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EUA-CDE-news

EUA Council for Doctoral Education

HOW MANY? WHEN? WHERE?

Data collection for Doctoral Education

This issue of EUA-CDE News is dedicated to the subject of data collection. This is, in many ways, a central topic to the whole discussion on establishing structured doctoral education and taking institution responsibility. In order for institutions to take responsibility for their doctoral schools and programmes, it is necessary to have some basic knowledge about the doctoral candidates to begin with. First of all we must be able to spot problems or places where the quality needs to be enhanced, but also be able to demonstrate in an accountable manner that the outcomes, which the institution is aiming at, are being realised and strategies implemented. The questions are really very basic ones: are doctoral candidates finishing within a reasonable time? Does the institution allocate enough resources, and is there enough capacity in terms of supervisors or infrastructure to assure that all doctoral candidates receive high quality training?

Monitoring programmes requires fundamental knowledge on how many doctoral candidates there are at the institution, and that is harder to monitor than it sounds. Admissions procedures are often complex: doctoral candidates may enter through an individual agreement with a supervisor, through an established programme or through an externally funded project. In some systems, doctoral candidates work as academic staff and hand in the thesis at some point in order to move on in the system. In many places, doctoral schools only cover a part of doctoral candidates, while the rest have different kinds of affiliation with the university. The question "how many doctoral candidates are there in Europe?" cannot be answered with certainty. We only know for certain that about 100,000 persons receive a doctorate in the EU every year[1], because that is the point where they will definitely appear on any institutional 'radar' and thus in national statistics.

As always, the situation in Europe is diverse. Some countries have very precise numbers. We have an example of the national data collection system in Norway, which demonstrates what can be done through co-operation across the sector. We also have an example of what can be done within an institution in Germany, a system with a long tradition of multiple entries and highly individual recruitment. These examples show that things are developing in this area, and that institutions are interested in acquiring tools to enable them to take more responsibility.

Ultimately, data collection is not about the ability to count, but about detecting problems as well as signs of success. Following on from these crucial goals is undoubtedly the less technical and more fundamental discussion about indicators: how can the things we are counting better inform our work? This issue of the EUA-CDE News contains an article which elaborates on the subject of Time to Degree and rightly emphasises the nuances and limits of indicators. Many of the things we wish to achieve are difficult to quantify, academic excellence is an evident example, and there is (as one of the speakers at the EUA-CDE workshop, 'Mobility and Collaboration in Doctoral Education – international and inter-sectoral', in January also pointed out) the risk of focusing on what you can count, and forgetting what you wanted to achieve.

For this issue, however, the emphasis is primarily on what we believe to be the first priority of data collection: how many doctoral candidates are there? The further discussion on indicators will very likely be an important part of the ARDE Project, where EUA-CDE is engaging in its own data collection exercise through the survey sent to the EUA-CDE contact persons in February. The results from this survey will form the basis for a series of focus group meetings on accountability to be held in the autumn of 2011 and spring of 2012.

We hope that you will be inspired by the informative examples in the articles, and that it will be the first step in a longer, very important discussion.

[1] Eurostat (2007), Doctorate Holders, Statistics in Focus 131/2007 (2004 figures): http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-07-131/EN/KS-SF-07-131-EN.PDF

CENTRAL REGISTRATION OF DOCTORAL CANDIDATES – THE CASE OF NORWAY

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In 2009, more than 8000 candidates (including candidates on part-time contracts) were enrolled in a Norwegian PhD programme, about 1400 new candidates were admitted and 1148 finished their doctoral degree. Out of the 1148 candidates who finished their degree, 1127 doctorate holders were awarded a degree from a university or specialised university, while 21 were awarded from an accredited university college. These are the official figures from the national Database Information on Research and Higher Education (DBH)[2] in Norway.

The national database

The database DBH is a part of the Norwegian Social Science Data Services (NSD), which is one of the largest archives for research data of its kind and provides data for researchers and students in Norway and abroad. NSD is a Limited Company owned by the Ministry of Education and Research. NSD's data holdings provide information about the society at different levels. DBH, which is one of NSD's four categories of data, contains information about organisation, subjects, students, employees, finances and research production for all universities and university colleges in Norway.

