Report from the National association of doctoral organizations in Norway, SiN
EURODOC 2004, 18th. -21st. March 2004, Athens, Greece

A. An overview of the current Norwegian PhD system

The Norwegian PhD system was reformed during 2003, as a part of a major educational system reform in Norwegian universities and colleges according to the implementation of the Bologna process. The major change is the implementation of the a uniform PhD degree as the highest academic title given in Norway. This replaces an earlier system where many doctoral titles were used according to the field of the work. A Norwegian PhD degree corresponds to 3 years of full time work. At the end of this period, the candidate submits a thesis, a monograph or a collection of articles published during the PhD period, to a scientific committee. Once submitted, the candidate has no possibility to alter the content of the thesis, and the committee will consider whether it satisfies the Norwegian standards of doctoral thesis both quantitatively and qualitatively. If the thesis qualifies, the candidate proceeds to give two doctoral lectures within his or her research field, followed by a public dissertation on the thesis with the members of the committee. There is often a considerable time lag between the delivery of the thesis and the final lectures and dissertation, usually 3 to 6 months. Though the dissertation marks the formal completion of the PhD degree, in practice the PhD education often ends at the delivery of the thesis.

During the 3 allocated years of PhD education, the candidate has to complete both mandatory and self-chosen courses in relevant fields, for instance principles of scientific research and ethics, advanced technical or theoretical courses, or how to write manuscripts. The requirement for the amount of courses varies, corresponding to 6 (medicine) to 12 months (engineering, natural sciences) of full time courses. In other words, the candidate has 2 to 2½ years to work with independent research and the subsequent completion of the thesis. In practice, PhD funding is given either as 3-year grants for full time study, or as 4-year grants including 25% teaching duties. The 4-year grants are preferred both by the students, supervisors and faculties. The teaching experiences are considered to be beneficial for students' development and career, and more students with the 4-year grants manage to complete their PhD degrees within the allotted time. Unfortunately, there is a clear trend that this type of funding finances fewer PhD students during the last few years, due to the difficult financial situations of many universities and colleges.

According to the Evaluation Report on PhD education, written by an international committee contracted by the Norwegian Ministry of Education and Research in 2002 (1), there were approximately 5 000 PhD students registered in Norway in year 2000. Forty five percent of the students have temporary junior researcher positions for PhD students in universities and colleges, 33% are financed by the state owned Norwegian Research Council through their research projects, and the rest are financed by other non-governmental sources. Some of these in the last category have lower academic

positions in other colleges and schools, or financed by the industries or private medical funds like the Norwegian Cancer Society.

B. General situation

The number of completed PhD degrees has risen steadily from approximately 400 in 1991, to 600 in 1999 and around 700 in 1999. The average time from enrolment into a PhD program, to the thesis delivery is 4.1 years in 2001, and 4.5 years to dissertation. Economists use shortest time, 3.0 year to dissertation, while the social scientists use 5.0 years (1). However, approximately 40% of all students enrolled in a PhD program have still not completed their degree 7.5 years after the enrolment, and probably most of these are dropouts. Less than 20% of all students manage to complete the dissertation and hence the PhD degree within the allotted time. There are considerable concerns in the research communities and among PhD students themselves that students use too long time to complete their degrees, and that the candidates are too old (average 33 years for engineers, 42 for dentists) when they complete.

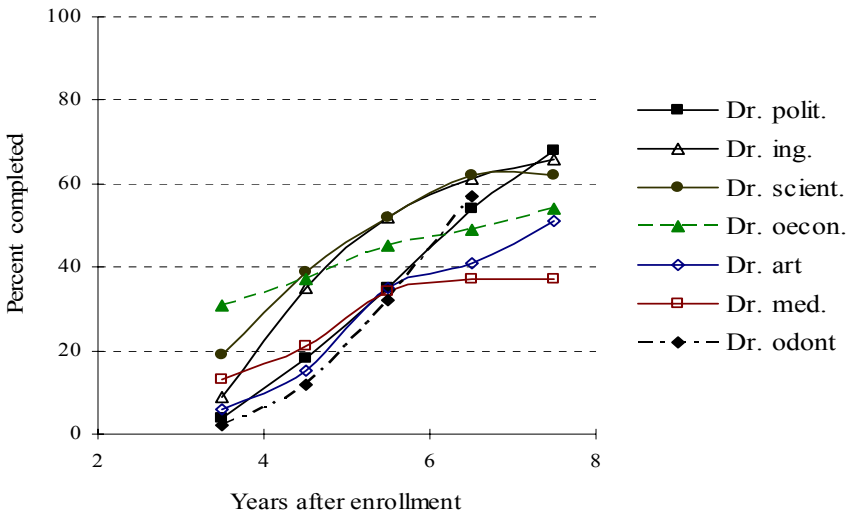

Figure 1: *Cumulative percentage of completion, years after the enrollment in the PhD programs, according to the type of PhD degree program*

Since autumn 2001, Norwegian PhD students are no longer considered as students. They are called PhD candidates and have the same status and legal rights as employees, with temporary contracts. The employers are in most cases the universities or colleges, but can also be private funds or companies.

