as potential future pedagogues.

At a time when the social sciences are called upon to explain their relevance and impact, an engagement with new media can contribute to increase academics' visibility and outreach. This could translate into improved communication with policymakers and wider non-academic audiences, also countering the perennial ivory tower stereotype. In addition, online communication has led to new ways of dialogue and exchanges among peers in the global academic community. In an unprecedented way it enables academics, and also PhD researchers as emerging academics, to build their own global networks based on subject-matter, discipline, or methodology.

Some skills training might be more efficiently delivered through online training, reserving face-to-face contact for more in-depth engagement with supervisors. PhD researchers could use the repository of academic films available on YouTube to improve their own presentation and teaching skills. Learning to use social media effectively is another way that doctoral research can have impact outside of higher education.

Recent years have produced a considerable amount of expert, and non-expert, literature on the integration of social media in learning environments. It is often contended that educational quality rather than the medium of instruction determines learning effectiveness.21 While it is true that social media can facilitate and enhance learning, its seeming ubiquity does not in itself warrant its use as an educational tool, which is why relevant training on the successful use of online resources is central. The added value of applying social media tools in doctoral education depends on individual use and on PhD candidates' willingness to engage in this means of communication and learning. If handled well, social media can allow for informal and creative ways of knowledge production and consumption, such as blogs, for instance, to disseminate research findings or address fieldwork problems.

> ## Example of Using Twitter as a Learning Tool
>
> A professor from the University of the West of Scotland tried the experiment of running a seminar in Twitter. The following pros and cons were discussed in a 2013 Guardian article:
>
> **Pros:**
> - Opportunity to ask questions, post comments, receive individual replies
> - Social media as a learning space that encourages reciprocity and instinctive thinking
> - Experience of public pedagogy first hand
>
> **Cons:**
> - Students' actual preparedness to engage in this method of communication
> - Message in 140 characters can lead to oversimplifying complex debates
> - Expressing one's views in a public domain carries potential risk
>
> Adapted from Rich and Miah (2013).

Some PhD candidates are for privacy reasons reluctant to use certain social media platforms, such as Facebook, Twitter, or LinkedIn, because they do not feel at ease sharing too much data about themselves or their research. Others will feel comfortable with extending their online presence for professional purposes and with the public nature of Twitter and its utilisation as their virtual business card that represents their academic profile. We identify an active, innovative, and critical use of new technologies as good practice, while stressing the need to adequately inform doctoral candidates about the potential and the risks posed by new technologies in relevant areas. Institutions are advised to protect their researchers, who, without proper guidance and support, may fall into the trap of compromising their intellectual property rights in the virtual world. Certain challenges, such as those linked with copyright issues, are best addressed early in a researcher's career. Furthermore, both early career and senior researchers need to be aware that with new technologies there are also new forms of plagiarism as well as new forms of its detection.

There are several instances where technology can be a useful complement, such as teleconferencing for distance supervision, at occasions when face-to-face communication is not possible. However, it is clear that there is no substitute for live contact. We identify as good practice that digital learning, distance supervision, or online

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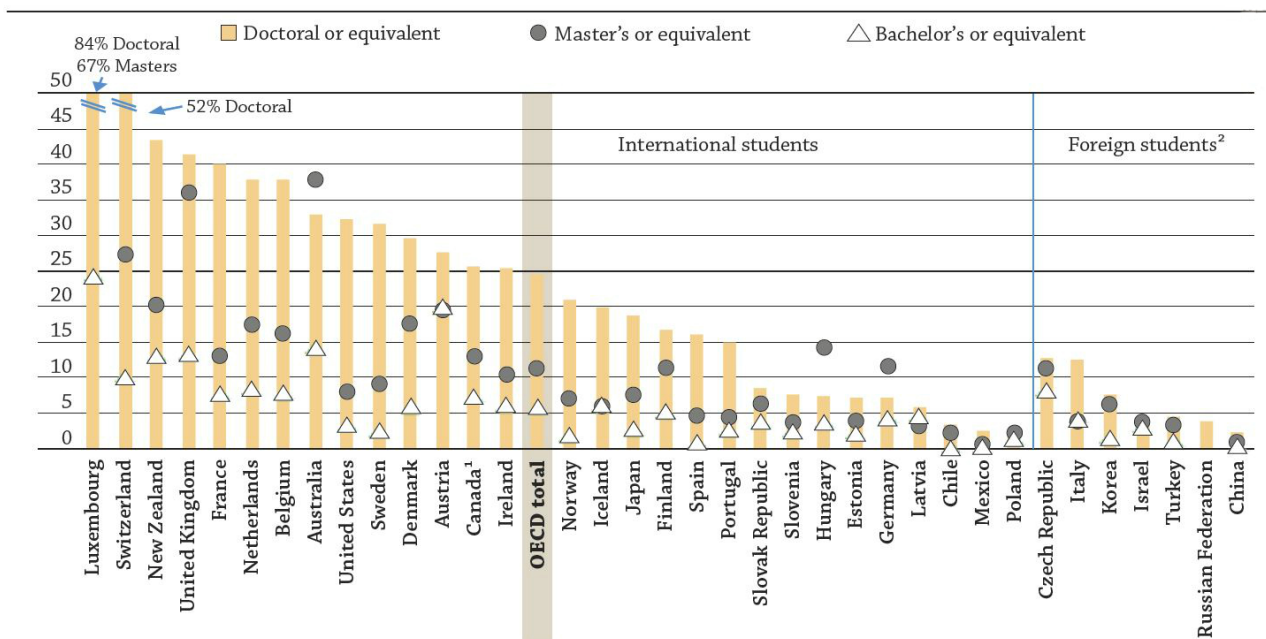21   See, for example, Clark and Kwinn (2007), p. 30.

classroom discussion are used as a supplement, in situations when they prove necessary or provide added value, rather than being a substitute to face-to-face interaction in doctoral education.

6.
Mobility and Inter-nationalisation

The global scientific community is characterised by a high degree of MOBILITY AND INTERNATIONALISATION. In order to exploit the potential of the transnational flow of people, perspectives, and ideas, the European Union has launched several schemes to facilitate and promote mobility between EU countries, most notably the Erasmus programme. Mobility in higher education is at the core of the Bologna Process. International experience is conceived of as an opportunity for mutual learning, from which students reap benefits on an educational, linguistic, cultural, and personal level. The transfer of people goes hand in hand with the transfer of knowledge and can lead to enriching dialogue and cooperation between institutions across national borders.

