

Follow-up of questionnaire (2015) with feedback on results of FU10 – Department of Engineering Sciences

Conditions

At the time of the survey (spring 2015), the department had approximately 160 active PhD students admitted to 16 different postgraduate subjects. There was a large spread in the number of PhD students per subject; from 1 to 45. Compared to the time of the previous questionnaire FU10, the department had significantly more doctoral students in this survey, 160 vs 110, and a much larger proportion of foreign PhD students with scholarships as part of their financing (35 vs 5). Figure 1 shows the number of active PhD students and new admissions incl. those who change subject (figures according to GLIS). Note that these numbers include all those who have been active during the calendar year, including those who graduate and those who are admitted. Actual numbers at a certain time of the year are better reflected in the bars in Figure 3. Figure 2 shows the type of funding for the PhD students and a sharp increase in the number of scholarships has taken place during the period between the questionnaire surveys. The number of supervisors has probably not grown to the same extent as the number of PhD students during the period.

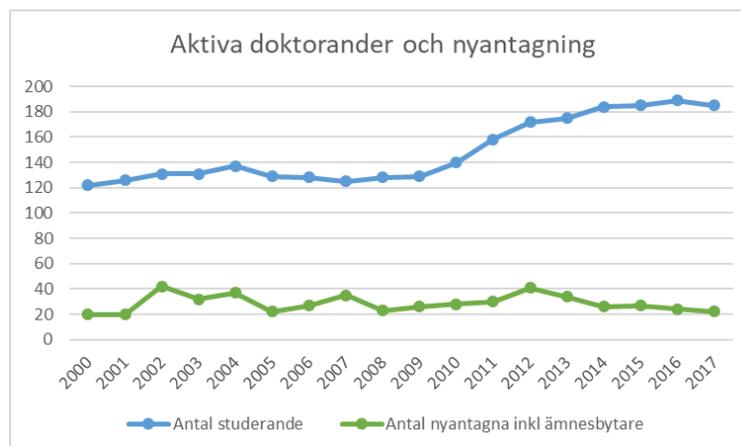


Figure 1. Admission (incl. those who change subject), in green, and number of active PhD students, in blue (from GLIS).

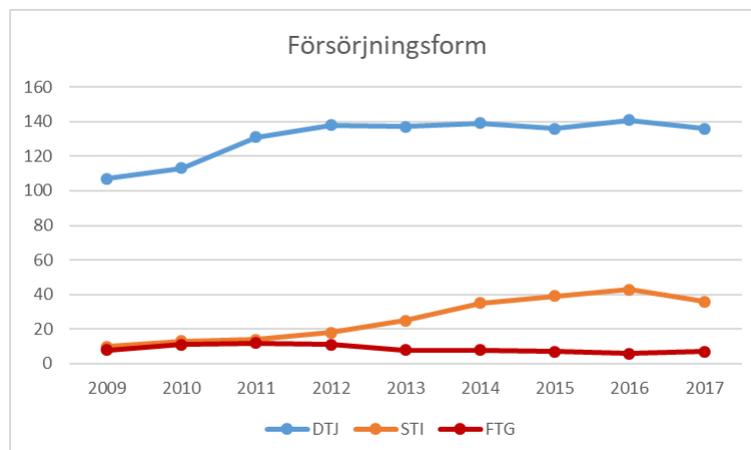


Figure 2. Type of funding for PhD students. Increase in scholarships during the period (STI).

The department has undertaken work to get everyone to revise the individual study plan each year, which has yielded results. Currently close to 100% revise the study plan, at least annually. The corresponding share at the time of FU10 was about 85%. See Figure 3 for development in recent years. Each year, a number of PhD students are also granted an exemption for revision, for a number of reasons, for example recently admitted, near defense, parental leave or sick leave.

