

Perceived Roles of Assistant Supervisors in PhD Education

Views of PhD students and Assistant Supervisors

**Kimberly Dick,¹ Martin Hell,² Tord Isaksson,³ Miklós Molnár⁴,
Naoko Tojo⁵ and Ola Wallberg,⁶ Lund University**

Assignment for the Docent Course 2010
Faculty of Engineering, Lund University, Sweden, October 2010

Abstract

This report presents a survey given to PhD students and supervisors at 6 different departments of Lund University, five of which from the faculty of engineering. The goal of the survey is to obtain a better understanding of the perceived roles of assistant supervisors, both from the student and from the supervisor perspective. The result shows that in general the PhD students expect more from the assistant supervisor than what they perceive that they get. At the same time, the assistant supervisors expect more of themselves than the students do, but they also perceive that these high expectations are fulfilled to a greater extent. We also note that students that have assistant supervisors outside their own department are in general more satisfied with their supervisors than others. Moreover, according to the survey, several students indicate that they would like more clarity concerning the role of the assistant supervisor.

¹ Department of Physics and Department of Chemistry, Faculty of Engineering

² Department of Electrical and Information Technology, Faculty of Engineering

³ Department of Building and Environmental Technology, Faculty of Engineering

⁴ Department of Building and Environmental Technology, Faculty of Engineering

⁵ International Institute for Industrial Environmental Economics.

⁶ Department of Chemical Engineering, Faculty of Engineering

Table of Contents

ABSTRACT.....	1
1. INTRODUCTION.....	3
2. METHODS OF CONDUCTING THE SURVEY	3
3. RESULTS AND DISCUSSION	4
3.1 STUDENTS.....	4
3.2 ANALYSIS OF RESULTS FROM STUDENTS	6
3.3 SUPERVISORS.....	8
3.4 COMPARISON BETWEEN STUDENTS AND SUPERVISORS	10
3.5 ANALYSIS OF FREE TEXT ANSWERS.....	10
4. CONCLUSIONS	12
REFERENCES	13
APPENDIX 1: SURVEY FOR PHD STUDENTS	14
APPENDIX 2: SURVEY FOR ASSISTANT SUPERVISORS	17

1. Introduction

Provision of good and adequate supervisions is one of the crucial factors that influence the quality of PhD educations. According to the Handbook for post graduate students published by the Swedish National Agency for Higher Education, since 1 July 2007, it became mandatory for PhD students in Sweden to have at least two supervisors (Högskoleverket 2009). This means that a PhD student will have at least one assistant supervisor (AS).

Although it is mentioned that one of the supervisors must have received training to be a supervisor for PhD students, the qualifications required for an assistant supervisor are not well defined. The aforementioned handbook seems to stress the flexibility in selecting one or more assistant supervisors – for instance, they can be from another department or university in or outside of Sweden. Meanwhile, the handbook also stresses the importance of not having one person – the main supervisor – to rely on, and indicates the significance of assistant supervisors in terms of both the provision of expert as well as resolving problems that cannot be solved with the main supervisor (Högskoleverket 2009).

This paper presents the result of a survey conducted with the overall purpose of *obtaining a better understanding on the perceived roles of assistant supervisors in the eyes of PhD students and the assistant supervisors themselves, and thereby contributing to the improvement of the PhD education at Lund University*. The paper is written as part of the fulfilment of Docent Course provided by Faculty of Engineering at Lund University. The authors of this paper have been engaged in the PhD education as assistant supervisors, and are taking a course to be qualified to be the main supervisor in the future. We consider it of great importance to grasp the current situation related to the assistant supervisors in the institutions that the respective authors are coming from – to improve not only our current performance as assistant supervisors, but also as main supervisors in the future.

The following section briefly describes how we conducted the survey. It is followed by the presentation of the results of the survey, and finally by a short conclusion. The original surveys as well as data not shown in the results are attached in appendices.

2. Methods of conducting the survey

We developed two surveys, one for current and former PhD students and another for ASs. The surveys are found in the Appendices. The content of the survey are mirrored to facilitate the analysis of the correlation of the results. In order to reduce the burden of the respondents and to enable us to analyse the answers somewhat systematically, a multiple choice format is used for answers. Meanwhile, in order to obtain as many insights as possible and not to limit the answers of the respondents to the choice given in the survey, possibilities are given for respondents to write additional comments for each question.

Following questions regarding the formalities (e.g. which department the respondent belong to, how many PhD students does she/he supervise, which part of the PhD process is she/he in, how many assistant supervisors does she/he have), the survey asked about the perceived role of ASs as well as the actual role played by the ASs. The choices of answers were developed based on the experiences of the authors as well as typologies of approaches to doctoral supervisions developed by Lee (2008). As a way of checking the concrete involvement of assistant supervisors and their awareness of what is formally required by the Faculty of Engineering at Lund University, a question was asked about the ASs' involvement in the discussion of individual study plan.

Once the draft questionnaire was developed, it was shown to a few potential outsiders (e.g. supervisors, PhD students) to check the clarity of the questions and choices of answers provided in the survey. We then put the questions on E-Val, a web-based survey tool used for educational purposes at Lund

University. The survey was open from 20th to 29th of September and was circulated among the current and former PhD students as well as ASs in the departments in which respective authors are based. Table 1 indicates the number of people requested to fill in the survey and the actual number of responses obtained. 91 former and current PhD students and 53 assistant supervisors filled in the survey.