In the past year (2002), a major reform concerning the structure of higher education at Norwegian universities and colleges has been carried out. The Anglo-American degrees, *Bachelor* and *Master* degrees replaced the traditional Norwegian undergraduate and graduate degrees. The motives for this reform are more efficient education system that can produce more students at shorter time, and a more international degree system. The structure of the PhD system is not reformed yet. However, the PhD education system has been subjected to extensive evaluation in 2002, resulting in the aforementioned report. The major conclusions of this report are:

too few students start in a PhD education, yet fewer manage to complete, using too long time, and the candidates complete when they are far too old. Albeit all those shortcomings, the evaluation gives a good score on the quality of the Norwegian PhD degrees. Most candidates rate the education given to be highly relevant, and both the academia and the industries are generally satisfied with the quality of the Norwegian PhD degrees. When asked to compare Norwegian doctoral theses to 'the standard within the discipline of internationally leading universities', 66% of all foreign members of doctoral committees rated Norwegian theses as good or very good, and only 11% was poor or below average (1).

The Norwegian government has decided that Norway should reach the OECD average of research activity within year 2005. As a part of this campaign, the government gave direct funding of 260 extra grants to PhD students in 2001, and 158 extra grants in 2002. This is one of the many tools the government uses to implement the "mass production" of PhD degrees. Other measures that are implemented or considered to be implemented are: graduate schools and/or centres of excellences where coordinated research activities aim toward more and faster "mass production" of PhD degrees; more direct enrolment of "freshman" post graduates into the PhD programs, with a smoother transformation from master degree into PhD degree, or even a 1+4 structure in stead of the 2+3 used today; and more postdoctoral positions. The *National association of doctoral organizations in Norway* is actively involved in these processes as we have active dialogues with both the universities and the Ministry of Education and Research.

The *National association of doctoral organizations in Norway* (abbreviated SiN) is formally established in January 2003, after one year of intense preparation. Six local doctoral organizations from all four Norwegian universities and two colleges were represented at the first general meeting. A board of four representatives from four different universities and college is elected. The SiN has got many positive feedbacks from universities, colleges and *the Ministry of Education and Research* on the establishment of our organization and the work we have carried out so far. We were invited to express our opinion on the *Evaluation Report on Norwegian PhD Education*, with suggestions to improvements. Representatives from SiN have had meetings with politicians and administrators in the *Ministry of Education and Research*, including the vice minister of the department. We have also attended meetings in the *Norwegian Council for higher education*, when future PhD education standards were discussed. The SiN got economical support for establishing SiN from *the Ministry of Education and Research 2003*. Our application for economic support for SiN's working expenses 2004 was rejected. As an alternative strategy we have applied for economic support for the arrangements of two national conferences for doctoral students. We are in continuous dialogues with several unions where PhD student are represented. The cooperation is mainly focused on traditional union-issues, such as wages and social welfare.

In the future, the SiN will continue to work actively on issues concerning PhD students. Some of the these main issues are: stable funding, both the wage of the candidates and the research funds allocated to each PhD candidate; 4-year grants with teaching duty should be the preferred, or maybe the mandatory form of funding; prolonged funding of those students who do not manage to complete within the allotted time period; more PhD and postdoctoral positions; and more robust systems for the quality control of supervision and the supervisors.

C. PhD supervision and training

In most institutions, there are annual self-evaluation of the research progression including the supervision for both the PhD student and the supervisor. However, those evaluations seldom lead to adjustment of the education and supervision, if they are read at all. The frequency and quality of supervision varies greatly between the different institutions, and also among different supervisors in the same institution. One supervisor has in average responsibility for the supervision of two PhD students. More than 60% of the PhD students report supervision less than every second week, irregularly, or none at all. Twenty percent of the students consider the supervision they have received as unsatisfactory (1). Courses in supervision for the supervisors has been suggested, but not carried out so far. We do not have data to support our supposition that the quality of supervision is related to the dropout rate, or the length of time taken to complete the PhD, but the idea seems logical.

Skill	Mark	Course available?
Management	2	NO
Communication	**3**	**Yes**
Foreign language ability	**3**	**Yes**
Computer literacy	2	**Yes**
Teaching	2	**Yes**
Presenting	**3**	**Yes**
Use of resources (e.g. libraries)	2	**Yes**
Time management	2	NO
Interview technique/job search	2	NO

D. International mobility

Since Norway is a small country with only 4 million inhabitants and four universities, international contacts and exchange has always been an important part of scientific research. As an indication of the degree of internationalization, 85% of all doctoral theses are written in English or other foreign languages, among which 95% of all medical PhD theses are written in English. Almost half of all PhD students in Norway have had a stay abroad for more than one month, and 1 out of 7 (14%) have had a stay for more than 6 months. Every third candidate has taken one or more of the mandatory courses abroad. From 1960 to 1994, more than 500 Norwegians have

achieved an American PhD degree (1). We do not know the total number of foreign students enrolled in the Norwegian PhD programs, but they may constitute up to 70% of all PhD candidates in certain fields in some institutions.