Not only the number of doctoral candidates, but also the number of international doctoral candidates has increased significantly. According to recent statistics from the OECD, international researchers represent around 50 per cent of the total PhD cohort in some countries, or even more than half, as in Luxembourg or Switzerland.

International or foreign student enrolments as a percentage of total
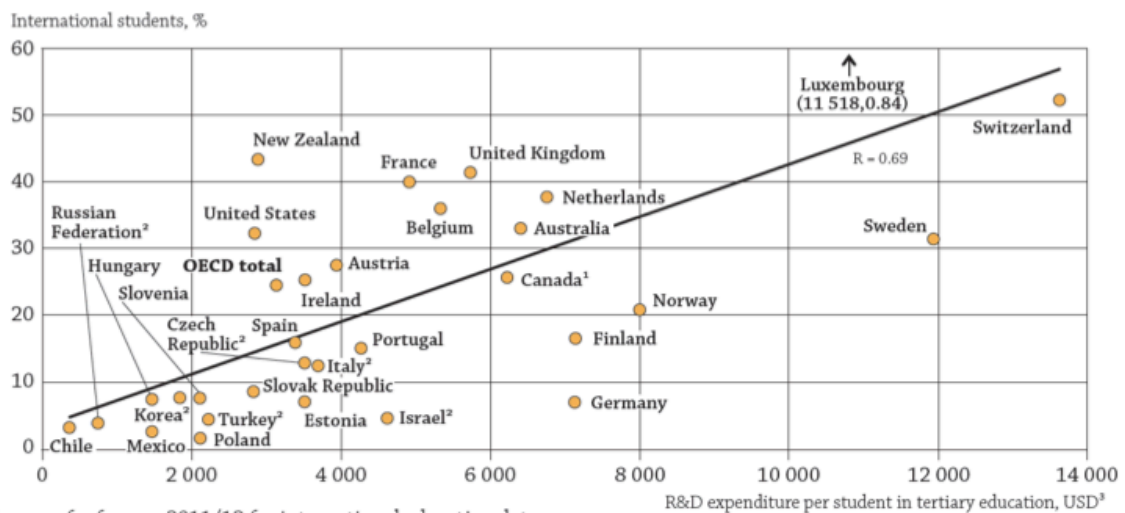

1. Academic year of reference 2011/2012.
2. Data on foreign instead of international students

International students are those who have crossed borders for the purpose of study. The UNESCO Institute for Statistics, the OECD and Eurostat define international students as those who are not residents of their country of study or those who received their prior education in another country. When data on international students are not available, data on total foreign students (including immigrants who moved to the country for purposes other than study) are used instead. See: OECD (2016b): p. 2.

In 2013, the EU Member States hosted a total of around 1.4 million tertiary-level students from abroad, that is, 7.5 per cent of all EU students in that year. This figure is far from the targeted EU average of 20 per cent of graduates in higher education that should have some international study experience according to the EU's Strategic Framework for Education and Training 2020[22].

In the majority of hosting countries, mobility in tertiary education is highest at the doctoral level. Inbound mobility generally reflects the attractiveness of a country's higher education system and its capacity to accommodate international students. The OECD notes a correlation between countries' R&D investment in tertiary educational institutions with the proportion of international doctoral researchers:[23]

International or foreign students as a percentage of total enrolment at the doctoral or equivalent level, and expenditure on R&D per student in tertiary educational institutions

1. Academic year of reference 2011/12 for international education data.
2. Data on foreign instead of international students; these countries are excluded from the computation of the OECD total.
3. Refers to calendar year 2012.

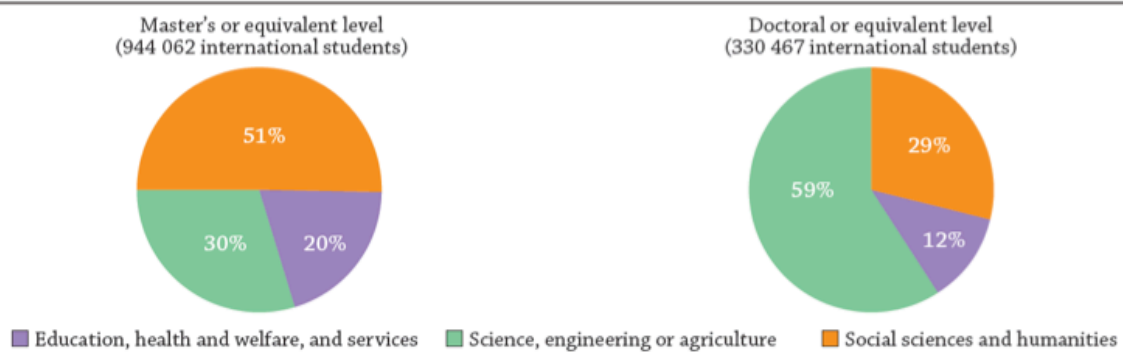Historically, universities have followed a cyclical trajectory:

> [F]rom medieval universities that were centres of learning that functioned in the common language, Latin, and served an international clientele of students, to the nation-state universities of the 19th and 20th centuries that pursued national interests, to once again, universities that are emerging as international centers of learning and scholarship, in addition to serving particularly regional interests.[24]

In light of the globalisation and increasing competitiveness of higher education, the doctoral degree has become a product that is expected to meet international standards of quality. Mobility provides added value, leading to a wider research experience and opening up a broader context of academic cooperation and networking.

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22   EC (2016).
23   OECD (2016b): p. 4.
24   Nerad (2010): p. 2. See also Nerad (2014): p. 111.

The internationalisation of higher education does not only bring benefits to individual students and researchers, but education has also become a valuable export commodity in several countries. In Australia, for instance, education exports in 2015/16 increased by eight per cent compared with the previous year, amounting to an all-time high of $20.3 billion, with universities and other tertiary education institutions generating over two thirds of that income. This makes international education Australia's third largest export after iron ore and coal.[25] For hosting countries mobility programmes represent a significant source of revenue, whereas for sending countries mobility scholarships and grants constitute a considerable investment. In a study of eleven non-Western countries, national development and human capacity building were cited as the most common motivations for countries to sponsor outward mobility. Countries invest an estimated US$ 35,000-40,000 per person annually in the majority of programmes, often requiring their scholarship recipients to return home to work for a certain period of time. According to this study, STEM (science, technology, engineering, and mathematics) fields are the most prevalent disciplines for which full or partial degree scholarships are granted.[26] The OECD (2016b) presents similar data, confirming that more than half of international doctoral researchers are enrolled in science, engineering, or agriculture programmes, as compared to most international students at the bachelor or master's levels, who study social sciences, including humanities.