Table 1: Number of potential and actual respondents in the respective departments at Lund University where the survey was conducted

Name of the department	Number of PhD students contacted	Number of PhD students responded	Number of assistant supervisors contacted	Number of assistant supervisors responded
Building and Environmental Technology	27	21	24	10
Chemistry	8	1	7	2
Chemical Engineering	24	15	17	8
Electrical and Information Technology	19	10	9	5
International Institute for Industrial Environmental Economics	29	15	11	6
Physics	35	27	40	21
Others	2	2	1	1
Total		91		53

3. Results and Discussion

3.1 Students

A total of 91 answers were obtained from 7 departments (see the breakdown in Table 1 above).

Regarding how far the students had come in their PhD study; the results were quite uniformly distributed from being in their first 20 % of their work to being in their final parts.

One of the questions dealt with the number of ASs; 61 % only had one assistant supervisor, 30 % had two, 6 % had three and one person had more than three assistant supervisors. One student did not have any AS (!). One commented that there was one formal AS and one informal who actually was important in practise. Another student responded that they had one AS, but wrote in a comment that they had two “on paper”, but only one who helped them in reality. Therefore, responses are interpreted with the consideration that different interpretations of the questions were possible.

The majority of students – 80% – had a least one AS at their own department. Other supervisors belonged to another department within the university, another Swedish university, a university abroad, and industry. One respondent also had supervisors from a Swedish authority. In total 35% of students had a least one supervisor from outside their own department.

The next two questions deal with expected and actually fulfilled role of the AS. The question could be answered by more than one alternative. Generally the expected role of the supervisor is also actually fulfilled. The main roles in the students’ perception are to complement the competence of the other supervisors and to review and comment on articles and papers; see Figure 1 and Figure 2.

The question about the frequency of updating the individual study plan shows that a majority, 68 %, did this once a year (see Appendix 3). A further 22% reviewed the individual study plan two or more times per year. However, the participation of the ASs at the review was somewhat poor: only 26 % always participate while 23 % never participate (!). Also worth mentioning is that one student did not know that the study plan needed reviewing every year.

The questionnaire was concluded with two questions about how satisfied the students were with the supervision of the assistant supervisor and from whom they needed more supervision. 69 % were satisfied or very satisfied with the supervision, 26 % wanted more supervision and 4 % thought that the level of supervision was far from adequate. Those who thought they needed more supervision were asked to point out from whom they needed it. Among the students that answered this question, 42 % and 39 % pointed out the main supervisor and AS respectively. 6 % thought they needed another supervisor.

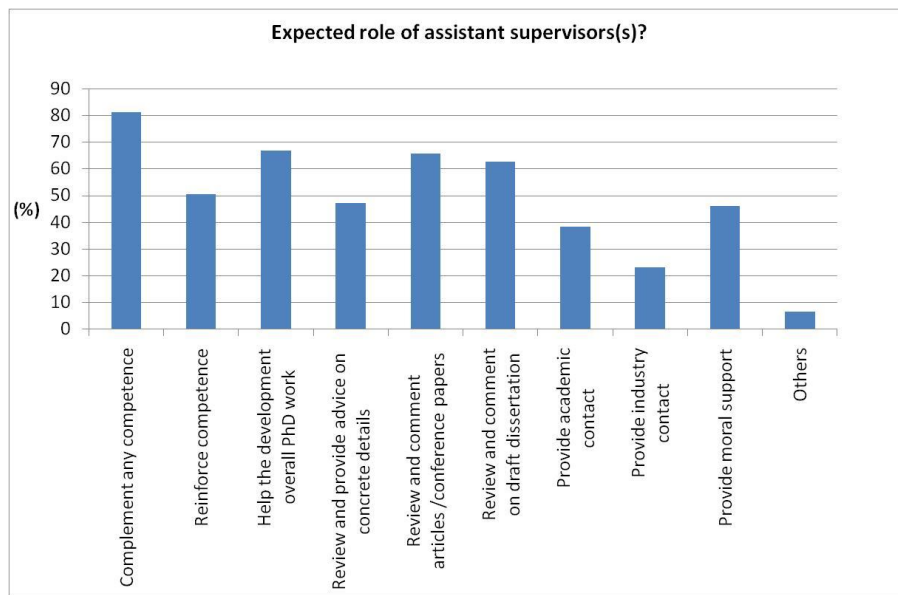


Figure 1.