The data in DBH is imported from each institution's own registry systems. The most common system is the Joint student system (FS)[3], which currently is used by nine universities, nine specialised universities and seven PhD awarding university colleges. FS is a computer system for administration of studies developed for universities and university colleges in Norway. The system includes all students and doctoral candidates at each institution.

Institutional databases

FS was developed at the University of Oslo, on commission from a coordinating committee consisting of managing directors from universities, specialised universities and university colleges. The work was led by a steering committee and a project group where all the member institutions were represented. Local reference groups worked within all institutions and made important contributions to the development.

FS was first specified in 1995 and the first version was developed in 1996. FS is currently in full production at almost every Norwegian university and university college with the right to award doctoral degrees. The Ministry of Education, Research and Church Affairs financed the initial development of FS. Today the maintenance and further development of FS is financed by the institutions using the system. All publicly financed educational institutions that want to use FS as their data system for administration of studies are granted access. An independent, cooperative body formally owns the system, and buys services from the member institutions that have high level competence on information technology systems and services.

FS consists of a series of modules giving the most important types of information about the candidates, such as personal background, admission data, national and international collaborating partners in the doctoral project, appointed supervisors, funding (type, source and employer), coursework, leaves of absence, mobility stays, progress reports, thesis title and type, commission members, the commission's evaluation, information about the trial lecture and the disputation, awarded degree and diploma information. The diploma can be produced directly from FS as can an extensive range of different reports and statistics. Information from FS represents an important steering and decision-making tool for the institutions and other stakeholders and is also the basis for a yearly report to the Ministry of Higher Education and Research. For the institutions' executive officers FS is indispensible as a tool for administration of the PhD studies.

Information from FS is exported twice a year into NSD which holds and disseminates data on a broad range of topics relevant for the sector of higher education and research. Access to the information is open, and allows for the design of a wide range of statistics and tables.

A subsystem of FS is the StudentWeb, an application which allows PhD candidates to update their contact information, do their term registration, register for courses and deliver progress reports. In addition they can find the relevant contact information, rules and regulations concerning their PhD studies. They can also check other information registered about them in FS, e.g. period of admission, appointed supervisors, passed coursework and registered leaves of absence. The use of StudentWeb is an important tool for keeping the information in FS updated and provides the PhD candidates with easy access to the information concerning their own studies.

[2] DBH: http://dbh.nsd.uib.no/omdbh/about.action
[3] FS: www.fs.usit.uio.no/om_fs/Aboutfs/aboutfs.html

The development of FS is an example of the good cooperative climate between the higher education institutions and the Ministry of Higher Education and Research in Norway. An open dialogue between the sector and the Ministry has enabled a fruitful combination of top-down and bottom-up processes. FS has now been in production for 15 years, and it has proved to be a well-functioning and useful tool, offering data of high quality and capable of dealing with heavy quantities of data. Further development of the system is however a continually ongoing process.

The Doctoral Degree Register

Data on awarded doctoral degrees in Norway based on FS/NSD are also compiled in the Doctoral Degree Register[4] of the Nordic Institute for Studies in Innovation, Research and Education (NIFU). The register includes everyone who has been awarded a doctoral or licentiate degree at a Norwegian institution since 1817. The data include type of degree (title), at which institution and in which year the degree was awarded, main funding source, the academic field of the dissertation, the educational background of the doctor, citizenship at the time of dissertation, and personal characteristics such as gender and date of birth. The register is updated twice a year based on information supplied by the awarding institutions, primarily by FS. These data are used for statistical and scientific purposes only. With the use of FS for administration of studies, the procedures for data collection to the Doctoral Degree Register have become considerably simplified and more accurate. Twice a year NIFU publishes a newsletter (in Norwegian only) with updated statistics. A collection of tables and figures on doctoral awards (also in English) is updated annually.

