



PhD-education survey supervisors 2020

Report

SUMMARY

PhD supervisors at the faculty of engineering (LTH) generally have good preconditions for their supervisor duties. They value supervisor competence and good relations to PhD students highly. Finding financing for PhD students' research projects is a constant challenge and main supervisors take a large responsibility for the financing and recruitment of PhD students. The report suggests collegial exchange between supervisors, improved routines for the development and problematisation of the PhD students' projects, professional development possibilities for supervisors, career guidance for PhD-students and equal treatment as relevant development areas in the improvement work of the education board for PhD studies (FUN).

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1. Introduction

This report presents the result of the PhD-education survey for supervisors conducted at the Faculty of Engineering (LTH) during autumn 2020. The purpose of the survey is to follow up the supervisors' conditions within the PhD-education systematically from the overarching questions formulated by the LTH education board for PhD-studies (FUN). This survey complements the PhD-education survey for PhD-students conducted in 2019. The supervisors' situation has previously been studied mainly in a Lund university survey in 2011/12. The faculty has never conducted a comprehensive survey focusing on PhD-supervisors before.

The LTH supervisor survey focalizes supervisor duties within the PhD-education. Since there is already a developed follow-up process for working-environment aspects at LTH, this survey does not address any questions in this area deeply. Instead, it has been our main objective to find out if there are any unwarranted differences between different groups of supervisors' conditions to perform their duties, depending on the role as main or assistant supervisor, departmental belonging, language background or gender.

In this survey the supervisors have been asked to agree or disagree with approximately 75 statements concerning different aspects of the PhD-education. The statements have been grouped in 23 areas (indexes) forming the basis for our analysis: *Clear instructions for supervisor duties, Trust and general conditions for supervisor duties, Time for supervisor duties, Collegial support, Equal treatment, Openness in the PhD-education environment, Introduction and expectations of PhD-students, PhD-students' collaboration, Career and network support for PhD-students, Internationalization, Good routines for development, Supervision, Self-evaluation and reflection, Administrative support from the Faculty Office, PhD-student recruitment, Financing PhD-student projects, Research ethics, Self-assessed competence, ISP, Higher Education Order learning outcomes, Supervisors and PhD-student relations, LTH strategic goals and Satisfaction.*

The survey was commissioned by the LTH education board for PhD-studies and conducted by the LTH Quality Support Unit. The working group consists of John Jönsson (quality support), Christina Åkerman (quality support) and Anders Ahlberg (CEE). The questionnaire was validated by the FUN PhD-education leaders before the survey. The survey is planned to be repeated every third year in order to make it possible to follow questions over time. The survey results are supposed to be used for systematic quality enhancement of the PhD-education.

FUN is the board mainly responsible for follow-up activities and formulating goals for the PhD-education at LTH. The departments are responsible for the improvement activities needed to make the PhD-education at LTH of equal and good quality.

2. Summary

Supervisors within the PhD-education at LTH all in all have good preconditions for their duties. They also think that there is general trust in their work, that the workload for supervisors is fair and that they can be accessible for discussions and for response on their PhD-students' work. However, many supervisors experience lack of time for their own research. The open answers show that it is not evident for supervisors to consider their duties as supervisor as part of a formal working schedule in which it is possible to define how much of the time is allocated for supervision or teaching etc. Rather, the supervisor's time with his/her PhD-students or his/her own research are integrated with each other and often connected to the financing of PhD-student projects.

There are only small differences between different groups of supervisors, but there is a general tendency that the part of supervisors that agree positively with the survey statements increases with seniority and experience. Main supervisors are more positive than assistant supervisors, men more than women, and supervisors with Swedish as first language are more positive than those with another first language. This is also valid for the question on equity, where a vast majority agree with the question of equal possibilities etc. but different groups within the total clearly have different experiences.

Finding financing for PhD-student projects is the area in the survey that signals the largest challenge for supervisors. Many supervisors feel pressure to secure funding and do not think that expectations from sources of external funding always agree with the formal objectives of the PhD-education. Allocation of funds is not part of the education board's (FUN) powers, but the survey result highlights all the important efforts that are made, and that are often a precondition for the existence of PhD-education. Main supervisors seem to take large responsibility concerning funding.

Some of the survey question areas can be compared with the PhD-students' answers in their survey from 2019. Supervisors and PhD-students answer in a similar way to several core questions, for instance about equity, supervisor accessibility and about preparations for tutorials. Supervisors and PhD-students are equally satisfied with the PhD-education to a large extent. The difference is more obvious concerning to what extent PhD-students agree that they get support and guidance for their future career and the supervisors' image of their own contribution to his. There are also differences concerning familiarity with the Higher Education Ordinance outcomes for PhD-education and to what extent they inform the education. This is also the case for the ISP and its importance for development of the PhD-students. For these question areas the supervisors are more positive than PhD-students. This difference between supervisors and PhD-students remains very similar over time and can be seen in older surveys conducted by Lund university.

The strongest survey question area is about self-assessed supervisor competence. The supervisors of LTH agree to a very large extent that they have enough supervisor skills, subject matter knowledge and knowledge about academic writing to supervise their PhD-students. Questions concerning the relationship between supervisors and their PhD-students also get very high scores. At the same time many supervisors have indicated that they would like to have access to professional development about difficult supervisor situations. Supervisors are generally not certain about what kind of support they can get from the faculty administration in this matter. PhD-supervision and project leadership are other areas for professional development that many supervisors would like to have access to. Most supervisors

get supervisor training at the beginning of their career but never return to any formal training specific for the supervisor duties. In the open answers many supervisors expressed a need for collegial discussions about supervisor experiences and for access to professional development possibilities after a few years of supervisor practice.

The survey result suggests the following improvement areas for the PhD-education at LTH:

- Collegial support
- Developed routines for problematizing and development of PhD-student projects
- Recurring possibilities for professional development training and developed access for non-Swedish speakers
- Development of career guidance for PhD-students
- Equal treatment

3. Survey information

Survey information	
Survey period	August 10 – August 31, 2020,
Population	Comprehensive survey for supervisors attached to PhD-students at LTH. Limited to PhD-students marked as active in Ladok during 2019. Data collected Feb 11 2020
Respondent categories	<i>Gender, Department, Supervisor role, Amount of supervision, Year of birth</i>
Collection of survey data	Respondent survey administered in Survey and report. Distributed through personal link in mail.
Versions	Swedish and English
Response rate	Total 47,6% (294 of 618)

3.1. Description of the population

The survey was sent to 618 LTH supervisors employed at Lund university. The connection to active PhD students delimits which supervisors are included in the population. Supervisors employed at other universities or in the industry couldn't be included in the population due to lack of personal information in Lucat. The population is limited to active supervisors in 2019. The supervisors can be employed at the Faculty of Engineering or other faculties at Lund university.

In the supervisor population one out of four are women. The distribution between main supervisors and assistant supervisors is even with half of the population in each group. Most supervisors are responsible for 1-2 PhD-students. The age of supervisors is normally distributed with the majority born in 1960-69 and 1970-79. One out of four supervisors have another first language than Swedish.

3.2. Reliability

294 supervisors out of 618 answered the survey which gives a response rate of 48%. Women have answered more often (56%) than men (45%) and main supervisors have a higher response rate (57%) than assistant supervisors (38%). The response rate is a bit higher for supervisors responsible for a larger number of PhD-students but is evenly distributed over all age groups. The response rate varies more between departments (35%-84%) and departments with few respondents should be careful in drawing conclusions about the group based on few answers.

Since the survey is conducted for the first time, there is no corresponding reference data. In a few cases it is possible to make parallels with an earlier report from the LU Quality and Evaluation department from 2013, *Forskarutbildningen vid Lunds universitet Perspektiv från doktorander, doktorsalummer och handledare*¹. The report analyses the results from the 2011/12 PhD-education survey.

In this report the result of individual questions is mostly reported in simple frequencies and parts (%). The higher the frequency, the more reliable the result for a particular group. The report generated by Survey and Report includes standard

¹ Holmström, Ola, *Forskarutbildningen vid Lunds universitet Perspektiv från doktorander, doktorsalummer och handledare*, Rapport nr 2013:270

error of distribution values. This value is most often between 0,7-0,9. Each statement has five Likert scale alternatives.