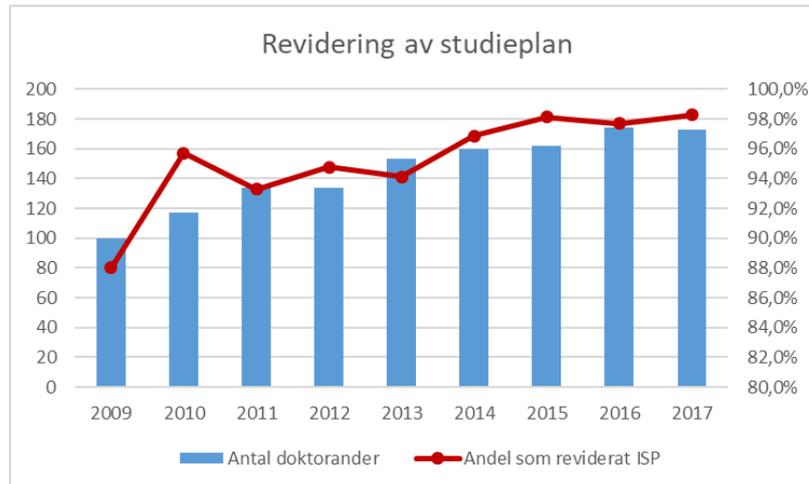


Figure 3. The number of doctoral students including those granted exemption for revision (blue bars), as well as the proportion that perform a revision of the individual study plan (in red).

Since the FU10, the department has put in place a system to monitor which researchers have completed supervisor training. At the time of the survey, all supervisors had taken supervisor training, either the long (3 weeks) or the short-term (2 days) faculty-ordered course.

General Reflections

In the previous FU10 questionnaire, it was found that the situation at the Department of Engineering Sciences was about the same as the average for the faculty. Studying the responses from doctoral students gives an impression that the situation at the faculty as a whole has improved slightly, in terms of overall satisfaction of the PhD studies. Unfortunately, the department is now slightly below the average level for the faculty. This is both surprising and worrying; Following the FU10, a number of measures were taken to address the shortcomings that emerged. This included teacher training and procedures for follow-up of progression. Obviously, despite these efforts, the situation has not improved, but rather has deteriorated in some respects.

What does the survey say?

At the department, 127 active PhD students were invited to respond, of whom more than half (75) answered the questionnaire. The gender distribution among respondents was 35% women and 65% men. This reflects the actual gender distribution among PhD students at the time of the survey (34% and 66%, respectively). Gender distribution is today (2017) 35/65% according to GLIS. From the questionnaire, one can conclude that Swedish PhD students are slightly overrepresented in the responding group and, for example, scholarships somewhat underrepresented.

Of the 102 supervisors, 52 responded, divided among 31% of women and 69% of men. The responding group of supervisors covers both younger and older supervisors, from doctors to professors. The majority seem to be senior supervisors because as many as 38% of respondents are

professors. At the same time, 32% of respondents had not yet supervised a doctoral student until completion as principal supervisor.

Of the asked doctoral alumni, 51 responded, divided between 18% women and 82% men. Here the women are underrepresented, as more than 30% of the graduates are women. 96% of respondents were employed, either full time (94%) or part-time (2%).

The survey addresses a number of question topics which are summarized below. Each section also provides analysis, comments, and any suggestions for action (*in italics*).

Research and work environment

The majority of PhD students are part of a research group, but mainly work individually. Many are satisfied (49%) with this form of work, but a large proportion are only partially satisfied (43%). The workload is experienced as adequate by 71%. How satisfied PhD students are with their own performance has been drastically reduced since the last evaluation - those who are quite or very satisfied have gone from 91% to 50%. The proportion of doctoral students who are dissatisfied with the psychosocial environment of the department has also increased from less than 10% up to 20%. Somewhat more than previously, they often experience negative stress in relation to their postgraduate education (59% versus 55%). Of the respondents, 46% say that they are fairly or not familiar with rules and regulations regarding postgraduate education, while this figure is only 12% for the supervisors. In the case of problems in postgraduate education, approximately 2/3 of the PhD students state that they know where to turn to seek help. More than half say that they primarily focus on either FUS or FUAP (the manager of PhD studies or the professor responsible for the PhD studies). This is in line with the faculty in general. Overall, 62% of PhD students consider the research education environment to be good or very good.

The drastic reduction in how satisfied PhD students are with their own performance needs to be investigated further, and we propose a separate study of this at the department in order to better understand the cause.

It is worrying that the psychosocial environment of the department seems to have deteriorated from the PhD students' point of view. This corresponds to some extent with the sickness rates we know. The department should discuss this with the HR department.

In order to improve awareness of rules and regulations and expectations of each other, regular departmental doctoral and supervisory seminars/workshops are proposed.