Research documentation system

Norway is also about to implement a new joint research documentation system, Cristin[5] (Current Research Information System In Norway) which will be used in the higher education sector, by research institutes and the regional health authorities. The Cristin system will provide a common ground for registration and reporting of scientific activities for the institutions and increase the value of research in society by facilitating research from several sectors which will be seen in context. The system will document, present, and provide publicly available quality-assured data in a national database for scientific publications. PhD candidates' publications are to be registered in the Cristin system.

[4] NIFU: www.nifustep.no/English/Pages/STATISTICS/Doctoral%20Degrees/DoctoralDegrees.aspx?ItemId=1856&ListId=8252dfaf-6056-4ccc-b6e1-7806d4dc4878
[5] Cristin: www.cristin.no/as/WebObjects/cristin.woa/1?la=en

DOC-IN – THE ONLINE ADMINISTRATION TOOL FOR DOCTORAL CANDIDATES AND DOCTORAL PROCEDURES

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Log in to Doc-in! – A short history

The Graduate Academy (GA) of Friedrich Schiller University (FSU) in Jena, Germany, was established in 2006 with the task of maximising the research, working and qualification conditions of doctoral candidates and young researchers. In order to have a base on which to develop ideas and plans, GA first examined a range of information about the existing situation of doctoral candidates. However, there was no reliable data on the university's doctoral candidates amongst other things; their current numbers, the time taken to obtain a doctorate, success rates or membership in graduate schools or programmes. It also emerged that this lack of information was typical of all German universities.

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One reason for this data gap is that the doctoral candidates' formal connection with their university can vary considerably, and thus is registered in different administration systems according to the form it takes. In

fact, doctoral candidates are either employees at a university or a non-university research institute, enrolled as PhD students or doing their PhD while working outside university. Thus, the challenge was to create a new electronic data management system to combine these available sets of data with their different structure.

Secondly and most importantly, there were no legislative regulations on compulsory registration as a doctoral candidate, particularly at the start of doctoral studies.

A third data obstacle was the differentiation of the data sets within the faculties. This is because, at most German universities, candidates obtain the PhD within a faculty, meaning that they are registered not at university level, but at faculty level. Even where there are university-wide framework regulations for doctorates, it is still the appropriate faculty which is responsible for accepting, registering and reporting on progress on their candidates.

As a result, data on doctoral candidates had to be collected by comparing lists compiled either centrally or non-centrally (by faculties, professors, the Department for Human Resources, the Department for Academic Affairs, the International Office, etc.). It can be thus said, without fear of contradiction that, due to the lack of clarity, no statistically valid conclusions were possible about the PhD process. Applicable indicators related to the process, for example about the time-to-degree or dropout rates. Hence, it was status report snapshots at a specific point in time only. This method of analysing is certainly very costly and labour-intensive for the university administration.

With this in mind, we were convinced we needed to take account of the existing situation in order to improve the conditions in which doctoral candidates do their research and gain their qualifications. According to the principles of an evidence-based policy, valid information about the individual and institutional conditions for research and qualification form the essential prerequisite for planning and implementing measures to improve such conditions. This information is also necessary in order to evaluate the success of the steps taken.

Consequently, the Graduate Academy of FSU Jena decided to plug this information gap by introducing a university-wide bilingual online administration system. The doc-in software was developed and implemented in a project supported by the State of Thuringia and the Stifterverband für die deutsche Wissenschaft (joint German industry initiative for promoting science and higher education). The outcome is a newly elaborated system that provides the infrastructure for recording all the data relating to the PhD process, from the application for admission to a faculty through to the successful thesis defence and completion of the doctoral procedure. This makes available basic information such as the number of doctoral candidates at university, distributions according to sex, age and subject, the time-to-degree, success rates, funding of doctoral candidates, and the time taken by the formal PhD procedures. The system also provides a sound basis for extensive analysis of the process of gaining a PhD as well as the individual and institutional conditions under which a doctorate is obtained. Moreover, the records of contact details created allows for the participation of doctoral candidates in internal and external surveys, such as the ProFile – Doctoral Candidates Panel of the Bonn Institute for Research Information and Quality Assurance (iFQ), in which the FSU Jena is currently involved.

Furthermore, the system was also intended to reduce the burden of bureaucracy on doctoral candidates and to automate and simplify administrative processes relating to PhDs.