E. Professional Future

At the beginning of their PhD education, every third student wishes an academic career after the completion of the PhD degrees, while 20% has no clear idea what they want. Thirty-six percent of PhD candidates continue to work within research and innovation after their completion, either in academia, hospitals or industries. Ninety percent consider their doctoral education as relevant or very relevant to their current working tasks. The number of postdoctoral positions has increased dramatically from 75 in 1991 to 315 in 1999, and the trend continues. We do not have the exact figure of how many who wish to pursue an academic career manages to do so, but the general impression is that the situation is improving due to the increase in postdoctoral positions. However, we are concerned about the low numbers of permanent academic positions that are available in academia. Even though more people continue in postdoctorals, still very few are able to pursue their academic career beyond that. The average age of persons obtaining a permanent academic position in universities or colleges is 42 years. At the same time, there are political signals that more associate professor and professor positions will be converted to temporary positions, which render even more uncertainties into the career path for those who wish to remain in academia. In general, the candidates receive poor information concerning career opportunities and possibilities outside academia from the universities and institutions. One is often left by him- or herself in finding a new job after the completion of the PhD degree, if one does not wish or is not offered to continue in academia.

F. Gender equality

The gender equality at the lower levels of university education is quite good in Norway. Approximately 50% of both under- and post-graduate students are women. Forty percent of all PhD students are women (50% in humanities, social sciences and medicine, only 19% in technology), and 35% of those who completed a PhD degree in year 2000 were women. Thirty-five percent of postdoctorals are women (1;2). However, there are few women in permanent academic positions, and the percentage decreases steadily as one advances from lecturer to assistant, associate and to full professors. Humanities and social sciences are the leading areas with respect to women participation, while technology is the poorest area. The “dropout” level along the academic career path is undeniably higher for women than men. However, the low percentage of female professors reflects also a skewed gender distribution of PhD students 10 years ago (25% female in 1991). Several universities try different approaches to attract women to academic positions, for instance preferring female applicants if qualifications are equal otherwise, giving priority to women in wages raises, and reserving academic positions for women. However, after several male PhD students have filed a suit against the University of Oslo, the EFTA court ruled in

January 2003 that reserving position for women is gender discrimination and therefore illegal. As a response, the Norwegian Ministry of Education and Research has granted NOK 3.000.000,- to a committee, which purpose is to find new strategies to reduce the gender differences in academic positions.

Field	Post-graduate	PhD students	Post-doctorals	Associate/ Assistant Professor	Full Professor
Humanities	60	51		32	26
Social sciences	58	50		28	20
Law	57				
Economics	30				
Natural Sciences	38	38		11	6
Technology	27	19		5	2
Medicine	54	50		24	11
Total		40	35		

Table 1. *Gender distribution at different levels of academia, according to areas of research, in percent.*

Both PhD students and postdoctorals are covered by the Norwegian social security system during their maternity leave, including four weeks for the fathers. Two of the universities also automatically elongate the funding with 6 months for women who have had childbirth during their PhD period.

G. Discussion

We have already mentioned some of the problems concerning the current PhD system in Norway in section B. Securing economical support for the entire period of PhD study, including the time beyond the allotted 3 or 4 year, is the main concern of the students. Some of the candidates have to depend on unemployment benefits from the social security system when their grants are finished, while only a few months short before the submission of their theses. The unemployment benefit regulation forbids all working activity other than job seeking. The writing of doctoral thesis, even during evenings or weekends, is considered work, and therefore forbidden. The candidate risks legal prosecution if he receives unemployment benefits while he or she completes the thesis. We consider these rigid bureaucratic rules as unfair and ridiculous, and we are working actively to change the situation.

Norway has a small scientific community and the general level of research activity is low compared to other OECD countries. In 1999, Norway spent 1.7 percent of her BNP on research and development, compared to the average figure of 2.2 percent among all OECD countries. The production of PhD degrees per capita in Norway is also below the OECD average, especially in technology and medicine. Higher wages, better working conditions, higher status and public appreciation for researchers are

some the important measures that may improve the recruitment of new PhD candidates. Scientific cooperation with other European countries, and financial support from EU research programs, are crucial to good research environment in Norway. For PhD students in particular, temporary stays abroad are considered as valuable supplement both by the students, supervisors and faculties. We would like the EURODOC to promote more scientific exchange of junior researchers, also including Norway, which is not currently a member of the EU.

Reference List

(1) Norges forskningsråd. Evaluering av norsk forskerutdanning. 2002. Ref Type: Report

(2) NIFU, STEP group, Statistisk Sentralbyrå. Det norske forsknings- og innovasjonssystemet - stistikk og indikatorer, 2001. 2001. Norges forskningsråd. Ref Type: Report