It is hard to evaluate different biases that might influence the answers, but prestige and values that are important to individuals and the population as a whole probably affect the result. In this sense the survey can also give indications about such values.

3.3. Indexes

In addition to frequencies, the survey result has been aggregated in 23 index areas. Each index contains 2-6 variables that are logically connected and correlate.

The index is a calculated mean value between 0-100 and has been done in the analytic tool offered by Survey and Report. The survey mainly consists of statements with four Likert-scale alternatives, and *I don't know/not relevant*:

Alternative	Value
<i>I disagree completely</i>	1
<i>I disagree to some extent</i>	2
<i>I agree to some extent</i>	3
<i>I agree completely</i>	4
<i>I don't know/not relevant</i>	0

In the calculated mean value (index) the response value 1 corresponds to the index value 0 and the response value 4 to the index value 100 which magnifies the scale somewhat. The *I don't know* alternative (value 0) has been excluded from the calculation. A high index corresponds to a positive result.

The index makes it possible to identify strong areas and areas that need to develop and allows for multiple measuring points for each area. Appendix 2 lists all variables are included in each index.

The index has been used to compare groups, among other things to identify differences between groups. Figure 1 shows the total LTH index for all areas.

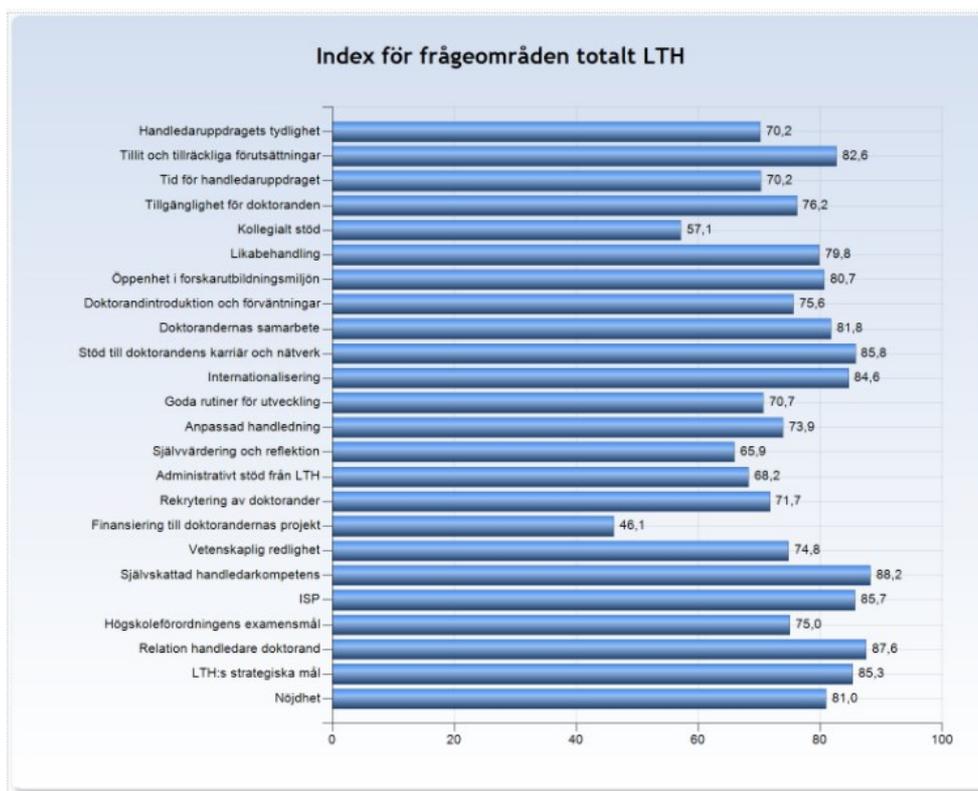
3.4. Documents returned to departments

A report with basic survey data was returned to all LTH departments immediately after the survey was closed:

- Report with all questions and open answers LTH total (PDF)
- Report with all questions and open answers for the department's own respondents (PDF)
- Index report per department and LTH total (PDF)
- Survey questionnaire Swedish and English version (PDF)

4. General results

Figure 1 Overview of indexes PhD-supervisor survey 2020



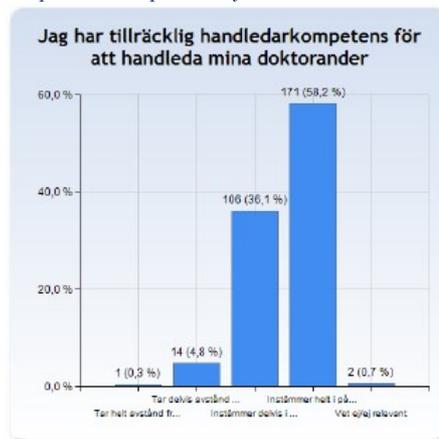
The index diagram (Fig. 1) offers an overview of the survey's question areas. In general supervisors agree positively with a majority of the statements.

Of all the index areas, supervisors agree most with statements about their own competence 94,6% agree completely or to some extent that they have enough supervising skills to supervise their PhD-students. (fig. 2). 97,2% agree completely or to some extent that they have the right subject matter competence and 97,6% that they have enough academic writing skills to support their PhD-students in the writing process.

Relational aspects also are highly valued. 95-100% of supervisors agree completely or to some extent that the relation between supervisor and PhD-student is built on trust and that it is possible to discuss problems, frustrations, and difficulties together. A majority of supervisors also answer that in the relation between supervisors, the development of the PhD-students is most important, which is also commented in the open answers:

"A PhD-student that feels support from his/her supervisors works better – and feels better, so to me it is important to create such a relation. Of course, there has

Figure 2 I have sufficient PhD supervision competence to supervise my PhD-students.



been conflicts, but mostly between supervisors and we really have tried to avoid any consequences for the PhD-student”.

An important part of the supervisors, more than 95% agree completely or to some extent that the PhD-education is conducted on the frontline of research, that it develops PhD-students ability to do critical, independent, and creative research. Somewhat less agree that the PhD-education within which they are active promotes interdisciplinarity, and 73,8% that it has a clear connection to sustainable development.

The supervisors also agree to a great extent that they support their PhD-students in their contacts with scientific networks that can be of use for them and that they give them support and advice about future career opportunities. They also agree to a great extent that there are good opportunities for their PhD-students to present their research internationally. The supervisors’ own idea about the extent of their career advice and support differs quite obviously from the PhD-students answers to similar questions in their survey in 2019. The PhD-students agree less that they receive advice and support about their future career.

94,9% of supervisors agree completely or to some extent that they can be accessible to discuss and respond on their PhD-student’s texts. 74,5% answer that they can increase their supervising efforts if needed to help their PhD-student finish his/her education in time.

Supervisors generally agree that there is enough support for their work at LTH. 68,4% agree to some extent or completely that there is enough support for recruitment and admission of PhD-students, 72,1% that there is enough support for the thesis defence process and 77,2% that they know who to turn to if they discover research misconduct. 50% of supervisors agree to some extent or completely that there is enough support to handle sensitive matters for supervisors within the PhD-education at LTH. For this statement an important part, 34,7%, has answered I don’t know/not relevant. This is also the case for the statement about well-functioning routines for changing supervisors. 56,1% have indicated that they don’t know or not relevant, which may imply that this neither is very common.

Figure 1 I feel pressure to find funding for my PhD-students’ projects.