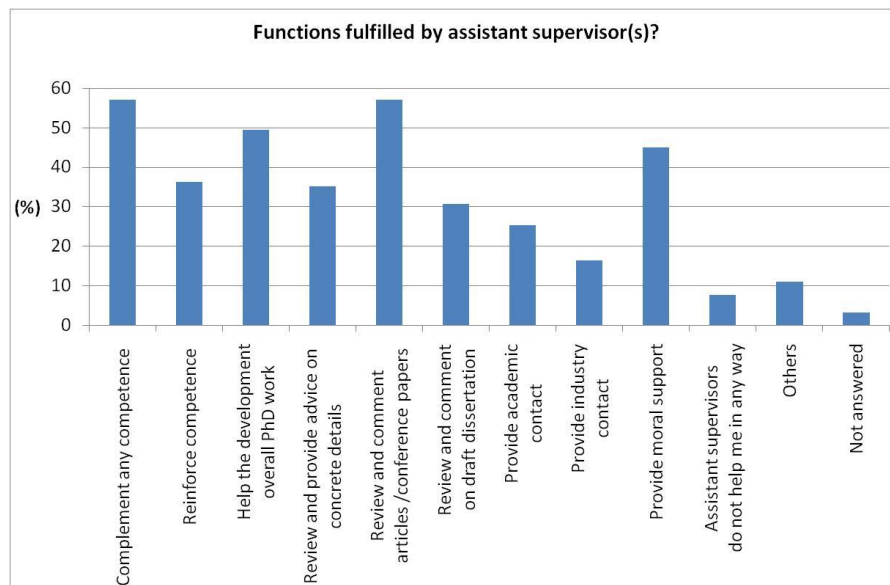


Figure 2

3.2 Analysis of Results from Students

To gain a deeper understanding of the relationship between students and ASs, we next considered how the students' responses relate to each other. Specifically, we considered the questions “**In your view, what roles did/do you expect your assistant supervisor(s) to play?**”, “**In reality, what functions have/had been fulfilled by your assistant supervisor(s)?**” and “**Please indicate the level of your satisfaction concerning the overall supervisions you have/had received from all supervisors**”. The aim is to understand how these topics relate to each other and to responses to other questions.

To facilitate this investigation we introduce here several parameters to allow for easier comparison of data. The first, termed the “**expectation index**”, simply indicates the number of answers the students chose, on average, to the question “**In your view, what roles did/do you expect your assistant supervisor(s) to play?**” (out of 9 possible answers, plus “other”). Similarly, we introduce a “**reality index**” indicating the number of answers chosen on average to the question “**In reality, what functions have/had been fulfilled by your assistant supervisor(s)?**” Specific answers to these questions will also be considered. Next, to gauge satisfaction we use two parameters, the “**satisfaction index**” which is the average answer students chose to the question “**Please indicate the level of your satisfaction concerning the overall supervisions you have/had received from all supervisors**”, where 4 = “very satisfied” and 1 = “the level of supervision was far from adequate”. Finally, for more direct comparison of subgroups of students we also use the notation “**satisfied proportion**” which simply indicates the percentage of students within that group choosing the responses “satisfied” or “very satisfied”.

For the surveyed group as a whole, we found that the **69%** of students indicate they are satisfied or very satisfied. This corresponds to a satisfaction index for the group of **3.0**, varying significantly between subgroups. For the expectation index, the average for the entire surveyed group is **4.9**, while the reality index is **3.7**. This indicates that the students in general find their ASs do not provide as much help as they expect. This difference was found for all investigated subgroups, though the magnitude of the difference varies significantly.

We also find, perhaps unsurprisingly, that there is a relationship between expectations versus reality, and satisfaction with the PhD supervisions. If we considered only the “unsatisfied” students (those who did not select “satisfied” or “very satisfied”), we find the expectation index on average is **5.2** – higher than the average overall. The reality index is just **2.8**, considerably lower than the average. We note here that these are based on the students' perceptions, and are intended to measure how they feel their supervisors meet their expectations, rather than to objectively measure what supervisors actually do. Nevertheless, it is clear that students who are not satisfied with their supervision overall experience a much larger gap between their expectations of their ASs, and what they feel they receive.

First, we note that the satisfaction index varied considerably between the different departments surveyed, from **2.6** for Physics to **3.6** for EIT. This corresponds to **48%** satisfied proportion for Physics and **100%** for EIT. However, there are also notable differences in satisfaction with time in PhD. We find that students in their first year (0-20% of the PhD period completed) have a satisfaction index of **2.7**. This rises to **3.1** for the second and third year, and to **3.4** for the fourth year (61-80% completed). However, the satisfaction index drops in the final year (81-99% completed PhD), to just **2.6**. From this information we may speculate that the first and last year of the PhD are the most vulnerable periods, when students are experiencing the most change and uncertainty. This may give a clue to the general dissatisfaction of Physics students compared to students at other departments: **62%** of respondents in Physics were in their first or last year, versus **34%** for the group as a whole.

As a side note, we also included in our survey students who had recently completed their PhD. These (former) students also had a quite high satisfaction ratio of **3.3**. However, we note that there may be a selected bias in favor of satisfied former students, since in some departments the survey was sent only to the former PhD students still employed at Lund University. Unsatisfied former students may not choose

to stay at Lund University following completion of their PhD. Therefore, we will not consider this group as a whole. Responses from these students will however be included when investigating other parameters.

To understand better how the stage in the PhD relates to students' satisfaction with their supervision, we next consider the expectations of the students at different stages. Satisfied students in their first year indicate an expectation index of **3.5** and a reality index of **2.8**. Unsatisfied first-year students have an expectation index of **5.4** and a reality index of **3.2**. It is interesting that both groups of students indicate a significantly lower reality index than the average for the survey group (**3.7**). This suggests that ASs are not playing as large a role at the beginning of the students' PhD periods as they will play later on. We might speculate that this relates to the task of figuring out one's "place", relative to the main supervisor, which may especially be the case when working with a new main supervisor. It may also be that ASs feel their role is more important as the student becomes more involved in their project. In this case, the level of satisfaction of the students seems to relate primarily to their expectations – students who expect less of their ASs (perhaps because they are unsure of the role of an AS) are generally more satisfied. Students who expect more (perhaps because of a busy main supervisor, for example) are less satisfied overall.

