



UPPSALA
UNIVERSITET

Self-evaluation of research education at the Mathematics Department of Uppsala University

1. Introduction

This document has been organised according to the following plan: first we analyze the 2008 doctoral students' survey, with a particular attention paid to the results that were significantly below or above the faculty average. Then we discuss these selected answers from the point of view of the information gathered among the supervisors of PhD students. This section comes with an attachment, ie., elucidation from Tobias Ekholm, the professor with overall responsibility for research education in our department (mat-bil-1.txt). The last section is devoted to comparison between selected sets of data and to final conclusions. Tables specifying the numbers of PhD students and supervisors are included at the end of this document.

2. Analysis of the 2008 survey of doctoral students

Our analysis is divided into two parts. First we look at the issues which showed significantly worse results in our department when compared with the faculty averages. Then we list the topics in connection with which the department's scores were much better than those of the faculty as a whole. Each item has two numbers included in its description depicting this difference. It should be emphasized that with respect to the majority of questions, the departmental and faculty scores were quite similar.

Results below the faculty average:

- a) Well over half of our students thought that the individual study plans matter very little (Dept: 58% / Avg: 19%).
- b) About a quarter of the students were unhappy with the introduction to graduate studies (Dept: 26% / Avg: 9%).
- c) Just above a third of the students were dissatisfied with atmosphere in the department (Dept: 35% / Avg: 7%).
- d) One in ten students was unhappy with his/her own performance so far (Dept: 10% / Avg: 3%).
- e) Just below a third of the students found informal contact with senior researchers quite unsatisfactory (Dept: 30% / Avg: 19%), whereas the level of satisfaction concerning formal contacts was on par with that for the faculty.
- f) A quarter of the respondents felt that their opinions did not count in the department (Dept: 25% / Avg: 6%).
- g) Nearly a third felt isolated in the research environment (Dept: 30% / Avg: 16%), and yet the level of satisfaction with supervision was similar to that in other departments.
- h) When compared with other subjects, nearly twice as many of our graduate students did not feel inspired by seminars (Dept: 58% / Avg: 32%). Perhaps this can be partly attributed to the relatively hermetic nature of mathematics.

- i) A fifth of the students felt unhappy with their studies so far (Dept: 20% / Avg: 6%) and the same proportion did not believe that their studies prepare them for work outside the university (Dept: 20% / Avg: 8%).
- j) About a half of the students worried about not finishing their thesis in time (Dept 47% / Avg: 25%).

Results better than the faculty average:

- k) Well over a half of the students were satisfied with their supervisor's interest in the subject of their research (Dept: 60% / Avg: 47%).
- l) Exactly half were happy with the discussions about theoretical work with their advisors (Dept: 50% / Avg: 29%).
- m) An overwhelming majority of students were satisfied with how the supervision had functioned during the preceding year – 40% were quite satisfied (Avg: 37%) and 45% were very satisfied (Avg: 35%).
- n) The vast majority of students had high level of trust in their supervisors (Dept: 68% / Avg: 47%) and yet well over a half were uncertain how often they can meet.
- o) Our students were generally happy with senior researchers' participation in seminars (Dept: 68% / Avg: 30%).
- p) More than two-thirds believed that their coursework is examined thoroughly (Dept: 70% / Avg: 21%).
- q) Nearly all respondents valued highly their teaching experience (Dept: 85% / Avg: 51%).

3. Opinions from supervisors

This section is based on the views expressed by 13 PhD supervisors and assistant supervisors in the Mathematics Department in February 2010.

The first question of our interdepartmental opinion poll was related to the role of the individual study plans in the supervision doctoral students. Nearly half of the advisors answered that the plans play minimal role in graduate education and only one believed that they are very important. However, a number of specific positive comments about having the plans have been put forward. The plans aid assessment of relevance of the chosen courses to the underlying research project. They definitely make it easier to keep track of the work done, help to outline the future direction of study, and are quite valuable in limiting misunderstandings between the supervisor and the student concerning mutual expectations.

The supervisors were also asked to assess if doctoral students have sufficient opportunities for informal contact with senior researchers outside of seminars and supervision. The vast majority of the supervisors believe that such opportunities are good or at least satisfactory. Only one answered that they are insufficient and another one had no opinion. Several respondents stressed that such contacts should be and are encouraged, particularly in the case of shy students, and especially in the context of international events. One respondent had doubts if active promotion of this type of contacts is beneficial at all. Interestingly it was also said that some students do not seem to be using the contact opportunities afforded to them, perhaps due to specific personality traits or overwork. Financial limitations were mentioned as a stumbling block for broader research contacts. However, it should be stressed that during the last few years – despite budgetary problems – practically all research related travel for

doctoral students who did not have independent funding has been supported and sponsored by the department.

When asked what is in their opinion functioning well in the way we supervise PhD students, several respondents listed good relationships between supervisors and doctoral students as well as excellent contacts among supervisors as a group. A few advisors described general conditions for graduate students as good, with some specifying the structure of studies and ample time available for research as the positives. Flexibility was mentioned as another positive aspect of the system.

When questioned about the negatives and issues that need to be addressed, the supervisors displayed some diversity in their answers. Among other things, it's been said that:

- too much emphasis is put on coursework leaving too little time for active research;
- meetings with supervisors are too irregular;
- having several supervisors is a bad idea, diluting responsibilities;
- students suffer from not belonging to a well-specified research group;
- contingency plans in case of hitting a wall in research are very rare;
- we are bad at projecting enthusiasm for research in mathematics;
- more social activities are needed to enhance comradeship among doctoral students;
- students have too much teaching duties.