Share of international or foreign student enrolments as a percentage of total in three broad fields of education

Master's or equivalent level
(944 062 international students)

51%
30% 20%

Doctoral or equivalent level
(330 467 international students)

29%
59%
12%

■ Education, health and welfare, and services   ■ Science, engineering or agriculture   ■ Social sciences and humanities

Notes:
For Canada, the academic year of reference is 2011/12.
For the Czech Republic, Israel, Italy, Korea and Turkey, data for foreign students are used instead of international students.

Research and study experiences abroad are instrumental in helping researchers become more independent, flexible, and open-minded. The European Commission has conducted an Erasmus Impact Study, which demonstrated the extent to which students' participation in the Erasmus programme enhanced their employability. In particular, their international experience strengthened highly valued professional skills, such as problem-solving and adaptability, equipped with which graduates fare better on the job market.

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25   Morgan (2016).
26   British Council and DAAD (2014), pp. 55-56. The report discusses findings from the following countries: Brazil, China, Egypt, India, Indonesia, Kazakhstan, Mexico, Pakistan, Russia, Saudi Arabia, and Vietnam.

While exchange programmes and opportunities for international research cooperation, such as those facilitated by the Erasmus or Marie Curie programmes, clearly add value, including a compulsory mobility aspect within a PhD programme cannot as such be said to constitute good practice. For certain disciplines mobility is an integral part of what they do, when field work is required, for example. However, this is not the case in all disciplines where for instance proximity to a national archive may be more important. Caring responsibilities or other duties also mean that academic mobility should be voluntary and flexible. Indeed, a high degree of flexibility is desirable with regard to the length, funding, and potential credit transfer of doctoral research periods abroad.

> **Janette Ryan, Director of the UK Higher Education Academy's Teaching International Students Project, on the Supervision of International PhD Researchers:**
>
> Supervisors can misinterpret [international doctoral students'] lack of English language proficiency as lack of ability; their initial lack of sophisticated language as lack of intellect; their quest to find the 'correct' answer dependent learning rather than an active process to find out what is expected of them; their reluctance to question as lacking criticality rather than modesty or respect for their supervisor; and their relative silence in supervision meetings as lack of connection with ideas rather than internal engagement. […] Recognition of these issues by the supervisor can be a catalyst for engagement in mutual learning which can be more productive for the supervisor and the student. Supervisors can help international doctoral students to not just 'bridge the gap' but to meet on the bridge.
>
> See: Ryan (2012), p. 58.

Exchange programmes and similar forms of mobility during a PhD programme represent an important form of European and international mobility. There are still countries in Europe which seem self-sufficient and do not see the benefits of international collaboration. Mobility is thus of particular value for countries or disciplines where PhD education still is strongly linked to one country and its academic environment. In such a context, exchange opportunities during the PhD programme will operate as the main source of European and international influences. When looking at PhD education in Europe as a whole, however, it must be noted that the scenario of mobility through exchange visits during the PhD programme is only one of the forms in which mobility occurs: PhD programmes themselves have become largely international or European, and not only when organised at a predominantly international environment (such as the EUI) but also at many national universities. PhD students exercise their mobility by moving to another country for the whole duration of their PhD studies, and often a large part of PhD students at a national university are non-nationals of the country concerned, having exercised mobility for the purpose of conducting their PhD studies, or earlier. Some European countries have redefined their doctoral programmes by introducing a special form of recognition for programmes that contain a high degree of internationalisation, such the "Doctorate with International Mention" established in Spain.[27] Furthermore, mobility and its beneficial effects need to be addressed by looking at the emerging careers of young researchers: They may exercise mobility during the PhD phase, but may also have done so in the course of their master's studies or will do so at the postdoctoral phase or when entering the labour market.

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27   The international mention for the doctoral diploma is regulated by the Royal decree 99/2011, art. 15 (2011), which stipulates that the doctoral candidate has completed a minimum stay of three months abroad and written part of the thesis in a language different from any of the official languages in Spain. In addition, at least two academic experts from research institutions outside Spain need to submit a report on the doctoral thesis and at least one expert must be a member of the thesis examination board.

Since the main objective of international research and researcher training collaboration between universities is to increase research quality, hosting institutions need to provide adequate structures and resources, such as full access to the library and appropriate supervision for doctoral researchers from abroad. While it is important that universities have the necessary logistical capacity to manage and administer diverse forms of mobility of researchers, it is vital also to involve faculty members in the development of international collaboration with a view to fostering institutional arrangements.[28]

One inherent key challenge in academic mobility and the internationalisation of doctoral education is not just cultural (see e.g. information box above), but also linguistic diversity. Generally, institutions can guarantee their competitive edge if they foster an inclusive culture of plurality and in this context offering sufficient language support is essential. In order not to feel disempowered, non-native English speakers need access to resources and training, often including support in using a language for academic purposes or instruction in the construction of arguments and critique in other cultures. It is good practice that supervisors and language specialists actively encourage their supervisees to write in such a way that will allow them to publish with success, which mostly translates into publishing in English. A need of collaboration beyond national borders makes linguistic abilities all the more valuable, which means that monolingual pedagogies will not always represent the best solution. It may prove useful to address doctoral candidates' linguistic competences at the admission stage of a doctoral programme.

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28   See also Stohl (2007): p. 360.