By the fourth year, it appears a balance has been achieved. Students in this year expect more on average (expectation index **4.8** for the entire group) but also have a higher reality index (**3.9**). The level of satisfaction in this year is high enough that there are insufficient unsatisfied students to obtain separate averages for satisfied and unsatisfied. However, the situation changes significantly in the final year, when the satisfaction index is lowest. For satisfied students in their final year, the expectation index is **5.5** and the reality index **4.9**. For unsatisfied students, the expectation index is **5.2** and the reality index **2.9**. In this case, then, the expectation of students are universally high compared to earlier years, perhaps indicating the significantly increased stress and demands on a PhD student preparing their thesis and defense. The difference in satisfaction then relates not to expectations, but rather to how well ASs meet them in reality.

We next consider how the number of supervisors affects student satisfaction. We find that **71%** of students with only one AS are satisfied, compared with **68%** of those with two ASs and **85%** of those with three or more (in this case, however, statistics are very limited). It is not obvious whether there is a significant trend here. To better understand, we instead look at how external supervisors (those from outside the students' own department) relate to satisfaction. As is indicated in the free text answers (Section 3.5), many students made positive mention of supervisors from outside their department. In fact, we find that of the 32 students with at least one supervisor outside their department, **82%** are satisfied (versus **63%** of students without any external supervisors).

The next question is whether students actually receive more supervision when they have more supervisors, and whether this depends on existence of external supervisors. The reality index for students with only one AS is **3.1**, compared to **4.6** for students with multiple ASs, suggesting more supervisors means more supervisions. However, students with multiple supervisors also expect more: the expectation index is **4.3** for students with one AS and **5.6** for students with multiple ASs. Since both expectations and reality are affected, the satisfaction level may not be significantly affected.

Looking instead at external supervisors, the expectation index of students with these supervisors is **5.5**, while the reality index is **4.1**. This suggests an even bigger gap between expectations and reality for students with external supervisors than multiple supervisors at the same department. However, the data indicates they are on average more satisfied. To understand this, we therefore have to look more closely at what the expectations actually are.

If we examine the specific responses of students to the question **"In your view, what roles did/do you expect your assistant supervisor(s) to play?"**, we see that the most popular answer was "Complement any competence that the main/other supervisor(s) lack(s)", with more than **81%** of students selecting this option (see Figure 2). **57%** of students report that their AS(s) has/have fulfilled this role in reality, which represents the largest gap between expectations and reality (in number of students) of any of the options.

Note here we have excluded the option “Review and comment on draft dissertation”, which 63% of students expected but only 31% had received; we presume that this large difference arises from the fact that most of the student respondents had not yet prepared a dissertation.

We may speculate that external supervisors are more likely to have competence differing from the main/other supervisor(s), and therefore that they may be more likely to fulfill this role. To investigate this, we first confirm that this particular supervisor role is significant to student satisfaction. We find that among satisfied students, **81%** expect this particular role, while **65%** say they receive it in reality. Among unsatisfied students, **82%** expect this role (indicating satisfaction is not related to the expectation), but only **39%** say their supervisors have fulfilled this in reality. This indicates that this specific supervisor role, which the majority of students feel is important, is also directly linked to how satisfied students are with their PhD supervision.

We next investigate whether the existence of external supervisors affects whether this role is fulfilled. This is investigated separately for satisfied and unsatisfied students since satisfied students are already more likely to have an external supervisor. We also consider only the ~80% of students who responded that this role (“complement any competence the main/other supervisor(s) lack(s)”) was important. We find that among satisfied students, **83%** of those with external supervisors say that their supervisors fulfill this role, compared to **73%** of those without external supervisors. Among unsatisfied students, **71%** of those with external supervisors say their supervisors fulfill this role, compared to **38%** without external supervisors. In both cases, it is clear that the existence of an external supervisor increases the chance that one or more ASs will complement the competence that the main/other supervisor(s) lack(s).

3.3 Supervisors

In total 53 academics acting as assistant supervisors (AS) at 8 different departments at Lund University answered the survey. About 40 % of the answers originate from The Department of Physics. Typically, the supervised students are engaged at Lund University and most often at the same department as the supervisor; 92% of supervisors had supervised at least one student at their own department.

The respondents’ experience in supervising PhD-students, as AS and main supervisors (MS), is shown in Figures 3 and 4 respectively.

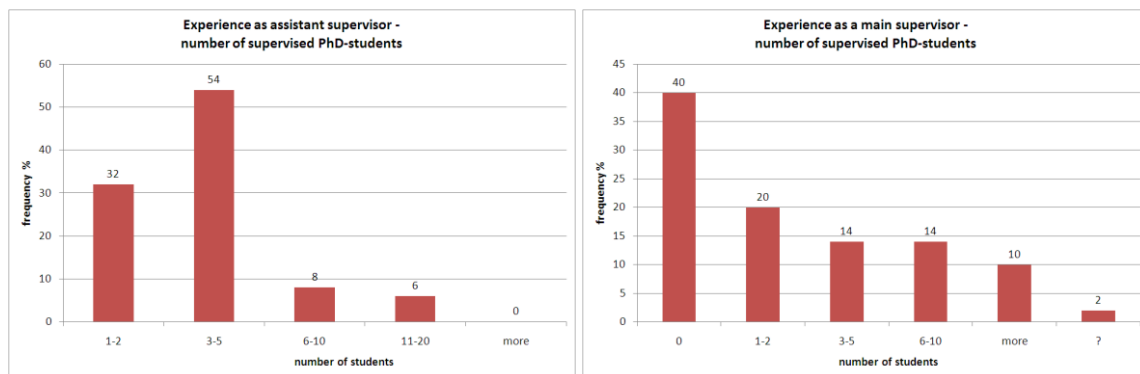


Figure 3-4: Experience as assistant and main supervisor of the survey respondents

Most of the supervisors in the survey seem to have acted as AS for 1-5 PhD-students. Probably due to advancement to the degree of docent, around 58 % have also acted as MS. It is possible that the results in Figure 4 reflect different interpretations of the survey question – namely acting as a formal or de facto MS.