Three significant challenges had to be met in the process of developing and implementing doc-in:

1) The comprehensive representation of the workflow and conversion of this into a software program

2) Implementation that incorporated the administrative units involved

3) The rapid and comprehensive registration of doctoral candidates in doc-in.

1) The software program

The software to be developed had to be capable of representing the complex work flow of an entire PhD lifecycle. To achieve this, the work flow itself first had to be described and all the administrative units that deal with parts of the PhD study process or with doctoral candidates had to be consulted about their roles. At FSU Jena these were: the offices of all 10 faculties, the Department for Academic Affairs, the International Office, the Department for Human Resources, the library, the Office for University Statistics, the Association for Student Affairs (Studentenwerk) and the University Archive. At the same time, *doc-in* needed to be reliably integrated into the environment of the university's existing IT structure.

Doc-in was installed as an electronic data sheet. Students wishing to do a PhD open this and first put in their personal details. They use doc-in to apply through an Internet portal for admission into a faculty and enrolment, if desired. Registration is carried out using the central metadirectory of the university's IT Centre, to ensure a clear and unambiguous classification of all doctoral candidates and to rule out duplicated entries in the database.

During the course of the PhD process, the administrative units involved update the information and the data sheet is gradually filled in. Once a student has gained a PhD, the data are handed over to the university's archive as an anonymous set of data for scientific and evaluation analyses, as well as a set of contact details for alumni purposes. The process is completed using a rights allocation system certified by the University's Data Protection Officer. This system allocates to the institutions involved read and write permissions for precisely defined classes of information.

In this way, the following administrative procedures are carried out directly through doc-in or through appropriate interfaces:

- Acceptance for admission of doctoral candidates by a faculty
- Enrolment as PhD student
- Carrying out the formal doctoral examination procedures
- Archiving
- Statistical evaluation.

Extensions can be envisaged, such as an applications module, a module for recording performance within the study programme of doctoral programmes and Graduate Schools and a Post-Doc module.

2) The implementation

The doc-in system was developed and implemented with the close cooperation of the Graduate Academy and the Chief Information Officer. The actual development and implementation was contracted out to an external software company. The entire process, from the initial idea to operation, took more than two and a half years. One reason for the length of the task is that all institutions involved with PhD studies or with doctoral candidates, and their staff, took part in an extensive process of consultation and agreement. However, this was essential to ensure a high degree of compliance in the use of the software. Naturally, it was necessary to overcome not inconsiderable doubts regarding innovation as well as a reluctance to change familiar habits. Time and patience are needed. Operational tests were followed by the training of users and the instruction of the employee responsible for First Level Support. This support has been located at GA, as the central management and monitoring institution for PhD studies at FSU Jena.

3) How to get the PhD candidates on board

When it comes to translating the theory into practice, the essential prerequisite for a reliable database was the registration of, if possible, all doctoral candidates of FSU in doc-in. As at the outset only some groups of doctoral candidates were known, an unidentified number of candidates needed to be encouraged to register. This was supported by two measures: 1) amendment of the Framework Doctoral Examination Regulations and introduction of compulsory registration of all PhD candidates at the start of PhD studies, and 2) acceleration of the process by means of a time-limited incentive scheme. For the latter measure, a specially designed campus card for doctoral candidates, with a sum of money on it, was distributed to each candidate who registered within the first six months of the introduction of doc-in.

Doc-in provides the FSU Jena with an online management system that is modern, user friendly, and accessible. It reduces the administrative load on doctoral candidates and on the university, and increases ease and convenience. However, most importantly, doc in provides, at the touch of a button, a statistical analysis of the conditions of PhD studies and PhD examination procedures. Substantial changes came along with doc-in and thus allow capturing comparisons in the PhD environment in which to optimise the conditions under which doctoral candidates do their research and obtain their qualifications.

The new electronic management system has also triggered demand at other universities. Several have inquired about the system and some have even adopted it. This promises to have a great influence on later developments at the university if not all over Germany.