One major issue has come through very clearly. The choice of graduate courses is far too limited. Partly, the problem lies in inadequate financial resources. We have a number of lecturers who could potentially provide a broader educational choice for the PhD students. Unfortunately many graduate level courses would be by necessity addressed to only a few students and hence would be prohibitively expensive to implement. Furthermore most teachers have to teach larger classes at undergraduate level simply because of the way we are financed. A partial solution that is already employed, at least sometimes, is to send students to take specific courses at other universities. Occasionally supervisors organize series of learning seminars or individual reading courses, basically sacrificing their own research time for this purpose. Reasonably wide ranging educational offer at the undergraduate level cannot serve as a compensation in preparation of the doctoral students adequately for their work, as these courses are aimed at a different audience and serve different educational goals.

4. Conclusions

The results of the 2008 survey leave no doubt that there were – at the time – and most likely still are, some aspects concerning the PhD students situation that could and should be improved. It seems that in some respects things have improved somewhat since 2003, as many of the students were then unhappy with both the department's working environment and the atmosphere within their group. In 2008 they felt much better about their group.

In Autumn 2009 we had a meeting with the doctoral students devoted entirely to a discussion of their problems. The key message we tried to convey was that whatever the problem, the students can always count on direct access to the prefect and to the gender equality group. However, one clear conclusion that transpires from the meeting and the survey is that the answer to the question "how to improve the state of affairs?" is not a straightforward one.

First of all, there exists a difference of perception of the situation between the students and the supervisors. For instance, many students expressed in the survey that they do not have

sufficient informal access to senior researchers, while the supervisors – except for just one – believe the opposite.

Secondly, the survey itself contains contradictory clues. Some results in the lists above seem to be somewhat inconsistent with each other. For instance, a higher than average number of students felt in 2008 that their opinion did not matter (point 13c in the survey), or felt isolated in the research environment (13f). On the other hand, a well above average number of students were satisfied with the supervisor's interest in the subject (18b), they had trust in the supervisor (18f), they were happy with how the supervision had been working so far (19a) and they valued highly their teaching experience (30). These somewhat contradictory messages suggest that the actual reason for the feelings of dissatisfaction that some students are experiencing might be difficult to verbalise.

One possible interpretation is that - at the time of the survey - the department was just beginning to come out of a widespread conflict. It does not come as a surprise that many students were dissatisfied with the departmental working environment. Even though practically no students were personally affected, witnessing the infighting was no doubt depressing and demoralising. Although not directly expressed, perhaps this led to a feeling of isolation and increased reluctance to informally approach senior researchers. Some corroborating evidence that this indeed might have been the case, comes from a Lanshälsan survey of our working environment in 2008, which contained similar contradictory answers from our other staff members.

From the organisational point of view, our PhD programme is functioning reasonably well and we will most certainly address the existing shortcomings – we intend to improve the way students are introduced to the graduate studies, we will make sure that they have regular meetings with their supervisors and we will try to fix other problems. Hopefully the fact that the doctoral students have now their own seminar will strengthen the bond within their group and give them a forum to practice their skills. However, if the perception of unhappiness that some students were/are experiencing is the reflection of the general departmental atmosphere or attitude, then this is a problem much more difficult to resolve.

Maciej Klimek
Prefekt

Handledarkollegiets sammansättning (våren 2010)

Namn	Tjänst/formell akademisk kompetens	Huvudhandlare för antal doktorander	Biträdande handledare för antal doktorander	Har genomgått handledarutbildning
ALM SVEN ERICK	professor	1		ja
EKHOLM TOBIAS	professor	4		
EKSTRÖM ERIK	docent	1		
IESELER KARL-HEINZ	professor	1		
GUT ALLAN	professor	1		
HEJHAL DENNIS	professor		1	
JANSON SVANTE	professor	1	3	
KAJ INGEMAR	professor	1+1 (ISP)		ja
KLIMEK MACIEJ	professor	1 (ISP)		
MELGAARD MICHAEL	docent	2		
PALMGREN ERIK	professor	2		
PERSSON LARS-ERIK	professor		1	
RUBINSZTEIN RYSZARD	docent		4	
RYDÉN JESPER	docent		2	
STENFLO ÖRJAN	docent		1	
STRÖMBERGSSON ANDREAS	docent	1		
SUMPTER DAVID	professor	3+2 (ISP)		
STOLTENBERG-HANSEN VIGGO	prof. emer.		2	
TUCKER WARWICK	docent	2		
TYSK JOHAN	professor	1	1	
ZWANZIG SILVELYN	docent	2	1	

Doktorandgruppens omsättning

		Antalet nyantagna doktorander Män/kvinnor	Därav examinerade (t.o.m 2009) Män/kvinnor	Därav fortfarande aktiva Män/kvinnor
Matematik				
2004	1/0	0	0	0
2005	4/1	1/0	2/0	2/1
2006	3/0	0	0	3/0
2007	2/0	2/0	0	2/0
2008	5/2	1/1	1/0	4/1
2009	0/1	0	0	0/1
Summa	15/4	4/1	3/0	11/3
Matematisk statistik				
2004	0/1	0	0	0
2005	1/0	0	0	1/0
2006	1/0	0	0	0
2007	1/0	0	0	1/0
2008	1/0	1/0	0	1/0
2009	1/0	0	0	1/0
Summa	5/1	1/0	0	4/0

Antal examina

	<i>Antalet licentiat- examina Män/kvinnor</i>	<i>Antalet doktors- examina Män/kvinnor</i>
Matematik		
2004	4/3	6/0
2005	5/0	3/0
2006	2/1	3/0
2007	3/0	5/2
2008	1/1	3/1
2009	0/1	5/2
Summa	15/6	25/5
Matematisk statistik		
2004	0/2	2/0
2005	0	0/1
2006	0	0
2007	2/0	0
2008	1/0	0/2
2009	1/0	0
Summa	4/2	2/3