The perceived roles of ASs are shown in Figure 5. As multiple answers were allowed, the results are presented as the number of answers for the different choices.

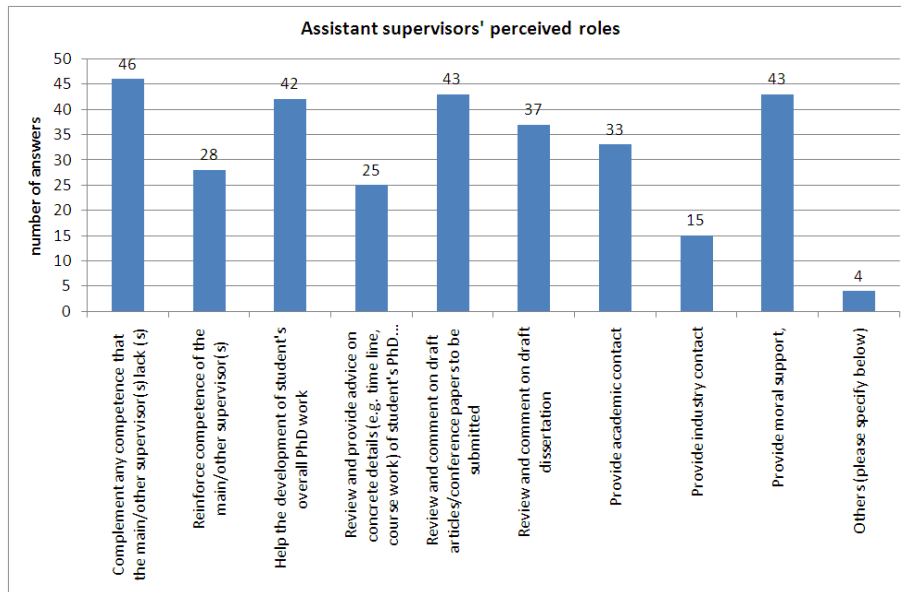


Figure 5: Assistant supervisors' perceived roles

Complementing the MS competence, reviewing articles and providing moral support are the main perceived roles for AS. Other important roles include developing the overall PhD work and reviewing the draft dissertation. The answers indicate that ASs expect to be actively involved in both the closely related research work and in the enculturation task. Involvement in the PhD-students' research work is probably often part of the ASs' own research work and thus might bring reciprocal advantages. Providing moral support can be regarded as an exercise for better future academic leadership.

The real roles fulfilled by ASs are shown in Figure 6, with results presented as the number of answers for the different choices.

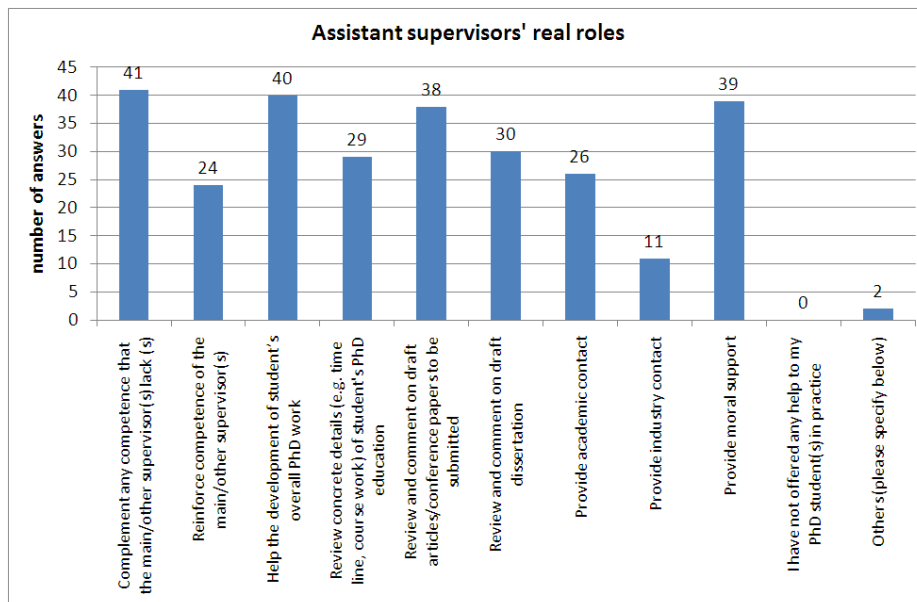


Figure 6: Assistant supervisors' real roles

On a relative scale, the answers concerning real roles are in accordance with the ASs' perceived role. Activities connected to the PhD-students' research work and enculturation dominate, while those

connected to formalities are carried out more occasionally, e.g. participation in the updating of individual study plans. Generally, less activity is carried out in the real supervision process, which might indicate a minor gap between ambitions and opportunities/needs.