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DATA COLLECTION AND INDICATORS – THE PROOF OF THE PUDDING

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All who are involved in doctoral programmes, whether as doctoral candidates, supervisors, policy makers, financers or employers of doctorate holders, want these programmes to be effective and efficient. Demonstrating whether a doctoral programme meets this aim, however, can be a challenge. How can quantitative indicators help?

It is useful to distinguish between input, process and outcome indicators. The difference is best shown by the proverbial pudding where the ingredients are the input, and the cooking procedure is the process. Often, people pay much attention to defining and quantifying such input and process indicators, but the proof of the pudding is in the eating. The pudding's taste is an outcome indicator. The example also makes clear that outcome indicators are not always easy to measure and quantify.

Outcome indicators are the most relevant for assessing the effectiveness and efficiency of a doctoral programme. Let's look at three outcome indicators and see how they are linked to input and process indicators.

1) **Quality of the thesis** is an outcome indicator based on the first Salzburg Principle, which says that original research is the core component of doctoral training. The only fair way to assess the quality of theses is by peer review, but this often raises questions about quality standards. There is a way out: involve not only national examiners but also foreign ones. Involvement of foreign examiners increases the chance that a thesis will be evaluated to international standards and is, therefore, a useful indicator, not for thesis quality as such, but for the quality assurance process as regards doctoral theses.

2) **Quality of the doctorate holder** is regarded by many as the most important outcome of doctoral training and is often illustrated by the employability of graduates. For employability to be a useful indicator, it is important to consider the demand for doctorate holders on the national job market. If the 'knowledge intensity' of the economy is high, then most doctorate holders will find suitable jobs. If it is low, however, doctorate holders will either have to accept other jobs or find a job abroad. In such a case, careers abroad may say more about the quality of doctorate holders than local careers.

3) **Efficiency of the doctoral programme** (in particular time-to-degree and completion rate) is not only of economic importance but also represents an obligation towards doctoral candidates and society at large. Time-to-degree and completion rate are the easiest quantifiable indicators, but they require clear definition, extensive data collection and accurate analysis. Ideally, all enrolled doctoral candidates are recorded by starting date, date of graduation (or termination) and type of candidate. These data allow to determine the 'graduation curve' for a group of candidates (see figure below). It is important to distinguish between types of candidates, because e.g. part-time candidates need more time, and tend to fail more often, than those who work full time on their thesis. Also it is wise to distinguish between drop-out during the project and termination after completion of the research (all-but-dissertation, ABD) because ABD is the most inefficient way to end a doctoral project.

In conclusion

Outcome indicators are useful and necessary to assess and improve doctoral programmes, but they need investments of time and money in data collection and cannot cover every aspect. For example, the question whether theses meet international quality standards can only be approached by evaluating the thesis evaluation process. The initial outcome indicators used should enable an insight into time-to-degree and completion rate. The next step is to track graduates and their careers. Keeping in contact with graduates not only produces relevant data on employment, but may also turn them into ambassadors for the school – a benefit for both parties.

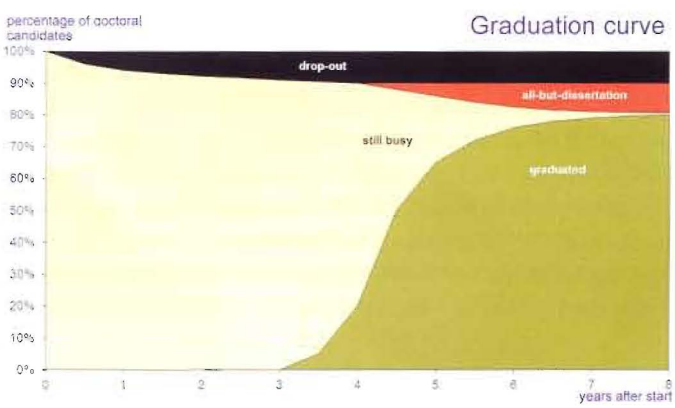

Figure: A hypothetical example of a 'graduation curve' showing time-to-degree and completion rate of a cohort of full-time employed doctoral candidates in the natural sciences. Nominal duration of the programme is four years; 50% of candidates have graduated within 4.5 years. Programme terminations at the top of the graph show how they lower the 'ceiling' of the completion rate, which is 80%.