7.
Funding

FUNDING is one of the most critical and fundamental elements of the infrastructure for doctoral programmes, be they organised at national level, within one university, or otherwise. When seeking to identify good practice in doctoral education, it is important to distinguish between two equally important types of funding: the funding of individual PhD candidates (the micro level) and the funding of PhD programmes (the macro level). While some doctoral candidates are willing to finance their own studies, this is not an adequate or sufficient expectation on which the launching of a doctoral programme can be based. Funding is needed for running a doctoral programme, and in fully funded programmes also as scholarships or salaries to the participants. Even where most participants are paying tuition, some funding is usually offered as scholarships to those doctoral researchers who will need it. The funding should be both sustainable and sufficiently attractive in order not to discourage talented individuals, including those from low income groups, from contemplating a future academic career. Data from the 2002/03 Graduate Education Survey sheds some light on the relative importance of financial support when graduate students choose a doctoral programme. The survey asked over 10,000 US students to rank the following five factors:

- Opportunity to work with particular faculty member
- Reputation of the university or department
- Financial support offered by the university or department
- Location of the university
- Programme characteristics

The majority of respondents cited the reputation of the university or department as the most influential factor in their choice of a specific PhD programme, while financial support and the opportunity to work with a particular scholar also were among the top three determining factors.[29] While PhD candidates in Europe are usually not equally burdened by graduate school debt, their motivations in choosing a programme may not be very dissimilar. Fully-funded doctoral training does not only represent the ideal option from the researcher's point of view, but funded PhDs also mean a recognition of doctoral research as professional work and thus a greater valorisation of the doctoral degree.

On the macro level of PhD programme funding, there are different national and European-level schemes of funding. In most countries, funding for PhD programmes is not kept separate from the funding of universities. In some countries, however, universities can apply for additional earmarked public funds to establish PhD schools that may operate within a university or represent collaboration with other universities, with special funding available for the coordinating university. Externally funded research projects may provide opportunities of employing PhD researchers in research projects. A number of countries also make separate funding

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29   Ehrenberg, Zuckerman, Groen, and Brucker (2010), pp. 31, 115.

available for enriching PhD programmes with qualities that otherwise might be neglected. For example in the United Kingdom, the ESRC provides funds for inter-disciplinary training and requires all accredited institutions in the UK to open up some of their advanced training courses to students from other institutions. This allows resources to be shared across research active institutions. In the EU, the Marie Skłodowska-Curie actions (MSCA) constitute the major pre- and post-doctoral fellowship programme across all disciplines, fostering transnational, interdisciplinary, and cross-sectoral mobility. In the period to 2020, it will finance 25,000 PhD researchers.[30]

The sustainability of doctoral research funding can be a challenge in times of economic deficits. The financial crisis has made itself felt, in some countries quite strongly, in the field of higher education. Even Nordic countries, which are widely reputed for their excellence in education, are faced with considerable austerity measures. In Finland, for example, Prime Minister Juha Sipilä announced in 2015 that basic university funding would be cut by around 500 million euro during the four-year term of his government. The funding cuts introduced by the current and previous two governments have already had an impact on Finland's 15 universities and 26 polytechnics, where 5,200 posts have disappeared since 2012. Funding for bottom-up research by the Academy of Finland (equivalent to a national research council) has likewise dropped, namely by 16 per cent over five years, while applications have increased by 43 per cent. In Iceland, as a result of the economic crisis, universities also had to face government budget cuts of 20 per cent combined with a 20 per cent increase in the number of student enrolment. Nordic university leaders are unanimous in their insistence on investing in education and research, because this will ensure future prosperity of the nation. Jukka Kola, rector of the University of Helsinki, stresses, "For a small-population, export-reliant country, there are no other choices. We have only 5.5 million people. We don't have any big natural resources, so it's [about] education, knowledge, research [and] innovation."[31]

> ### Doctoral Education and Economic Growth
>
> It is not uncommon for governments to refer explicitly to a relationship between doctoral awards made and economic growth. […] Brazil, India and Thailand talk explicitly about expenditure on doctoral education and their economy. Canada, Denmark and Finland list it as an objective. South Africa states that in the context of the policy objective of increasing spending on research and development from 0.7 to 1% of GDP, there is a need to increase spending on doctoral education by 3 or 4 times.
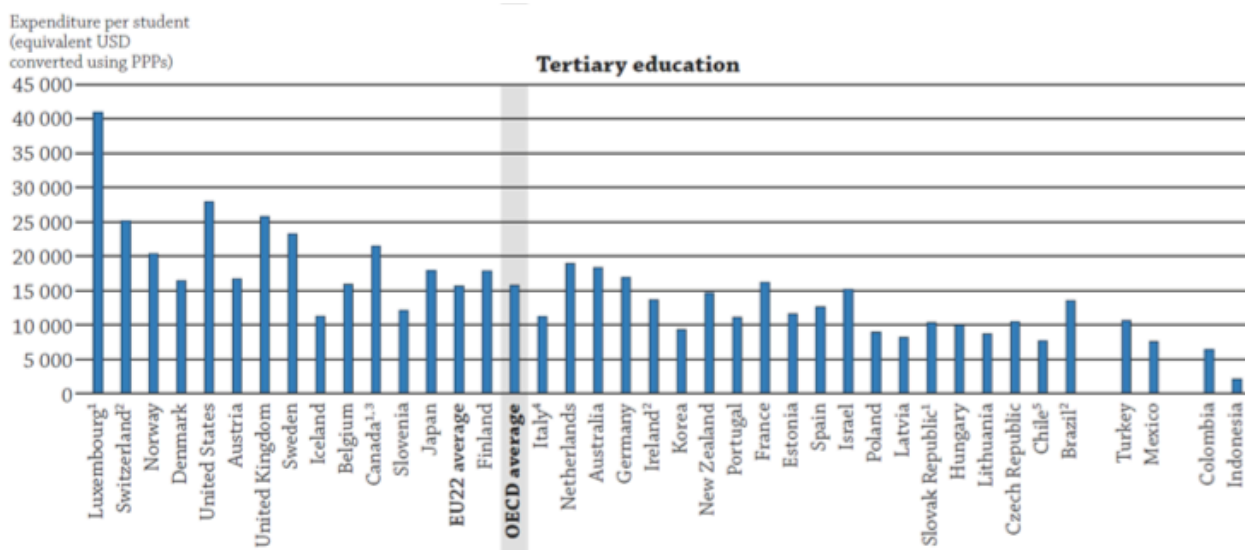>
> See Eggins (2008), p. 3.