3.4 Comparison between students and supervisors

In order to compare the responses of students and supervisors, we must first consider that there may not be significant overlap between the groups of respondents – that is, supervisors of students who responded may not have themselves responded, and vice versa. The survey group was selected from the study authors' own departments, without explicit consideration for matching students and supervisors. Nevertheless, since most students had a least one supervisor from their own department and nearly all supervisors had supervised someone at their own department, overlap may be automatic. On the other hand, since the survey response rate was 63% for students and just 49% for supervisors, significant overlap cannot be assumed. We might also anticipate a selection bias for “good” assistant supervisors: those who have little or no involvement with students for whom they are AS may not choose to respond to the survey. Therefore, comparison must be made with caution.

One interesting result when comparing Figures 1 and 5 (role of the AS in the opinion of the students and supervisors, respectively) is that supervisors expect more of themselves than the students expect of them. As mentioned in Section 3.2, the students responding to the survey had an expectation ratio of 4.9. Supervisor responses however indicate an expectation ratio of 6.3, higher than any subgroup of students considered. As well, supervisors have a higher opinion of their own performance (Figures 2 and 6): compared to the reality ratio from students of 3.7, supervisor responses give a reality ratio of 5.6. Not only are both numbers higher for supervisors than for students, but the difference between (both relative and actual) is smaller, indicating supervisors feel they are fulfilling expectations better than students believe they are.

Supervisors marked all of the nine possible roles as more important than the students did (that is, a higher proportion of supervisors than students indicated the role as important); see Figures 1 and 5. However, for the most part the relative number of supervisors selecting each role mirrored the relative number of students. The largest difference was for the role “provide moral support”: 86% of supervisors felt this was an important task for an AS, compared to only 46% of students. This was also the only role for which the difference between expectation and reality was smaller for students than for supervisors: 45% of students felt they had received this in reality, while 78% of supervisors reported that they supported their students in this way.

Another interesting result was that 8% of students indicated that their AS did not help them in any way, while none of the supervisors reported that they had not offered help to a student. This may have arisen from different interpretations of the questions: students sometimes checked this option in addition to other options, while indicating in the comments that not all of their ASs had helped them. Supervisors may however have considered the equivalent answer inaccurate if they had offered help to any (not necessarily all) of their students. On the other hand, we must repeat that a selection bias is anticipated: supervisors that have no involvement with students for whom they are AS may not choose to respond to the survey.

3.5 Analysis of free text answers

The results given in the previous sections are based on answers on multiple choice questions. The students and supervisors also had the opportunity to give free text answers for most of the questions. As it turns out, some of these answers were very interesting. This section will give an overview of these answers and explicitly give some of the answers and our interpretation and analysis of them. It must be emphasized that these are just views of individuals, and they do not necessarily reflect the opinion of the population.

For ease of reading, typographical errors have been corrected in the comments. Some comments have also been cut short in order to highlight the important part. Also, if not explicitly stated, the comments below are from students.

The first thing to notice is that the role of the AS varies significantly from case to case. In some cases the AS in reality takes on the role as the main supervisor, while in other cases the AS is just a name on a paper, not actually doing anything at all related to the student's PhD education. We exemplify this by the following comments.

"I only got support from my assistant supervisor, while my formal supervisor has not kept in touch more than once a year."

"I had no (scientific) contact with my assistant supervisor. He was just a name on a paper. All work was done with the main supervisor."

In between these two extremities, there is of course also a greyscale. This difference should not immediately be considered a problem. This is reflected by the following related comment.

"I barely knew that I had an assistant supervisor, but I want to emphasize that it was not really a problem."

However, in some cases this might represent a problem. If the student enters the education with the impression that the main supervisor will be very involved in the work, or that much support will be given by the AS(s), and this proves to be wrong, then the student might see it as a problem. This calls for better communication and, in the student's view, a better description of the different roles of all supervisors. It is clear from many answers that the different roles are not clarified, and that this is something that needs to be improved. Below are examples of this.

"I think it could be valuable to specify more what the task of the assistant supervisor is."

"For me it has not been very clear what the actual role of an assistant supervisor is"

"It would be good if the role of the assistant supervisor was clear from the start"

"I think the role of assistant supervisor should be clear from the start"

"The most important thing is that the student and all supervisors agree on which different roles each person should have" (Supervisor)

We stress that *all* comments above are from representatives of *different* departments, so this is not specific for one working environment. On a side note, if the AS is in practice doing virtually all the supervision tasks, this could in some cases only be because he/she is not formally allowed to be a main supervisor. Still, this fact should then be communicated to the student. One supervisor even wanted to go even further:

"I welcome official guidelines on the work of an assistant supervisor."

This might be a good idea. Students would better know what to expect and the supervisors would better know what are expected by them. However, more rules would also put more restrictions on already well functioning relations. Even if they are just guidelines, they can have a negative impact. Indeed, what kind of supervision, and by whom, is individual for each student-supervisor combination. As was pointed out by another supervisor

“Selection of assistant supervisors needs to be made individually for each PhD student. I have many different types of PhD students and they have individual needs.”

Another thing that is noticeable, and which might not be obvious, is that students seem to be very pleased with supervision from outside the department.

“An active assistant supervisor from another institution and/or area proved to be very fruitful.”

“Would have been useful to have someone who knew “the ropes” when it comes to research, and maybe from another institute – that would give another perspective on research and methodology.”

“Having an assistant supervisor at another department is very nice since it helps looking at the research from different perspectives. In some cases it might be difficult to get him/her involved in the research, but in my case it was not a problem.”