Research funding stands out quite clearly as the most challenging area for supervisors. 74,9% agree to some extent or completely that they feel pressure to find funding for their for their PhD-students’ projects (fig. 3). 56,5% disagree to some extent or completely that it is easy to find funding for their PhD-students projects. 42,2% also disagree completely or to some extent that expectations from sources of external research funding and (if relevant) scholarship grants correspond to the formal requirements of PhD education, which is also evident in the open answers:

”I would like to claim that most sources of external research funding do not care about the formal requirements of the PhD-education, but that in the best case don’t counteract to them. Unfortunately, the forms of funding make it more and more difficult to make them harmonize. For instance, the requirement that the university

should finance courses at the same time as the faculty funding is so low that it doesn't cover both supervision and salary for the PhD-student". The open answers also indicate that there is a problem in that the funding is not enough for the study programme for PhD-students:

"External research funding normally covers only three-year projects, whereas the PhD-programme is four years (sometimes even longer if the PhD-student also teaches). This means that often more than one source of funding is necessary to cover a PhD-project, sometimes as many as four. This takes a lot of time for supervisors. The sources of funding often are of the opinion that the research project takes three years and that the fourth year (60-90hp) with courses doesn't benefit the project (our opinion is of course that this fourth year benefits the PhD-student, and in some sense probably also the project). If external funders don't change their opinion and start funding all four years and the system with courses continues, then LTH/LU should add funding for this year".

Most of the comments to the question "What could help improve your situations PhD-supervisor?" that concludes the survey concern research funding in one way or another.

An important part, 70,1%, of the supervisors agree completely that they largely influence the recruitment of PhD-students. On the other hand, only 57,5% agree completely or to some extent that it is easy to find PhD-students with the right competence.

Most supervisors, 87,4% agree completely or some extent that the workload for their duties is fair and 71,4% that they have enough time within their employment for supervision. Decisively fewer, 48%, agree completely or to some extent that they have enough time for their own research (fig. 4). The open answers also make it clear that it is not evident for supervisors to think of supervision and research in terms of parts of the employment:

"The concept of "time within my employment" is not applicable for most researchers at LTH who are funded by external research funding"; "The answer to the question "I have enough time for my own research" must be contrasted to other work duties. I don't spend too much time on supervising PhD-students, but I have had teaching duties and supervision of diploma projects that have made the available time for research very limited. Actually, I have been advised by my head of department to only spend time looking for external funding opportunities for PhDs and postdocs and not for my own research., or even "I do not have my own research. Most research I do is connected to PhD students and that takes the priority. Also, I have been told not to spend so much time intensifying my efforts to help my students finish on time and this is something I have done anyway. I prioritize my PhD students that I have as main supervisor and everyone else should wait".

Figure 2 I have enough time for my own research.

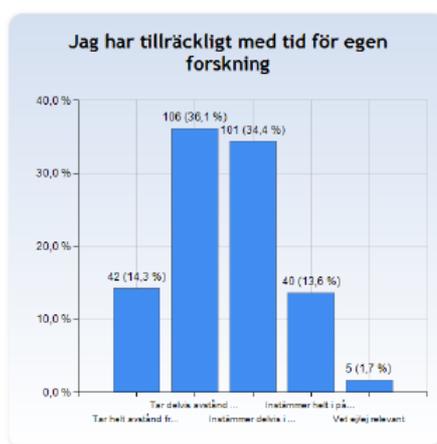


Figure 3 Supervisors within my PhD-study environment meet regularly to develop and evaluate the support given to PhD-students.



A relatively important part of supervisors answer that they disagree completely or to some extent that they meet regularly to develop and evaluate the support given to PhD-students within their own PhD-study environment. Only 11,6% (fig. 5). At the same time an important part, 86,4% agree completely or to some extent that they exchange experiences about supervision with their colleagues. 55,1% agree completely or to some extent that they receive support and encouragement in their role as supervisor from colleagues, and 60,2% from their superior. The open answers show that informal discussions occur between supervisors:

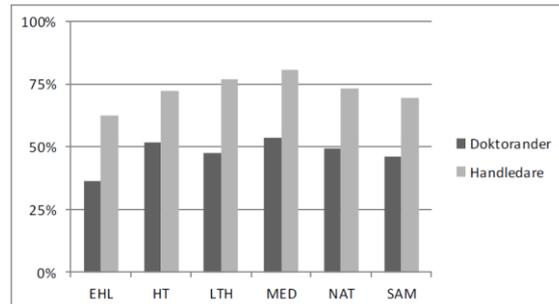
"Discussions about supervision often occur in informal conversations as well as in formal meetings. In addition to this, as head of section, I often have conversations with members of the teaching staff about different problems that occur in the supervision". The open answers also show that there is a need for a structured exchange between supervisor colleagues; especially in small PhD-study environments: *"I only have this kind of exchange with a very small number of colleagues. I would be in favour if there was more time for this in a larger context".* Some supervisors raise specific needs: *"A recurrent (in)formal workshop for supervisors could be very useful, perhaps with a theme or topic decide beforehand like 'the first article' or lic or not?', 'preparing for thesis defence' or 'managing conflicts' etc.", "The regular meeting for the Director of PhD studies we had at LTH is now gone, and that is a pity, as it was a very good venue to meet other Director of PhD studies and discuss various issues pertaining to PhD education."*

92% of the supervisors agree completely or to some extent that they are satisfied with the PhD-education offered in their own PhD-study environment. 94,2% of the supervisors agree completely or to some extent that they are content with their own efforts in the PhD-education all in all.

4.1. Changes over time

The supervisor perspective on PhD-education is some aspects possible to follow over time through a report from 2013, *Forskarutbildningen vid Lunds universitet Perspektiv från doktorander, doktorsalumni och handledare*. The report analyses the results of the 2011/12 survey on PhD-education at Lund university.

Figure 4 Supervisor and PhD-students' experience of being well informed about regulations for PhD-studies (Holmström 2013)

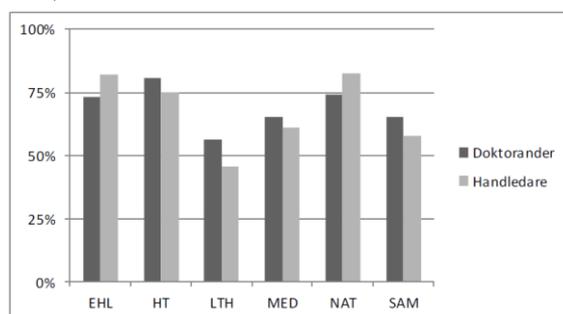


The survey from 2011/12 shows that supervisors felt informed about regulations for PhD-education to a larger extent than PhD-students (fig. 6). This was the case for all faculties. As far as the Higher Education Ordinance qualitative outcomes are concerned, more than 75% of the supervisors, compared to about 50% of the PhD-students

at LTH answered that they were well informed in 2011/12 (fig. 6). In the LTH survey 2020 88% of the supervisors agreed completely or to some extent that they knew and understood the Higher Education ordinance outcomes. The case was the same for attitudes towards the ISP. In 2011/12 the LTH supervisors, as well as supervisors from the other faculties, answered to a higher degree than PhD-students that the ISP corresponded to the actual studies, was an adequate regulator for the studies and had a clear function. At LTH supervisors and PhD-students agreed to a higher extent than at other faculties. The LTH supervisor survey in 2020 shows that the situation is the same for this and similar questions.

The 2011/12 survey showed that supervisors and PhD-students were less satisfied with the access to seminars than at other faculties (fig. 7).

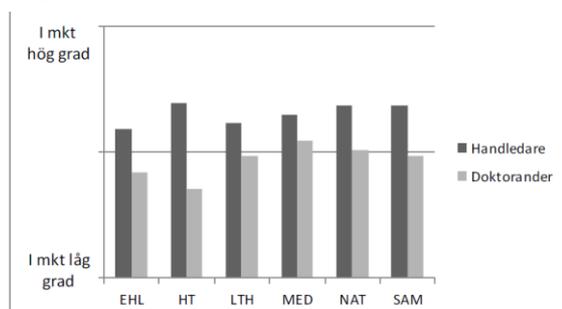
Figure 5 Part of PhD-students and supervisors that believe the access to seminars at their own department is good. (Holmström 2013)



to some extent with these statements which might indicate that there has been a positive development.

Career advice was an area that received some attention in the 2011/12 report. The result showed that both PhD-students and alumni thought that PhD-students and supervisors discuss post-doctoral occupation to a low extent (fig. 8).