Mobility and Collaborations in Doctoral Education – EUA-CDE Workshop

On 20-21 January 2011, more than 90 persons from EUA-CDE member institutions gathered at ELTE University in Budapest, Hungary to discuss issues concerning mobility in doctoral education, focussing both on the international and inter-sectoral aspect. The keynote speeches and the papers presented were an impressive demonstration of how much universities are doing to promote mobility through a range of different collaborations with foreign partners and with other sectors. Seven keynote speakers talked about general issues and gave input from different programmes, while EUA-CDE members gave 10 different case studies from their universities. From the presentations and the discussion, two main conclusions emerged:

1) The participants demonstrated that universities are very active in constructing programmes that facilitate mobility between countries and sectors. They have made important experiences with both the inter-institutional challenges of setting up programmes that benefit doctoral candidates and institutions alike. Universities are also aware of brain drain and capacity building issues.

2) Funding remains a major obstacle. There is a critical discrepancy between the available funding and demand both from universities to invest in programmes and for doctoral candidates in financing their mobility. The combination of very low success rates and cumbersome application procedures was seen as a deterrent from using EC-funded mobility instruments in particular.

Eötvös Loránd University (ELTE), Hungary

All presentations are available at www.eua.be/fourth-eua-cde-workshop/Presentations
The workshop report can be downloaded at www.eua.be/fourth-eua-cde-workshop/workshop-report

ANNOUNCEMENTS

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This page is open for announcements about events or news from our members. To advertise any activity or news, please write to thomas.jorgensen@eua.be

4th Annual Meeting of EUA-CDE: Promoting Creativity – cultivating the research mindset

9-10 June 2011, hosted by Carlos III University, Madrid, Spain

The 4th Annual Meeting of the EUA Council for Doctoral Education will look at the structures that universities can develop to ensure and promote individual development, creativity and innovation in doctoral education.

The goal of doctoral education is to nurture the innovative research mindset. Achieving this mindset requires the development of a high level of autonomy and critical thinking as well as the ability to think independently and creatively about highly complex issues. This innovative mindset is a precondition for the development of the knowledge society, and universities have a great responsibility to provide the training through research that cultivates the innovative mind.

The aim of this conference is to look at creative ways of providing structured doctoral education that promotes individual autonomy and critical thinking. When is a structure limiting individual development, and when is it promoting it?

These questions will be discussed through keynote speeches, presentations of case studies and panel discussions with representatives from different sectors. Suggestions for contributions can be submitted following the guidelines in the call for papers:
http://www.eua.be/Libraries/CDE_website/Call_for_Papers_4th_Annual_Meeting_of_the_EUA_Council_for_Doctoral_Education.sflb.ashx

Registrations will be open from late March

6th ORPHEUS Conference

Izmir, Turkey, 27-30 April 2011

"PhD Quality Indicators for Biomedicine and Health Sciences"

The 6th Conference of ORPHEUS (Organisation for PhD Education in Biomedicine and Health Sciences in the European System) will be held in Izmir (Turkey), from 27-30 April 2011.

The topic of the Izmir Conference is **"PhD Quality Indicators for Biomedicine and Health Sciences"**. Experts from major European and world organisations and institutions working on PhD education in biomedicine and health sciences and the measurement and assessment of its quality, will provide information, discussion panels, and workshops to work on "ORPHEUS PhD Quality Indicators in Biomedicine and Health Sciences". The outcome of this interactive activity, the Consensus document, should not only support the decision makers in making innovations easier in their home institutions, but also guide supervisors, academicians, researchers, PhD students, and all other stakeholders in their mutual, high-priority task of PhD training.

All members of EUA-CDE are invited to participate in the conference and share their experiences with the many others in the field who will be attending. More information is available on the web page (www.orpheus2011izmir.org).

For administrative questions, please contact Mr. Pavel Jezek (pavel.jezek97@gmail.com) or one of the people listed below. Information about ORPHEUS can be found on www.orpheus-med.org, where the consensus documents from previous conferences are available.

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