Even if this is just the view of three students, it might be a good idea to consider the possibility of using researchers at other departments as assistant supervisors. Looking at the survey results, we find additional motives for this. Out of all students which have at least one supervisor outside the department, 82% were “satisfied” or “very satisfied” with the overall supervision. This can be compared to 63% of the students with no external supervisor. As was discussed in Section 3.2, there appears to be a significant relationship between external supervision and the students’ satisfaction level in their PhD.

According to the instructions for the individual study plan, all supervisors are required to be present at the personal development discussion, which should result in the update of the individual study plan. This is one of very few actual requirements that we have found for assistant supervisors. The following comment should be seen in view of this requirement.

“One of my assistant supervisors would participate in the review most of the time whereas the other never participates in the review.”

This can also be compared to the results for the questions related to this. In practice, this is probably not a problem. However, it is rather ironic that several comments call for more clarity regarding the role of the assistant supervisor while one of the few roles that really are clear is not regarded as important, or at least not honored.

4. Conclusions

In this study the role of the assistant supervisor in the education of PhD students was investigated from the perspective of current and former PhD students and the supervisors themselves. Data were collected by survey of selected department at Lund University, by a combination of multiple choice and free answer questions. Responses were received from students at all stages of the PhD and from supervisors throughout their career.

The data indicate that the degree to which assistant supervisors fulfil the expectations held of them of students, the more likely the students are to be satisfied with their PhD. The actual magnitude of the of the assistant supervisors’ roles (in the students’ perception) varied through the course of the PhD, and was less of a determinant of student satisfaction than the difference between this role and the expected role.

About 40% of students in this survey had more than one assistant supervisor. This presence of multiple assistant supervisors increased the students’ expectation of their supervisors as well as the amount of

supervision received, but did not significantly increase student satisfaction. On the other hand, 35% of students had at least one supervisor outside their own department (external supervisor). The presence of an external supervisor also raised the supervision expectations and received supervision slightly, by a smaller proportion than multiple assistant supervisors. However, the presence of external supervisors had a clear positive effect on student satisfaction. This effect is tentatively correlated with the supervision role of complementing any competence lacking in the main supervisor, which was also the role considered important by the largest number of student respondent.

Assistant supervisors also responded with what they considered to be important tasks for this supervisory role, as well as their own perception of how often they performed these tasks in reality. Compared to students, supervisors generally rated the same tasks as most important, although a larger proportion of supervisors than students selected each of the possible answers. A larger proportion of supervisors than students also felt that each of the roles had been fulfilled in reality, although this may be partly related to a selection bias among survey respondents for more active assistant supervisors.

The role of assistant supervisor within Lund University is generally not well-defined, and both students and supervisors indicated within the free text answers that they would welcome more clearly-defined roles. The flexibility within the current system is however also appreciated (particularly since it allows for external supervisors). A solution may be simply to have early and frequent discussions on the role of assistant supervisors for a specific PhD student, to ensure that all participants understand the expectations of the others and that the relationship works as best as possible.

References

- Högskoleverket. (2009). *What studies entail*. [On Line] Available. www.doktorandhandboken.nu/whatstudiesentail.4.3903c19712420ca81d47ffe2164.html [27 September 2010]
- Lee, A. (2008). How are doctoral students supervised? Concepts of doctoral research supervision. *Studies in Higher Education*, 33 (3) 267-281.

Appendix 1: Survey for PhD students

Perceived roles of assistant supervisors in the doctoral education - views of PhD students

Welcome to the survey on the perceived roles of assistant supervisors in the doctoral education! The overall purpose of the survey is to obtain a better understanding on the perceived roles of assistant supervisors in the eyes of PhD students and the assistant supervisors themselves, and thereby contribute to the improvement of the PhD education at LTH. A similar survey is circulated among assistant supervisors.

The survey is conducted by a group of researchers from different departments as part of their Docent course work at LTH. The results of the survey will be made available for the current and future participants of the docent course as well as those who are interested in PhD education at LTH. Your frank input is greatly appreciated: your answers will be collected and analysed anonymously.

Q1: Which department at the LTH do/did you formally work for/study? (single choice)

- Chemical engineering
- Chemistry
- Electrical and Information Technology
- International Institute for Industrial Environmental Economics
- Physics
- Building and Environmental Technology
- Other (please specify)

Q2: How far have you come in your PhD study? (single choice)

- 1-20%
- 21-40%
- 41-60%
- 61-80%
- 80-99%
- 100%

Q3: How many assistant supervisors do/did you have? (single choice)

- One
- Two
- Three
- More (please specify)

Q4: Where does/do/did your assistant supervisor(s) belong to ? (multiple choice)

- The same department as I study
- Another department in Lund University
- Another university in Sweden
- Another university in another country
- Industry

- Others (please specify)

Q5: In your view, what roles do/did you expect assistant supervisor(s) to play? (multiple choice)

- Complement any competence that the main/other supervisor(s) lack (s)
- Reinforce competence of the main/other supervisor(s)
- Help the development of my overall PhD work
- Review and provide advice on concrete details (e.g. time line, course work) of my PhD education
- Review and comment on draft articles/conference papers to be submitted
- Review and comment on draft dissertation
- Provide academic contact
- Provide industry contact
- Provide moral support
- Others (please specify)

Q6: In reality, what functions have/had been fulfilled by your assistant supervisor(s)? (multiple choice)

- Complement the academic competence that the main/other supervisor(s) lack (s)
- Reinforce the academic competence of the main/other supervisor(s)
- Help the development of student's overall PhD work
- Review concrete details (e.g. time line, course work) of my PhD education
- Review and comment on draft articles/conference papers to be submitted
- Review and comment on draft dissertation
- Provide academic contact
- Provide industry contact
- Provide moral support
- My assistant supervisor(s) do(es) not help me in any way
- Others (please specify)

Q7: How often is/was your individual study plan reviewed? (single choice)

- Less than once a year
- Once a year
- Twice a year
- More
- The review has not taken place.
- Others (please specify)

Q8: What is/was the likelihood of your assistant supervisor(s) to participate in the review of your individual study plan (including reading and commenting on distance)? (single choice)

- She/he/they always participate in the review.
- She/he/they participate in the review most of the time.
- She/he/they participate in the review occasionally.
- She/he/they hardly participate in the review.
- She/he/they never participate in the review.