Figure 6 Do supervisors and PhD-students discuss future occupation after the thesis defense? (Holmström 2013)



In the LTH survey in 2020 supervisors were asked to agree or disagree with two statements concerning this area: "There are good procedures to problematise and develop ideas for the PhD-students' research in my PhD study environment" and "There are good procedures to present and discuss texts for the PhD students in my PhD study environment". About 80% of the supervisors agree completely or

supervisors discuss post-doctoral occupation to a low extent (fig. 8).

The LTH surveys for PhD-students and supervisors in 2019-2020 show that the difference in how PhD-students and supervisors perceive the question about career advice and support and introduction to networks has not become less important.

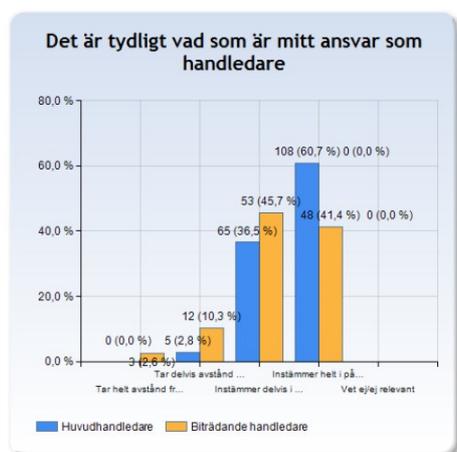
5. The conditions for supervisor duties

The main purpose of the survey was to learn about the supervisors' equal conditions for their duties within the PhD-education. In this report results from the respondent categories of *role as supervisor (main supervisor or assistant supervisor)*, *gender* and *first language*. The language category is based on the supervisors' own answers in the survey, the other categories on Ladok-data. It is not possible to compare answers for third-cycle subject areas because most would consist of too few answers to make a meaningful report.

5.1. Role as supervisor

In general, main supervisors agree more positively with the questionnaire statements than assistant supervisors.

Figure 7 My responsibilities as supervisor are clear.



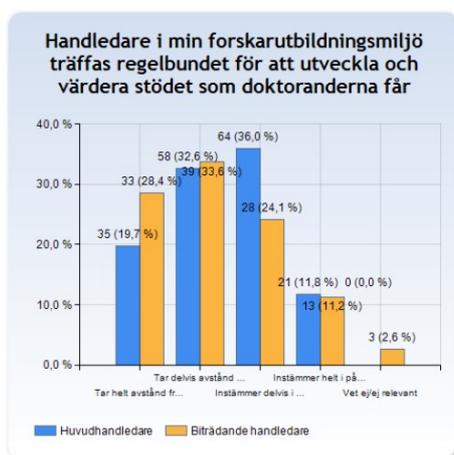
97,2% of the main supervisors agree completely or to some extent that it is clear what their main responsibilities as supervisors are, compared to 87,1% of the assistant supervisors (fig. 9). On the other hand, both groups agree to the same extent that there is a relevant description for their supervisor duties. About 50% in both groups agree to some extent and 22% agree completely with the statement. 71% of the main supervisors compared to 66% of the assistant supervisors agree completely or to some extent that the division of responsibilities between the supervisor roles is clear. In a similar way 88,2% of

the main supervisors, compared to 68,9% of the assistant supervisors agree completely or to some extent that PhD-student and supervisors' expectations on each other are clearly expressed in their own PhD-study environment.

Both groups agree to the same extent that they have enough time within their employment for their supervisor duties. Main supervisors and assistant supervisors also agree, almost 87%, completely or to some extent that the workload is fair and that they can be prepared for tutorials with their PhD-students. Both groups also agree completely or to some extent to a similar degree, about 48%, that they have less time for their own research.

81,9% of the assistant supervisors and 89,3% of the main supervisors agree completely or to some extent that they exchange supervisor experiences with their colleagues. 35,3% of the assistant supervisors compared to 47,8% of the main supervisors agree completely or to

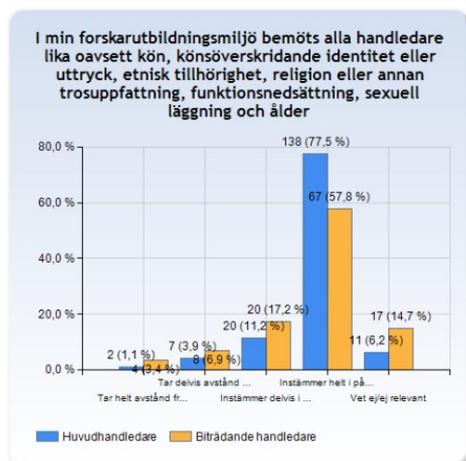
Figure 8 Supervisors in my PhD-study environment meet regularly to develop and evaluate the support given to PhD-students.



some extent that supervisors from their own PhD-study environment meet regularly to evaluate and develop the support the PhD-students receive (fig 10). Both groups agree in a similar way, about 68%, completely or to some extent that there is a need for forms of exchange of experiences for supervisors between departments at LTH.

75,9% of the assistant supervisors and 87,7% of the main supervisors agree completely or to some extent that they discuss academic integrity in their own PhD-study environment. Both groups agree to a similar degree, almost 77%, that they know who to turn to if they discover research misconduct.

Figure 9 In my PhD-study environment all supervisors are met with the same treatment, regardless of gender, transgender identity or expression, ethnicity, religion or other belief, disability, sexuality, or age.

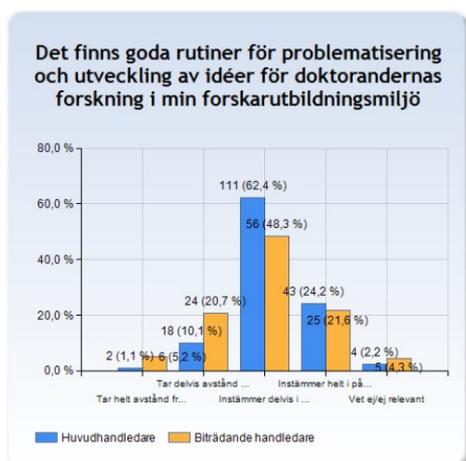


There is a certain difference to what extent supervisors agree that all supervisors are met with the same treatment according to the grounds of discrimination. 77,5% of the main supervisors agree completely that they are treated equally compared to 57,8% of the assistant supervisors (fig. 11). The open answers do not offer a clear reason for this difference and both main supervisors and assistant supervisors have described situations in which they have not felt treated equally.

There is also a slight difference to what extent the two groups agree that their own PhD-study environment is characterised by creativity and open-mindedness. 92,1% of the main

supervisors agree completely or to some extent with statements about this compared to 85,4% of the assistant supervisors.

Figure 10 There are good procedures to problematise and develop ideas for the PhD-students' research in my PhD-study environment.



69,9% of the assistant supervisors and 86,6% of the main supervisors agree completely or to some extent with the statement that there are good procedures to problematise and develop ideas for the PhD-students' research in their own PhD study environment (fig. 12). Similarly, there is a difference to what extent they agree that there are good procedures to present and discuss texts for the PhD students in their own PhD study environment. Assistant supervisors also answer to a somewhat less extent that the PhD-students are encouraged to work together in the PhD-study environment. 86,2% of the assistant supervisors compared to 93,2% of the main

supervisors agree with this statement.

Assistant supervisors and mains supervisors agree almost to the same degree (about 95%) completely or to some extent that it is possible for them to adapt the supervision according to the PhD-students' needs. 73,3% of the assistant supervisors and 79,2% of the main supervisors agree completely or to some extent

that it is easy to decide what kind of support needs to be intensified if something does not work for the PhD-student.

Assistant supervisors and main supervisors answer in a similar way that they reflect on the quality of their own supervision, but main supervisors agree completely more often than assistant supervisors (Fig. 13). Both groups agree completely or to some extent in a similar way, about 53%, that they evaluate the supervision regularly together with their PhD-students.

88,7% of the assistant supervisors answer that they support their PhD-student in getting in touch with scientific networks, compared to 98,8% of the main supervisors. In a similar way

81,9% of the assistant supervisors answer that they give their PhD-students advice and support about future career opportunities, compared to 94,3% of the main supervisors.