Supervision

There is a discrepancy in how many hours of supervision doctoral students feel they have received, and supervisors feel they have given, for example, 25% of doctoral students report that they have received more than 25 hours per term, while 48% of supervisors report that they have given more than 25 hours per term. However, 62% of the PhD students are satisfied with the time they receive (19% dissatisfied). There is a general discrepancy between doctoral student and supervisor perception of the content of the discussions conducted during the tutorials. The PhD students are generally less satisfied than the Faculty's average, with discussions about methodology, theory, constructive criticism and the ability of the supervisors to stimulate scientific thinking. The supervisors estimate that they place as much or greater weight on these parts during the supervision than the estimated Faculty average. 24% of the PhD students find that lack of supervision has been a barrier to research work, and 33% do not think that supervision leads to sufficient control that the thesis work is progressing as it should.

At the same time 92% of the supervisors state that scheduled supervision meetings are held. If the supervisors to some extent experience difficulties in meeting requirements and expectations, it is

generally not considered that the reason for this is that they supervise too many PhD students simultaneously (only 21% consider this to a degree, 2% to a large extent), but rather a too high workload in total (75% to some extent and upwards) and a fragmented work situation (80% to some extent and upwards).

Here too, we see that a clarification/discussion concerning expectations could be beneficial. An increased use of, for example, the ISP as a basis for follow-up/progress check, we believe could partly remedy the perceived lack of control of how the thesis work proceeds. Here too, we believe that more frequent departmental supervisor seminars and workshops can help structure the tutoring for the individual supervisor.

Seminars & Courses

We see an increase in seminars compared with the previous evaluation, and also a big improvement in relevant courses. Only 39% of the PhD students feel that the courses on offer are insufficient, with the corresponding figure previously lying at 73%. The opinions about the seminars are roughly the same as for the FU10, for example, that it is easy to speak your mind and that they are relatively rewarding.

Continued information regarding the benefits of seminars can be advantageously given at, for example, regular departmental supervisor seminars. Continued work on expanding the number of relevant courses on offer is deemed important. Gratifyingly, we can see a positive result in the work done on the course range. Partly thanks to earmarked funds from the faculty, several subjects have established compulsory course packages that are given on a regular basis.

Individual studyplan

100% of the PhD students have an individual study plan. However, only 28% of the PhD students feel that a proper follow-up has been made during the past year (which is under faculty results, which is 41%), while the figure for the supervisors is 63%. Many still consider that the revision of the plan is a formality.

57% of PhD students believe that the ISP is, to a large or very large extent, a useful planning and follow-up tool. For the supervisors, the number is 79%.

The ISP could be used better as a basis for discussion, and we believe that the revised template (VT2018) will facilitate this. However, it is important that all supervisors take the time to discuss the various parts thoroughly with the PhD students. Obviously, there is a big difference in what PhD students and supervisors mean by a proper follow-up.

Examination goals of the postgraduate education

56% of the PhD students state that they are not familiar with the examination goals of the PhD studies, while this figure is only 17% among the supervisors.

The doctoral students at the department generally judge to a lesser degree that they are given the opportunity to develop skills and abilities related to the examination goals compared to the rest of the faculty. Goals that stand out in particular compared to the faculty average, are that the department's doctoral students to a large extent feel that they have less opportunity to develop knowledge about scientific methodology in general, as well as the ability to carry out tasks within given time frames.

Alumni from the department indicate, that they are benefiting from the knowledge related to the examination goals in their current job, to a lesser extent compared to the faculty average, except for "performing tasks within given time frames". The overall picture for the department's doctoral

students/alumni, however, seems to be that they benefit from training against the examination goals in working life, but apparently do not receive adequate training during postgraduate education.

The alumni also state that research education, to a lesser extent than the faculty average, gave them the opportunity to meet the goals, except for the possibilities of presenting and discussing research results internationally and outside the university world, where we are clearly above faculty average.

In addition to regular departmental doctoral and supervisory seminars, we believe that the knowledge about the examination goals will be improved if the new template for the Individual Study Plan is implemented correctly, where the examination goals are specified to facilitate regular discussion. This should ensure that PhD students are given the opportunity to develop these abilities to a larger extent. It is interesting that current PhD students especially perceive that they are, to a limited extent, given the opportunity to develop exactly the skills that alumni identify as most beneficial for their current work, namely to "perform tasks within given time frames". There is clear potential for improvement here.