- I did not know that my individual study plan needs to be reviewed every year.
- Others (please specify)

Q9: Please indicate the level of your satisfaction concerning the overall supervisions you have/had received from all the supervisors (single choice).

1. Very satisfied
2. Satisfied
3. I would wish to have a bit more supervision
4. The level of supervision is far from adequate)

Q10: If your answer to Question 9 was 3 or 4, from whom you would wish to receive additional supervision?

- Main supervisor
- Assistant supervisor(s)
- I need another supervisor
- Other (please specify)

Q11: If you have any thoughts to improve the supervision of assistant supervisors, please share with us below.

Thank you very much for your time and contribution!

Kimberly Dick, Department of Physics and Department of Chemistry; Martin Hell, Department of Electrical and Information Technology; Miklós Molnár and Tord Isaksson, Department of Building and Environmental Technology; Naoko Tojo, International Institute for Industrial Environmental Economics; and Ola Wallberg, Department of Chemical Engineering

Appendix 2: Survey for assistant supervisors

Perceived roles of assistant supervisors in the doctoral education - views of assistant supervisors

Welcome to the survey on the perceived roles of assistant supervisors in the doctoral education! The overall purpose of the survey is to obtain a better understanding on the perceived roles of assistant supervisors in the eyes of PhD students and the assistant supervisors themselves, and thereby contribute to the improvement of the PhD education at LTH. A similar survey is circulated among current and former PhD students.

The survey is conducted by a group of researchers from different departments as part of their docent course work at LTH. The results of the survey will be made available for the current and future participants of the docent course as well as those who are interested in PhD education at LTH. Your frank input is greatly appreciated: your answers will be collected and analysed anonymously. In case the types of students you have had are diverse, you are welcome to fill in the survey several times.

Q1: At which department(s) at the LTH do you work? (multiple choice)

- Chemical engineering
- Chemistry
- Electrical and Information Technology
- International Institute for Industrial Environmental Economics
- Physics
- Building and Environmental Technology
- Others (please specify)

Q2: How many PhD students have you supervised as (an) assistant supervisor for (including the ones you are supervising now)? (single choice)

- 1-2
- 3-5
- 6-10
- 11-20
- More

Q3: Where does/do your student(s) do her/his doctoral study? (multiple choice)

- The same department as I work
- Another department in Lund University
- Another university in Sweden
- Another university in another country
- Industry
- Other (please specify)

Q4: In your view, what roles do you think you should play as (an) assistant supervisor(s)? (multiple choice)

- Complement competence that the main/other supervisor(s) lack (s)
- Reinforce competence of the main/other supervisor(s)

- Help the development of students' overall PhD work
- Review and provide advice on concrete details (e.g. time line, course work) of students' PhD education
- Review and comment on draft articles/conference papers to be submitted
- Review and comment on draft dissertation
- Provide academic contact
- Provide industry contact
- Provide moral support
- Others (please specify)

Q5: In reality, what functions have you fulfilled as (an) assistant supervisor(s)? (multiple choice)

- Complement the academic competence that the main/other supervisor(s) lack (s)
- Reinforce the academic competence of the main/other supervisor(s)
- Help the development of student's overall PhD work
- Review concrete details (e.g. time line, course work) of student's PhD education
- Review and comment on draft articles/conference papers to be submitted
- Review and comment on draft dissertation
- Provide academic contact
- Provide industry contact
- Provide moral support
- I have not offered any help to my PhD student(s) in practice.
- Others (please specify)

Q6: How often is a PhD student's individual study plan reviewed in your department? (single choice)

- Less than once a year
- Once a year
- Twice a year
- More
- I do not know.
- Others (please specify)

Q7: How often do you participate in the review of your PhD students' individual study plan as (an) assistant supervisor(s) (including reading and commenting on distance)? (single choice)

- I always participate in the review.
- I participate in the review most of the time.
- I participate in the review occasionally.
- I hardly participate in the review.
- I never participate in the review.
- I did not know I was supposed to participate in the review of my PhD student's individual study plan.
- Others (please specify)

Q8: How many PhD students have you supervised as the main supervisor (including the ones you are supervising now)? (single choice)

- 0
- 1-2
- 3-5
- 6-10
- More

Q9: If you have any thoughts to improve the supervision of assistant supervisors, please share with us below.

Thank you very much for your time and contribution!

Kimberly Dick, Department of Physics and Department of Chemistry; Martin Hell, Department of Electrical and Information Technology; Miklós Molnár and Tord Isaksson, Department of Building and Environmental Technology, Naoko Tojo, International Institute for Industrial Environmental Economics, Ola Wallberg, Department of Chemical Engineering