For all statements concerning the faculty's central support for the supervisor duties, main supervisors agree to a higher degree than assistant supervisors. The statements concern sufficient support for recruitment and admission of PhD-students, the thesis defence process, sensitive matters, introduction of new PhD-students and supervisors and well-functioning routines for changing supervisors. Assistant supervisors have answered "I don't know/not relevant" to a larger extent than main supervisors. This can be due to the fact that supervisors from other faculties than LTH (who are often assistant supervisors) are not aware of the LTH processes. Another reason to the difference might be that main supervisors take the main responsibility for administrative matters concerning PhD-students. It is especially clear that assistant supervisors are not familiar with, or don't consider it relevant to know if there is enough support for the recruitment and admission of PhD-students or for the thesis defence process.

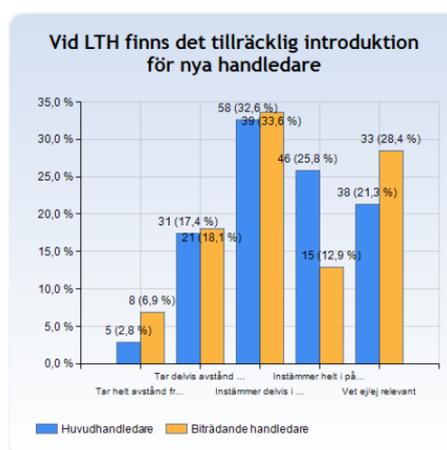
21,3% of the main supervisors and 28,4% of the assistant supervisors have answered "I don't know" or "Not relevant" whether there is enough introduction for new supervisors at LTH (fig. 14). Of those who agree, 58,4% of the main supervisors and 46,5% of the assistant supervisors agree completely or to some extent with this statement.

51,7% of the assistant supervisors compared to 82% of the main supervisors agree completely och to some extent that they have an important influence in the recruitment of new PhD-students. More assistant supervisors than main supervisors have answered "I don't know" or "not relevant" for whether it is easy to recruit PhD-students with the right competence for their own third-cycle subject.

Figure 11 I regularly reflect on the quality of my supervision.

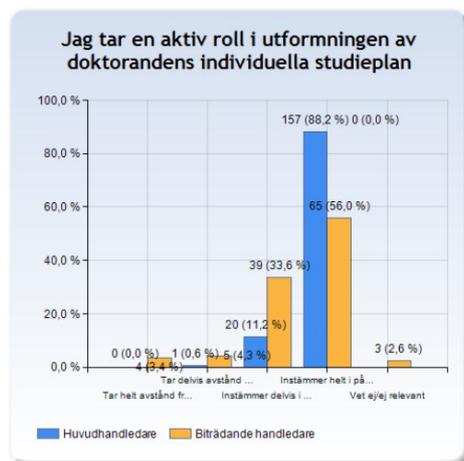


Figure 12 The introduction process for new supervisors at LTH is sufficient



84,9% of the main supervisors compared to 59,5% of the assistant supervisors feel pressure to find funding for their PhD-students' projects. Assistant supervisors seem to be less aware whether the expectations from sources of external research funding and (if relevant) scholarship grants correspond to the formal requirements of PhD education than main supervisors. 25% of the assistant supervisors have answered "I don't know" or "Not relevant", which can indicate that main supervisors take the largest responsibility in this matter.

Figure 13 I take an active role in the shaping of the individual study plan of my PhD-students.



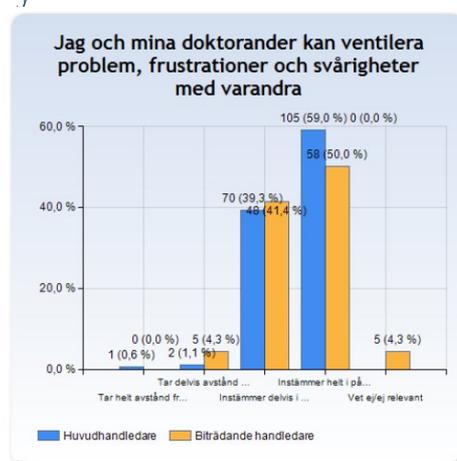
56% of the assistant supervisors agree completely or to some extent that they take an active part in planning their PhD-students ISP compared to 88,2% of the main supervisors (fig. 15). Both groups answer that they review the ISP regularly together with their PhD-student to a great extent. 89,7% of the assistant supervisors and 96,6% of the main supervisors. Both groups agree to the same extent that the ISP is a support for the development of the PhD-student. About 83% agree completely or to some extent.

83,7% of the assistant supervisors agree completely or to some extent that they are well aware of the Higher Education Ordinance outcomes for PhD-education compared to 90,4% of the main supervisors. In a similar manner 72,4% of the assistant supervisors compared to 81,5% of the main supervisors agree completely or to some extent that the learning outcomes inform the PhD-students' education. 10,3% of the assistant supervisors have answered "I don't know/not relevant".

For the statements concerning the relation between supervisors and PhD-students, assistant supervisors and main supervisors answer in a similar way and agree to a very large extent that the relation is based on trust, that it is possible to discuss problems (Fig 16) and find solutions if conflicts arise. For all these statements main supervisors agree a bit more than assistant supervisors.

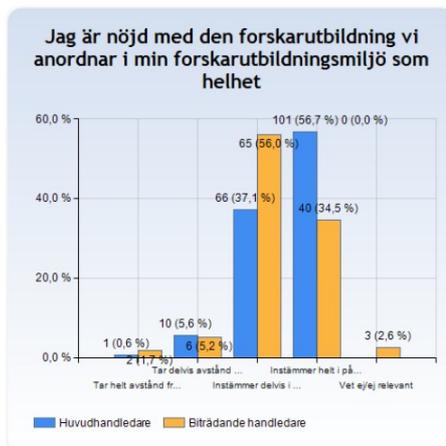
For all LTH strategic goals main supervisors agree to a greater extent than assistant supervisors that the PhD-education is conducted on the frontline of research, develops the ability to practice critical, independent, and creative research and also inter-disciplinary research and research that is clearly connected to sustainable development.

Figure 14 I and my PhD-students can share problems, frustration, and difficulties with each other.



All in all, assistant supervisors and main supervisors agree in a similar way completely or to some extent that they are satisfied with the PhD-education offered at LTH and with their own efforts as supervisors. More assistant supervisors agree to some extent and more main supervisors agree completely (Fig. 17).

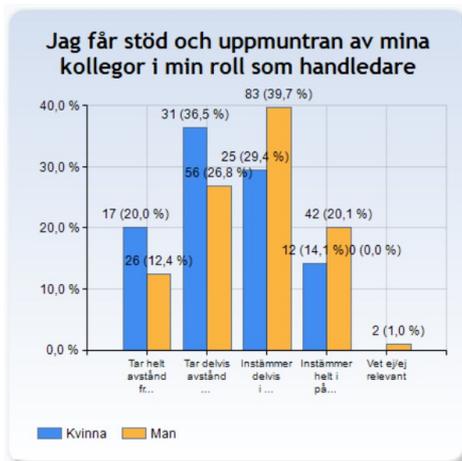
Figure 15 All in all I am content with the PhD-education we offer in my PhD-study environment.



5.2. Gender and first language

In general men agree more with the survey statements than women, although differences are small. Men answer to a greater extent that they have enough time for their supervisor duties, that they can be accessible and respond on their PhD-students' work and texts and that they could intensify their efforts if needed to help their PhD-student finish their education on time.

Figure 16 I receive support and encouragement from my colleagues in my role as supervisor.



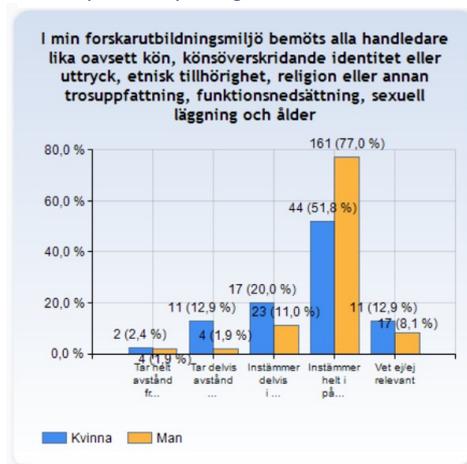
36,5 % of the women compared 45,4% of the men agree completely or to some extent that supervisors from their PhD-study environment meet regularly to evaluate and develop the support given to PhD-students. Fewer women, 43,5% than men, 59,8%, agree completely or to some extent that they receive support and encouragement from their colleagues in their role as supervisor (fig. 18).