Governments have not collected data specifically with regard to the annual spending on doctoral education. A 2007 EUA publication cites the figure of 374.8 million euro per year as indicated by France as the most comprehensive expenditure, comprising the financial support of doctoral candidates, doctoral schools as well as supervision and international co-supervision costs.[32] The OECD has published aggregated data of annual tertiary education spending per student (see fig. below); corresponding data on PhD programmes only is not available. According to the OECD, expenditure per student on R&D accounts for over a third of the total expenditure per student on average. In Denmark, Sweden, and Switzerland R&D accounts for over half of the total budget at tertiary level. In countries with lower spending on R&D a significant proportion of research activities may be performed in non-academic environments.[33]

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30 EC (2017).
31 Bothwell (2016 and 2017).
32 EUA (2007), p. 33.
33 OECD (2016a), p. 184.

Expenditure per student
(equivalent USD
converted using PPPs)

Tertiary education

1. Public institutions only for tertiary level.

2. Public institutions only.

3. Year of reference 2012.

4. Public institutions only except in tertiary education. Primary to tertiary education excludes post-secondary non-tertiary education.

5. Year of reference 2014.

Countries are ranked in descending order of expenditure by educational institutions per student in primary education.

Source: OECD. Table B1.1. See Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

Sometimes voices are heard according to which PhD degrees would be "free" at a regular university, as PhD researchers largely organise their own work and for professors their supervision is just an add-on activity. This report has contested such perceptions and called for the full recognition of PhD supervision and training as highly qualified work by professors and other academics involved in it, in many cases with direct budgetary consequences for the university where the funding of universities is directly or indirectly based on the number of PhD students or PhD graduates. For any university, a PhD degree has a cost that in principle can be calculated. At the EUI there has been some discussion about how to calculate the financial cost of a PhD degree in social sciences. The following cost model was presented to the Task Force by EUI economics professor Andrea Ichino:

A tentative method to compute the cost of producing a PHD

In order to compute the cost of producing a PhD graduate in a given educational institution we first have to decide which concept of *cost* should be used. The concept that seems most appropriate is that of "operating cost" computed from the perspective of the institution that provides the funding for the program and thus covers all costs. This can be written as:

$$C = \frac{\text{sum of all the expenses sustained for a cohort of PhD students}}{\text{number of students in the cohort that obtain a PhD}}$$

Note that this is the cost that a different institution would have to cover if it wanted to replicate exactly the PhD program under consideration.

More precisely, consider a cohort of students starting the PhD in some given year 0 and define the following parameters (yearly averages, are computed over the tenure of the reference cohort):

- T is the average number of years to complete a PhD

- T' is the number of cohorts enrolled contemporaneously in a given year and thus financed by the yearly budget.

- W is the average yearly wage bill of all the personnel (professors, administrators, etc.) working (part- or full-time) in the program.

- G is the average yearly functioning cost of all the inputs that are partially or fully used to run the PHD program.

- B is the average yearly sum of the fellowships paid to students in the program.

- N is the number of students in the reference cohort that complete the PhD.

- ρ is the fraction of total expenditures that goes into research, which can be approximated as the fraction of time that professors dedicate to research.

- u is the fraction of total expenditures that goes into undergraduate or post-doc programs (if present), which can be approximated as the fraction of time that professors spend for other programs.

- q is a parameter normalised to take values between 0 and 1, that defines the quality of a PhD graduate. Such a parameter is obviously problematic, but could in principle be constructed using information on alumni collected on the internet.

Then, the formula can be written as

$$C = \frac{T\left[(W + G)(1 - \rho - u) + B\right]}{T'Nq}$$

were all the quantities on the right hand side should be measurable with standard data available for any PhD program.

Across Europe there are substantial disparities in funding arrangements, and the sources for financing PhD education are diverse and diversifying, but mostly come from universities, government, or industry. As in many other areas of higher education, there is no one-size-fits-all solution for funding. However, the case of charging tuition fees and providing no financial assistance at all is at the very low end of the scale between bad and good practice. Researchers deserve proper remuneration, health insurance, as well as retirement and social security benefits right from the very beginning of their career, i.e. the PhD phase. If PhD candidates receive a salary, there, however, is a caveat concerning their status as employees, because in a standard hierarchical labour contract a manager would then have control over their time and thus their creative freedom might suffer. A scholarship-based model, even if less optimal from the perspectives of recognition and social security, has the benefit of symbolising the importance of academic freedom. When labour contracts are used, they will need to reflect the academic nature of the work and secure academic freedom. The European Charter for Researchers and Code of Conduct for the Recruitment of Researchers recognise the role of PhD candidates as early-stage researchers and express a preference for their remuneration through a salary and social security entitlements (cf. text box below).

> ## Funding and Salaries
>
> Employers and/or funders of researchers should ensure that researchers enjoy fair and attractive conditions of funding and/or salaries with adequate and equitable social security provisions (including sickness and parental benefits, pension rights and unemployment benefits) in accordance with existing national legislation and with national or sectoral collective bargaining agreements. This must include researchers at all career stages including early-stage researchers, commensurate with their legal status, performance and level of qualifications and/or responsibilities.
>
> Cf. EC (2005), p. 18.

Alongside fully-funded PhD studies different options need to be considered, such as the possibility of employing doctoral candidates as research or teaching assistants (for a defined maximum, e.g. 5% of total working hours). When teaching duties are assigned, they need to respect that the majority of the PhD candidate's time has to be devoted to her or his own research. This does not negate the importance of teaching practice as a key experience, which is particularly valuable for those who aspire to academic careers.

Additionally, doctoral researchers need to be supported with fieldwork costs, especially in disciplines such as anthropology and international development, where locations can be distant and fieldwork extensive. In some cases research missions will also require researchers to learn a new language. Candidates may further incur expenses associated with equipment such as digital recorders and cameras. We consider it good practice for institutions to make funding available for visiting archives, conducting necessary fieldwork, language training, relevant equipment as well as for attendance at conferences.