Pedagogical qualifications

Most of the postgraduate students at the department (88%) teach to some degree during the doctorate, with 39% indicating about 20% teaching, and 40% "significantly less than 20%". 72% are satisfied with the extent of teaching, 15% would like to teach more and 13% less. However, 52% find that they did not receive good support from the department in terms of teaching, and of those who had passed the basic pedagogical education (39%), 28% considered it not beneficial in teaching.

100% of the supervisors at the department (who responded) have attended supervisor training. Together with Chemistry-Ångström, we are the ones with the highest proportion of the faculty. 79% consider it useful in supervising. However, 57% experience a need for further competence development regarding the supervision of doctoral students.

The department is below average for the occurrence of joint supervisor seminars, only 23% state that they exist, and 19% do not know if there are any at the department/in the research group. However, of those who participate, the experience is found to be useful to some (67%) or large (25%) extent.

There is clear improvement potential in terms of the lack of support given by the department to PhD students that are teaching. We think this is also necessary for new teachers on other levels, and synergies can therefore be achieved if you work for this more broadly at the department.

There also seems to be improvement potential in the pedagogical basic course, but this requires in-depth investigations and discussion with the course provider.

It would be advisable (in particular at regular departmental supervisor meetings) to inform about opportunities for continuing courses in supervision when requested.

Supervisor seminars seem to be considered useful, however, they exist only to a limited extent.

Other, incl. work life after education

61% of PhD students are quite or very satisfied with postgraduate education, compared with 84% of supervisors. The figure for alumni is 82%. 58% of the PhD students would like to work with research and/or teaching in the future. However, only 27% are positive about their possibilities to work in the future with research/teaching at Uppsala University, which has halved compared to FU10.

84% of the supervisors state that they to some extent discuss the PhD's future working lives with them. 22% of alumni work in college/university, of which 86% of these at Uppsala University. The majority are thus in the private sector. 78% are quite or very satisfied with their current work. 56%

received their first job before completing their postgraduate studies and 28% within 1 month or less (both above faculty average).

Alumni believe that postgraduate education prepares them for work at a university/college to some (24%), high (49%) or very high (12%) degree (only 2% say low, 12% do not know). For a career outside the university, the figures are 20% (low degree or not at all), 28% some degree, 44% high degree (faculty 21%) and 6% to a very high degree. 84% believe that postgraduate education contributed to a high or very high degree to their personal development.

Current PhD students are less satisfied with the education than alumni and supervisors. In order to fully understand the reasons for this, an in-depth study is required.

Information about career paths and possibilities would be good, for example at regular doctoral meetings.

Doctoral students at the department seem to have easy access to work after completion of education and with a relatively high salary.

Summary and suggestions for action

The results from the survey show that the training against the examination goals is deficient at the department in comparison with the faculty average. This is perhaps the single most important issue that must be solved in order to raise the quality of postgraduate education. The question is closely linked to the supervision. The scope of the supervision seems sufficient, but the forms and content obviously do not lead to sufficient (experienced?) training against the examination goals.

Negative stress and poor psychosocial work environment can to some extent be linked to the above. If requirements and expectations are not clear, it can lead to stress and poor working environment, both for doctoral students and supervisors.

Doctoral students from the Department of Engineering Sciences quickly find employment with relatively a good salary after graduation, especially in the private sector.

Suggestions for action:

- Ensure that supervisors are offered competence-enhancing further education - this can be done in external courses but also via the departmental supervisor seminar (see below)
- Introduce regular, joint departmental seminars for both doctoral students and supervisors - to talk about and clarify expectations and requirements regarding education at the doctoral level. Even bringing up the framework around the research education: even though it is addressed on introductory courses and supervisor training, we think it's good to repeat the message.
- Work to set up a supervisor meeting in all divisions
- Introducing Buddy systems for new PhD students - this is something that exists at some other departments, with good results, and we should investigate how it is organized
- Develop policy papers (guidelines) for postgraduate education at the department, alternatives at the divisions - a document covering most of it; from admittance to defense
- Systematically follow up alumni