More women agree completely or to some extent, 75,3% compared to 65,1% of the men, that there is a need for forms of exchange of experiences for supervisors between departments at LTH. Women also agree to a slightly

greater extent that they reflect regularly on the quality of their supervision. 56,5% agree completely compared to 45% of the men. Both men and women agree to the same extent that they evaluate their supervision regularly together with their PhD-students.

51,8% of the women agree with the statement that all supervisors are treated equally regarding the grounds of discrimination. 77% of the men agree completely with this statement (Fig 19). The open answers give examples of situations when supervisors have experienced that they have not been treated equally: *"There is a difference in what is accepted from the older, male professors, and what is expected from the younger female professors. As a younger female supervisor, I do a lot of listening and text editing because no one else is doing it"* and *"I don't think it is very common that formal mistakes are made, but I have been overlooked for posts as supervisor and member of the grading committee for another supervisor's PhD-student, despite the fact that I have the right research competence. Sometimes I get the feeling of being forgotten, perhaps because of gender"*.

Figure 17 In my PhD-study environment all supervisors are met with the same treatment, regardless of gender, transgender identity or expression, ethnicity, religion or other belief, disability, sexuality, or age.

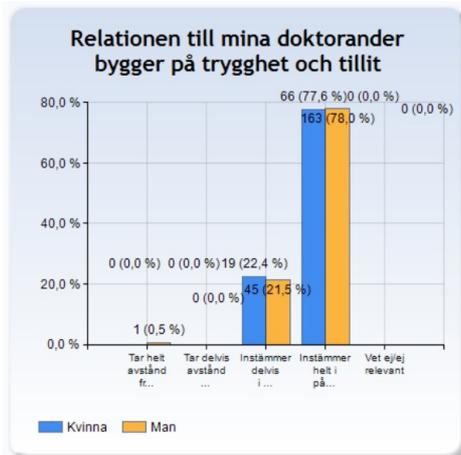


69,4% of the women compared to 80,4% of the men agree completely or to some extent that they know who to turn to if they discover research misconduct.

There are minor differences between men and women concerning the awareness of the Higher Education Order outcomes for PhD-education or the work with the ISP.

85,8% of the women and 88,6% of the men agree completely or to some extent that they are aware of the outcomes. 81,2 of the women compared to 85,6 of the men agree completely these are integrated in the PhD-students' s education.

Figure 18 The relation between me and my PhD-students is based on security and trust



Men and women agree in a similar way with statements about relational aspects between supervisors and PhD-students, for instance that the relation between supervisor and PhD-student is built on security and trust. (Fig. 20).

Concerning the LTH strategic goals, men agree to a larger extent than women that the PhD-education within which they are active is conducted on the frontline of research, develops the PhD-student's ability to conduct critical, independent, and creative research. On the other hand, women agree more often that the PhD-education within which they are active

promotes interdisciplinarity and has a clear connection to sustainable development.

35,3% of the women and 53,1% of the men agree completely that they are content with the PhD-education offered in their own PhD-study environment.

The differences between supervisors with Swedish as first language and another first language are generally small. Fewer supervisors with another first language agree completely or to some extent that the PhD-study environment within which they are active is characterised by creativity and open-mindedness. 81,1% compared to 92,3% of those with Swedish as first language. In a similar way 82,4% of the supervisors with another first language and 93,2% of those with Swedish as first language agree completely or to some extent that the PhD-education within which they are active meets the needs of society and the industry.

31,1% of the supervisors with another first language agree completely or to some extent that it is an obstacle to good supervision if supervisors and PhD-students have different first languages compared to 18,2% of those with Swedish as first language.

Considerably more supervisors with another first language than Swedish, 71,6% compared to 50,5% of those with Swedish as first language, agree completely that they give their PhD-students advice and support about their future career options.

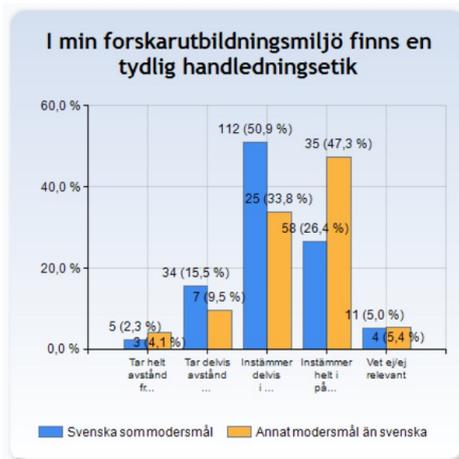
59,5% of the supervisors with another first language agree completely that all supervisors are treated equally according to the grounds of discrimination, compared to 73,2% of those with Swedish as first language.

47,3% of the supervisors with another first language than Swedish agree completely that there is a clear supervisor ethic at LTH compared to 26,4% of those with Swedish as first language (fig. 21).

Supervisors with another first language than Swedish agree to a lesser extent that they are familiar with policies. A relatively important part of those with another first language, 17,6%, have answered I don't know/not relevant whether the definition of their third-cycle subject area agrees with their own idea. 78,3% of the supervisors with another first language than Swedish agree completely or to some extent that they are familiar with the Higher Education Order outcomes for PhD-education compared to 90,9% of those Swedish as first language.

37,8% of supervisors with another first language than Swedish, compared to 51,4% of those with Swedish as first language, agree completely that they are content with the PhD-education offered within their own PhD-study environment.

Figure 19 There is a clear supervisor ethic in my PhD-study environment.



6. Professional development needs

The self-assessed supervisor competence is the strongest question area in the survey. 95-97% of all supervisors agree completely or to a great extent that they have enough supervisor competence, subject matter competence and academic writing skills to supervise their PhD-students. 76,2% also agree completely or to a great extent that the supervisor training they have done has given good support in their role as supervisor.

More than half of the supervisors that answered the survey have gone through supervisor training for more than 7 days. A majority have participated in training arranged by LTH or Lund university. 35% of the supervisors did their supervisor training 1-5 years ago and 31,3% more than 9 years ago. Assistant supervisors typically did their supervisor training 1-5 years ago and main supervisors more than 9 years ago. The open answers show that many supervisors believe supervisor training should be recurrent or completed with exchange of experiences between supervisors and with a possibility for deep knowledge:

"When I took the docent course, I was a novice. The course gave me insight, but it could also be valuable to reflect now when I have been supervisor for a few years and exchange the acquired experiences"

" There is a need to have smaller course units for continued improvement both for administrative aspects and direct supervision aspects".

"It has been a while since I took the supervisor training programme. Some kind of further training could be interesting, but even more interesting would be discussions about supervision within my department."

Regarding the question about what areas would be relevant for professional training most supervisors, with quite a good margin, have answered *difficult supervisor situations*. After that *PhD-student supervision* and *project management* (Fig. 22).

The group of supervisors with another first language than Swedish have also answered *policies and ordinance regulations for PhD-studies* to a greater extent than the others. In the open answers this group of supervisors also have signalled the need for professional development in English: ”*Again, while I can follow Swedish rather ok, it is limiting when these courses are only available in Swedish i.e. leadership and project management. It is not that I can't communicate in Swedish, but if LU would like me to focus on learning the material, and not learning how to read documents, the education in English would be preferred*” and ”*More courses in English are desired. I feel that most of the aforementioned courses exist at LTH, but mostly for Swedish speakers*”.

Figure 20 I would like to have access to professional development about...



7. Comparisons with the PhD-student survey 2019

Many of the statements are formulated in a similar way in both the PhD-supervisor survey 2020 and the PhD-student survey 2019 and consequently it is possible to make some comparisons. All statements are not exactly comparable, but can still give information about the supervisors' and PhD-students' perspectives in certain areas. Comparisons are made between parts (%) for different statements and symmetries between the answers of different groups. The differences should be analysed bearing in mind that these are full population surveys, conducted one year apart.