There is no doubt that financial insecurity makes it very difficult for academics to deal with the intellectual uncertainty and risk that goes hand in hand with research. It is difficult to ignore the correlation between funding, completion rates, and quality. Funding can come from governments, from foundations or other private donors, or from the academic institutions themselves. Professors or other supervisors often need to be encouraged to procure external grants, which, however, may have the downside of causing distractions from the PhD project if there is then an expectation that the PhD researcher also produces project deliverables
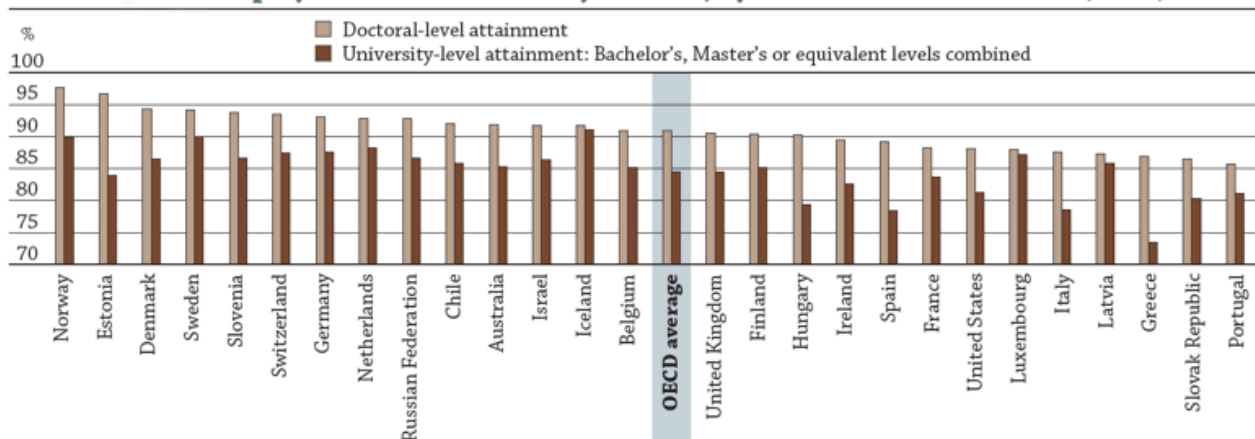
that do not directly benefit the PhD thesis. In addition, teaching can be used to generate funding for the PhD researcher, but everything above a set number of hours ought to be remunerated extra rather than used in the calculation concerning how a PhD researcher is funded. Given that the majority of time during a PhD programme needs to be devoted to one's individual research, additional activities such as teaching need to be organised in such a way so as not to interfere with one's schedule towards the thesis.

8.
The
Job
Market

A good indicator of the quality of PhD programmes is their graduates' success on the JOB MARKET. Doctoral degree holders still fare fairly well on the job market and their unemployment rates remain low. However, the unprecedented surge in the number of doctorates awarded, coupled with the currently difficult economic situation in many European countries, poses a whole new set of challenges. If a career in academia constitutes the primary goal of the great majority of doctoral candidates, then there is a significant mismatch between supply and demand as well as between career expectations of aspirant doctors and the realities of the academic job market. The range of possible career outcomes needs to be validated without disparaging professional opportunities outside academia as a second-rate alternative.

Worldwide, the OECD notes, there is a strong link between educational attainment and economic growth, which also explains why countries, conceiving of themselves as knowledge-based societies, have invested willingly and heavily in (post-)doctoral education in recent years. For instance, Canada allocated CAD 45 million from 2010 to 2015 to establish a competitive postdoctoral programme with a view to attract top-level talent. Australia has also expanded public funding for postgraduate education, doubling the number of postgraduate awards between 2008 and 2012. With a view to doubling the number of PhD graduates, Ireland reorganised PhD education, establishing graduate schools and structured PhD programmes as well as implementing new governance structures and regulations.[34] Investments seem to pay off, as doctoral degree holders benefit from higher employment rates than individuals with other university-level qualifications, on

Employment rates of 25-64 year-olds, by educational attainment (2012)

Doctoral-level attainment
University-level attainment: Bachelor's, Master's or equivalent levels combined

Countries are ranked in descending order of the employment rates of 25-64 year-olds who have attainted the doctoral level.
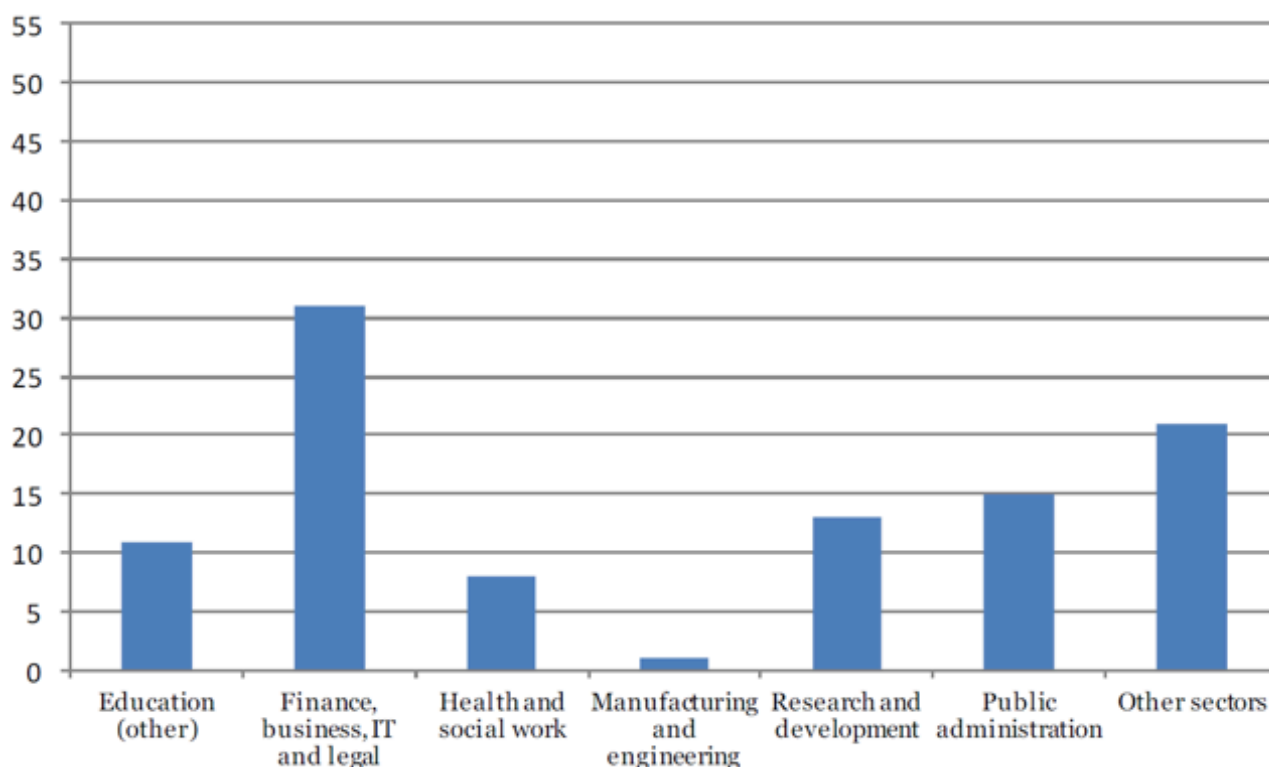**Source:** OECD Education Database.