For some areas supervisors and PhD-students have answered in a similar way and with less difference. These areas cover statements about *workload*, *supervisor accessibility*, *supervisor preparations for tutorials*, *equal treatment*, *realisation of the LTH strategic goals* and *satisfaction with the PhD-education as a whole*.

79,6% of the PhD-students agree completely or to some extent with the statement ”My total workload as PhD-student is reasonable” and 87,4% of the supervisors agree completely or to some extent with the statement ”The workload for my duties as supervisor is reasonable”

88,5% of the PhD-students agree completely or to some extent with the statement ”My supervisors are accessible” (Fig. 23) and 94,9% of the supervisors agree completely or to some extent with the statement ”I can be accessible for discussion and feedback on my PhD-student's work and texts” (Fig 24).

Figure 21 My supervisors are accessible



Figure 22 I can be accessible for discussion and feedback on my PhD-students work.



75,3% of the PhD-students agree completely or to some extent with the statement "my supervisors are well prepared for tutorials" and 87% of the supervisors agree completely or to some extent with the statement "Most of the time I can be well prepared for tutorials with my PhD-students".

69,1% of the PhD-students agree completely that all PhD-students get the same opportunities according to the grounds of discrimination and 69,7% of the supervisors agree completely that they are treated equally according to the same.

Within the question area LTH strategic goals 92,6% of the PhD-students compared to 97,3% of the supervisors agree completely or to some extent with the statement "The PhD-education within which I am active develops the PhD-students' ability to conduct independent research". 83,4% of the PhD-students compared to 89,5% of the supervisors agreed completely or to some extent with the statement "The PhD-education within which I am active promotes interdisciplinarity and 70,7% of the PhD-students compared to 73,8% of the supervisors agreed completely or to some extent with the statement "The PhD-education within which I am active has a clear connection to sustainable development".

81,9% of the PhD-students agree completely or to some extent with the statement "I am content with my PhD-studies" a (Fig. 25) and 92,6% of the supervisors agree completely or to some extent with the statement "All in all I am content with the PhD-education we offer in my PhD-study environment" (Fig 26).

Figure 23 All in all I am content with my PhD-studies.



Figure 24 All in all I am content with the PhD-education we offer in my PhD-study environment.



In some areas the differences between the PhD-students' and the Supervisors' answers are more important. These areas include *the supervisor's introduction of the PhD-student, PhD-students' activity in networks, advice and support for the future career, awareness of the Higher Education Order outcomes for PhD-education, follow-up of the ISP, ISP as support for development and who to turn to if research misconduct is discovered.*

71,4% of the PhD-students agree completely or to some extent with the statement "My supervisors gave me a good introduction when I started my PhD-studies" and 92,8% of the supervisors agree completely or to some extent with the statement "The supervisors introduce new PhD-students in the PhD study environment". It should be noted that the statement in the supervisor survey does not say anything about the introduction as such, only that it takes place.

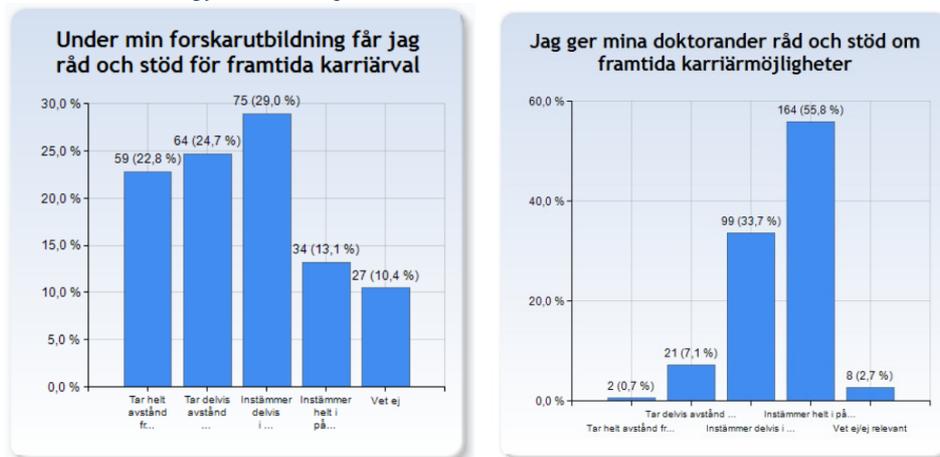
68,7% of the PhD-students agree completely or to some extent with the statement "Expectations from sources of external research funding and (if relevant) scholarship grants correspond to the implementation of my PhD studies" and 43,9% of the supervisors agree completely or to some extent with the statement "Expectations from sources of external research funding and (if relevant) scholarship grants correspond to the formal requirements of PhD education". The differences might indicate that supervisors manage funding-related questions without engaging or burdening their PhD-students. In both groups an important part has answered that they don't know.

57,6% of the PhD-students compared to 77,2% of the supervisors agree completely or to some extent with the statement "I know who to turn to if I discover research misconduct". 70,9% of the PhD-students agree completely or to some extent with the statement "In my research team at LTH we discuss academic integrity" and 83% of the supervisors agree completely or to some extent with the statement "In my PhD-study environment we discuss academic integrity".

56,8% of the PhD-students agree completely or to some extent with the statement "I am active in networks for PhD-students" and 94,9% of the supervisors agree completely or to some extent with the statement "I support my PhD-students in getting in touch with scientific networks that he/she can make use of". The fact that supervisors support their PhD-students in the contact with networks is no guarantee for how active the PhD-students are later on. The difference is more striking when it comes to support and advice for career choices: 42,1% of the PhD-students agree

completely or to some extent with the statement “During my PhD studies I receive guidance and advice concerning future career options” 10,4% have answered ”I don’t know” (fig. 27). 89,5% of the supervisors agree completely or to some extent with the statement ”I give my PhD-students guidance and advice concerning future career options”.

Figure 25 During my PhD-studies I receive guidance and advice concerning future career options. Figure 26 I give my PhD-students guidance and advice concerning future career options.



This difference between the supervisors and PhD-students’ experience of career support has remained the same since the Lund university survey in 2011/12.

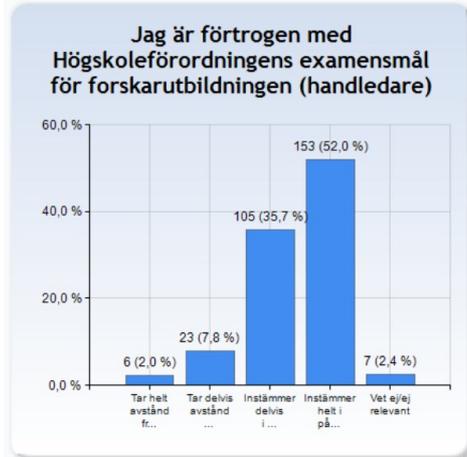
79,9% of the PhD-students agree completely or to some extent with the statement ”My individual study plan is reviewed regularly” and 93,9% of the supervisors agree completely or to some extent with the statement “I review the individual study plan regularly together with my PhD-student”. There is an important difference to which extent the two groups agree completely: 45,6% of the PhD-students agree completely compared to 75,2% of the supervisors. 64,1% of the PhD-students agree completely or to some extent with the statement ” My individual study plan supports my development as a PhD student” and 83,3% of the supervisors agree completely or to some extent with the statement “The individual study plan supports the development of my PhD-students”.

The same difference is seen in how familiar the two groups are with the Higher Education Ordinance learning outcomes for PhD-studies, where the supervisors answer that they are familiar with them to a much higher degree.