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34   OECD (2014): p. 1. IUA (2004), p. 20. Strategy for Science, Technology and Innovation, 2006-2013 (2005), pp. 29-30.

average 91% compared with 85% for bachelor and master graduates; in Greece, Spain, Hungary, and Estonia the difference even exceeds 10 percentage points.[35]

Findings from a UK survey on the employment outcomes of graduates underscore not only the greater employability (the unemployment rate was half of that of first degree holders), but also the increased geographical and sectoral mobility of PhD graduates compared to first degree graduates.[36] In social science, more than half of the respondents in a UK survey from 2014 worked in higher education; other employment sectors, excluding higher education, of PhD graduates in social science are displayed in the graph below:[37]

Employment Sector (Social Sciences)

A study from the Netherlands further confirms the labour market advantages of doctoral recipients. In 2009, 1.4% of PhD graduates were unemployed and 3.5% inactive, that is, neither employed nor seeking employment, according to Statistics Netherlands. Unemployment among individuals with advanced research qualifications has received little empirical attention, but data gathered about Dutch PhD graduates in 2008 and 2009 indicates certain common characteristics among job seekers with a doctoral degree. While neither the age, gender, nor quality of the PhD programme seemed to matter, the field of study as well as the academic performance during the PhD trajectory were determining factors. The authors of the study point out, "Doctoral candidates who

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35   These figures are confirmed by a study of the Spanish Ministry of Education, Culture and Sport which cites a general unemployment rate of 26.1% in 2013, compared to 16.2% among BA and MA graduates, and only 5.0% among doctoral graduates (Ministerio de Educación, Cultura y Deporte (2015): p. 116).
36   Raddon and Sung (2009): p. 34.
37   CFE Research (2014): pp. 23, 33.

are unemployed and seeking a job at the time of the defence have a lower number of (co)authored conference papers, articles submitted for publication, and articles accepted for publication."[38] A study from Ireland on PhD graduates working in industry further shows that doctoral degree holders are chosen for more senior positions: 46% of PhDs compared to 29% of other university graduates. It says that employers are interested in PhD graduates because of their skill profiles, which are broader and more diverse than the skill set of the other graduates surveyed.[39]

The academic job market has undergone profound changes in the last few decades and the number of tenured positions has been dropping steadily across different disciplines. For instance, 55% of US doctorates in the biological sciences secured tenure-track positions within six years after graduating compared to only 15% in 2006.[40] Academia cannot possibly absorb all the PhD graduates or all those eager to pursue an academic career. What is more, those who continue on the academic track often find themselves in precarious employment conditions. In collaboration with five organisations the European Science Foundation conducted a pilot study on the careers of PhD graduates, Career Tracking of Doctorate Holders (2015). Over time periods of up to seven years, 880 doctoral recipients were contacted with a response rate of 57%. Findings show that 35% of the respondents were in tenured positions and only 27% of those under 40 years of age had permanent full-time contracts. The study further reveals how job security intersects with both career satisfaction and productivity. Some 62% of temporary contract holders stated that they were "fairly" or "very dissatisfied" with their employment situation compared to 19% of those on permanent contracts.

The high level of uncertainty together with the dissatisfaction, frustration, and stress that temporary or insecure employment entails may bar many talented researchers from opting for an academic career. This problem needs to be recognised and adequately addressed by policymakers.

Another problem is the continuous gender bias in academia. The negative bias towards women, which frequently results in them being rated as less hireable than male candidates, may affect research productivity even long before the hiring process. In a study of nearly 10,000 economics PhD graduates the authors discovered:

> High unemployment rates at the time of entry into graduate school correlate negatively with female PhDs' research productivity and positively with male PhDs' productivity. […] A possible explanation for this finding might be that men and women react differently in risky situations. This could mean that rather more talented female candidates choose not to apply for graduate education during times of high unemployment, or alternatively more talented female graduates do not choose a research-active career after graduate education and opt for possibly more secure (and yet very well paying) jobs outside academia.

Scholars from Cornell University have identified a number of other factors which put women *de facto* at a disadvantage inside academia. Not only student evaluations, but also letters of recommendation are negatively biased against women, the latter mostly emphasising the wrong skills and attributes, by employing such qualities as "helpful" and "kind" instead of "confident" and "ambitious." Research confirms that "women are seen as competent *or* likable, but not both." Hiring staff and faculty need to be aware and might benefit from training to help eliminate implicit or explicit sexism in academia.

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38   Yerkes, van de Schoot, and Sonneveld (2012b): pp. 162-63.
39   O'Brien (2015).
40   Phillips and Heywood-Roos (2015).

As far as good practice in terms of labour market preparation is concerned, universities and doctoral schools ensure appropriate mentoring and orienting. Often universities have their own career service and career adviser(s). They collect and disseminate relevant job market information and inform their doctoral candidates on the diverse careers within and beyond academia. The supervisor may also be a point of contact and offer valuable advice. However, supervisors may not necessarily be the most competent individuals in providing up-to-date information on the range of professional opportunities. There is a shared responsibility to inform as well as to help doctoral researchers enhance their career prospects. It is vital, however, that PhD graduates who choose non-academic employment are not regarded as failures, especially not by their supervisor(s).

The PhD has developed into something more than an apprenticeship to research. Nowadays the increasing complexity of societal and economic problems demands an increasingly complex set of skills. A PhD programme does not aim at making up for a poor master-level education, but in many cases an MA may simply not offer enough preparation. Doctoral researchers learn how to handle today's information overload, they know how to develop and apply theories and methodologies, and, very importantly, they are equipped with excellent writing and research skills. Within EU institutions, international organisations and national governments there are already many senior, expert or research positions where a PhD degree is a required qualification or at least a recognised asset when applying for the job. Perhaps in the future a PhD degree becomes more broadly the required qualification and entry point for advanced level expert jobs, for example in policymaking in international organisations or EU agencies.

Conclusions

The following compilation of bullet points consolidates the various forms of good practice that have been identified as such by the Task Force in the earlier chapters. The points cover each of the eight baskets of this report and are arranged by addressee, that is, according to their relevance to policymakers, university administrators, and university departments and their academics.

Good practice points of relevance to policymakers:

The Thesis

- There is continuous exchange and dialogue about good practice, both on a local and supra-national level.

Supervision

- Supervision is fully recognised as professors' work and their other duties are adjusted in proportion to the supervisory load allocated by the university.

Coursework

- Structured doctoral programmes include both a research and a taught phase, which in most cases will in practice overlap.

Academic and Professional Components

- Doctoral education focuses on academic skills, especially excellent writing and research skills, and thereby provides a solid foundation upon which additional professional skills training can be built.

Technology

- Digital learning, distance supervision, or online classroom discussion are used as a supplement and not a substitute for face-to-face interaction.

Mobility and Internationalisation

- The added value of exposure to different (academic) cultures, ways of thinking, and an international student body is recognised.
- The main aim of exchange programmes and partnerships at the doctoral level is to increase research quality.
- Mobility is not made into a compulsory aspect of any doctoral programme.

Funding

- Funding for doctoral candidates covers the entire duration of the programme.
- Financial support can take various forms, but it is appropriate and sufficient in recognition of doctoral training as professional work.
- Financial support includes social security benefits.
- Additional work, such as teaching activities, is remunerated separately, while recognising that acquiring teaching experience and teaching skills often is a key experience during PhD studies for those who will pursue an academic career.

The Job Market

- Doctoral training is recognised as work experience.

Good practice points of relevance to university administrators:

The Thesis

- A good programme is not overloaded, but allows for autonomy and flexibility; 75% of a PhD programme are entirely devoted to the thesis. Flexibility is vital, especially in the first year when doctoral candidates refine their research plan in collaboration with their supervisor(s).
- Part-time options are offered for PhD candidates who need them, such as those with caring responsibilities.
- Faculties/Departments provide written guidelines of the qualities of a good or excellent doctoral thesis.
- Transparent and fair selection procedures are in place. The submission of a research plan is a threshold condition for admission.
- Rigorous, systematic, and repeated quality control checks are carried out from early on, both in written and oral form.
- Grading systems take into account local/national job market conventions and expectations where a high grade or a distinction may be relied on as proof of academic excellence.

Supervision

- Universities are committed to doctoral education and ensure that every PhD candidate has at least one supervisor who is a full-time senior academic at that university.
- Universities or departments provide a code of good practice in PhD supervision.
- Supervision is fully recognised as work and the supervisors' other duties are adjusted in proportion to the supervisory load allocated by the university.
- Annual supervision surveys and reports monitor the quality of supervision.
- Supervisors have access to optional, regular training.

Coursework

- 75 % of a (four-year) doctoral programme are devoted to the individual research project, while the remaining 25 % are used for other training.
- Possibilities for teaching and teacher training are provided, but obligatory participation is not required.
- On successful completion of the coursework component, researchers receive some kind of certification or can produce a skills portfolio.

Academic and Professional Components

- Formal skills training is offered in various formats, from which researchers can choose themselves.

Technology

- PhD programmes offer digital literacy training.
- Academic staff members are trained to stay informed on developments in ICT.
- Universities weigh costs and benefits before acquiring and implementing new tools.

Mobility and Internationalisation

- Institutions provide sufficient structures and resources to facilitate mobility.
- PhD programmes organise mobility schemes in a flexible way and support individually organised research stays abroad.
- Institutions offer adequate language support and training for international researchers.

Funding

- Additional work, such as teaching activities, is remunerated separately, while recognising that acquiring teaching experience and teaching skills often is a key experience during PhD studies for those who will pursue an academic career.

The Job Market

- Universities have a career service and/or career adviser. They gather and disseminate relevant information on professional opportunities.
- Universities maintain contact with their alumni and keep track of their careers.

Good practice points of relevance to university departments and their academics:

The Thesis

- The doctoral thesis remains the core aspect of doctoral education, constituting an original contribution to the field(s) of research and hence to knowledge. It incorporates a methodological approach and scholarly integrity.
- The doctoral candidate is the first main author of a monographic thesis (of usually no more than 100,000 words) or of, at the very least, one article of a cumulative thesis.
- Rigorous, systematic, and repeated quality control checks are carried out from early on, both in written and oral form.
- Doctoral candidates present their research on an annual basis.
- The public thesis defence fulfils a final quality assurance purpose and provides opportunity for further debate.
- The supervisor(s) can be members of the jury, which also includes an independent chair, but without a vote.

Supervision

- The supervisor(s) and the supervisee agree of a written memorandum of understanding to decide on the nature of the supervisory relationship, including mutual expectations and the frequency of meetings.
- Supervisors provide constructive feedback on written work and overall academic performance
- Supervisors also advise on learning needs, on how to integrate into the international scientific community, and on professional opportunities.

Coursework

- Good doctoral programmes offer methodological, subject-specific, and skills/professional development training as mandatory or optional elements.
- The course design and assessment procedures allow for a high degree of flexibility and diversity.
- The format, scope, and sequencing of coursework are organised in a flexible way. Training can also include non-course-based activities, such as internships.
- Training is partly compulsory and partly optional, tailored to the specific needs of doctoral candidates. When possible, courses are offered at the PhD level by senior faculty members.

Academic and Professional Components

- Academics communicate with self-confidence the whole set of skills acquired in the course of a PhD programme.
- Doctoral candidates are given opportunities to review, evaluate, and promote their professional development.

Technology

- Instructors communicate the potential for collaboration, networking, and public engagement as well as the risks of online tools.
- Researchers are advised on issues related to copyright and plagiarism.
- The varying social media profiles and all levels of privacy concerns amongst PhD researchers are taken into account when offering elements of PhD education through social media.

Mobility and Internationalisation

- Academic staff are involved in and actively promote international collaboration and networking.

Funding

- If doctoral candidates have the status of employees, they continue to have control over their working time.

The Job Market

- Supervisor(s) offer appropriate career guidance either themselves or direct doctoral candidates to an institutional career service.

Bibliography

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EP	European Parliament
ESF	European Science Foundation
EUA	European University Association
IUA	Irish Universities Association
LERU	League of European Research Universities
LSE	London School of Economics and Political Science
OECD	Organisation for Economic Co-operation and Development
UiT	University of Tromsø

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