Figure 27 I am well aware of the Higher Education Ordinance qualitative targets for PhD education. (PhD-students)

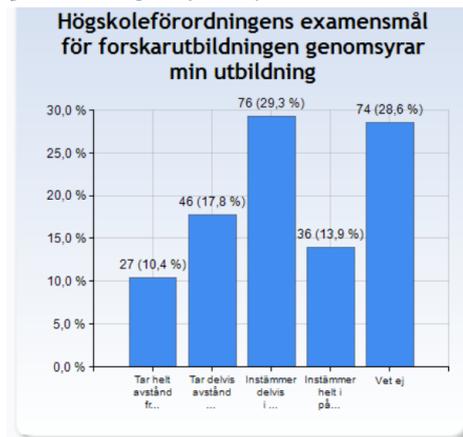


Figure 28 I am well aware of the Higher Education Ordinance qualitative targets for PhD education. (supervisors)



59,5% of the PhD-students compared to 87,7% of the supervisors agree completely or to some extent with the statement "I am well aware of the Higher Education Ordinance qualitative targets for PhD education" (Fig. 29 och 30). In a similar manner 43,2% of the PhD-students agree completely or to some extent with the statement "The Higher Education Ordinance qualitative targets for PhD education inform my studies". 28,6% answered "I don't know" (fig. 31). 77,9% of the supervisors agree completely or to some extent with the statement "The Higher Education Ordinance qualitative targets for PhD education inform my PhD-students' studies".

Figure 29 The Higher Education Ordinance qualitative targets inform my PhD education.



8. Improvement areas

An analysis of the global survey results points toward the following improvement areas relevant for the PhD-education board (FUN):

Improvement area	Motivation
Collegial support for supervisors within the PhD education	68% of the supervisors agree completely or to some extent that forms for exchange of experiences are needed between supervisors from different departments. 56% of the supervisors disagree completely or to some extent that supervisors in their own PhD-study environment meet regularly to develop and evaluate the support given to PhD-students.
Routines for problematising and developing the PhD-students projects.	Only 23% of the supervisors agree completely with the statement that there are good procedures to problematise and develop ideas for the PhD-students' research in their own PhD study environment.
Recurrent professional development activities for supervisors and possibilities for specific professional development in English.	The supervisors have answered that they would like to have access to professional development within several areas. Most have indicated <i>difficult supervisor situations, PhD-supervision, and project management</i> . Supervisors with another mother first language than Swedish have also indicated <i>policies and ordinance regulations for PhD-education</i> to a larger extent than the rest. In the open answers the need for specific professional development in English becomes apparent.
Development of career support for PhD-students.	There is a significant difference between PhD-students and supervisors' views on career support, and this difference seems to persist over time. The supervisor's experience that is relevant for career support is limited to academia rather than the industry.
Equal treatment	It is not enough that only 70% agree completely that all supervisors are treated equally considering the grounds for discrimination. There are also differences between different groups of supervisors.

The education board for PhD-studies (FUN) makes decisions about the improvement work that needs to be done globally within the faculty, in order to make sure that the PhD-education meets the quality requirements formulated in LTH objectives and other regulation requirements.

Appendix 1 Response rate

LTH department	Woman			Man			Total		
	Ans- wers	Respond- ents	Response rate	Ans- wers	Respond- ents	Response rate	Ans- wers	Respond- ents	Response rate
Architecture and the Built Environment	6	7	86%	7	8	88%	13	15	87%
Biomedical Engineering	2	5	40%	13	29	45%	15	34	44%
Computer Science	4	5	80%	7	16	44%	11	21	52%
Electrical and Information Technology	1	3	33%	22	32	69%	23	35	66%
Physics	7	12	58%	25	52	48%	32	64	50%
Immuno Technology	4	8	50%	3	5	60%	7	13	54%
Building and Environmental Technology	9	16	56%	20	56	36%	29	72	40%
Construction Science	3	3	100%	9	17	53%	12	20	60%
Design Sciences	12	16	75%	9	24	38%	21	40	53%
Energy Sciences	1	1	100%	7	22	32%	8	23	35%
Chemical Engineering	3	6	50%	11	14	79%	14	20	70%
Food Technology	7	15	47%	3	11	27%	10	26	38%
Mechanical Engineering	1	4	25%	6	12	50%	7	16	44%
Technology and Society	2	9	22%	11	21	52%	13	30	43%
Industrial Management and Logistics		2	0%	4	9	44%	4	11	36%
IIIEE	5	5	100%	4	6	67%	9	11	82%
Chemistry Department	6	11	55%	15	42	36%	21	53	40%
Mathematical Sciences	2	2	100%	6	20	30%	8	22	36%
Automatic Control	3	3	100%	9	16	56%	12	19	63%
Other LU faculty	7	16	44%	18	57	32%	25	73	34%
Sum	85	149	57%	209	469	45%	294	618	48%

Supervisor category	Woman			Man			Total		
	Ans- wers	Respond- ents	Response rate	Ans- wers	Respond- ents	Response rate	Ans- wers	Respond- ents	Response rate
Assistant supervisor	42	85	49%	74	218	34%	116	303	38%
Main supervisor	43	64	67%	135	251	54%	178	315	57%
Sum	85	149	57%	209	469	45%	294	618	48%

Appendix 2 Questions in index areas*

Index	Statement
Clear description of supervisor duties	My responsibilities as supervisor are clear
	There is a relevant description of my duties as supervisor
	The division of responsibilities between principal and assistant supervisors is clear
General conditions and trust in supervisor's work	My conditions are generally good enough to meet the demands of PhD supervision
	There is general trust in the supervisors' work within the PhD education at LTH
Time for supervisor duties	I have enough time within my employment for my duties as supervisor
	The workload for my duties as supervisor is reasonable
Accessibility for PhD-students	I can be accessible for discussions and feedback on my PhD-students' work
	I can intensify my efforts as supervisor if necessary to help my PhD-student finish his/her education on time
	Most of the time I can be well prepared for tutorials with my PhD-students
Collegial support	I exchange experiences about supervision with my supervisor colleagues
	Supervisors within my PhD study environment meet regularly to develop and evaluate the support given to PhD-students
	I receive support and encouragement from my colleagues in my role as supervisor
Open-mindedness inn PhD-study environment	The PhD study environment at my department is characterised by creativity and open-mindedness
	The PhD education within which I am active meets the demands of society and the industry
Equal treatment	In my PhD study Environment, all supervisors are met with the same treatment, regardless of gender, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation or age
	The PhD study environment at my department is characterised by mutual care for each other
PhD-student introduction	The supervisors introduce new PhD-students in the PhD study environment
	In my PhD study environment, the mutual expectations of supervisors and PhD-students are clearly expressed
Good procedures for problematisation and development of PhD-student work	There are good procedures to present and discuss texts for the PhD students in my PhD study environment
	There are good procedures to problematise and develop ideas for the PhD-students' research in my PhD study environment

PhD-student cooperation	In my PhD study environment, the PhD-students compete with each other
	In my PhD study environment, the PhD-students are encouraged to work together
Adapted supervision	I think it is easy to decide what kind of support needs to be intensified when something does not work for my PhD-student
	I can adapt my supervision according to the needs of my PhD-student
	It is easy for me to formulate feedback that contributes to the development of my PhD-students
Self-evaluation and reflection	I regularly reflect on the quality of my supervision
	I regularly evaluate the supervision together with my PhD-students
Career support for PhD-students	I support my PhD-students in getting in touch with scientific networks that he/she can make use of
	I give my PhD-students guidance and advice concerning future career options
Internationalisation	There are good opportunities for my PhD-students to present their research internationally
	There are good opportunities for my PhD-students to participate in international mobility of more than 3 consecutive weeks
Administrative support from the LTH faculty office	There is enough support to handle sensitive matters for supervisors within the PhD education at LTH
	There is enough support for the recruitment and admission of PhD-students at LTH
	There is enough support for me as supervisor in the thesis defence process
	The introduction process for new supervisors at LTH is sufficient
	There are good procedures for changing supervisors at LTH
Academic integrity	I know who to turn to if I discover research misconduct
	In my PhD study environment at LTH we discuss academic integrity
Self-assessed supervisor competence	I have enough PhD supervision competence to supervise my PhD-students
	I have the right subject matter competence to supervise my PhD-students
	My academic writing skills are enough to support my PhD-students in their writing process
ISP	I take an active role in the shaping of the individual study plan of my PhD-students
	I review the individual study plan regularly together with my PhD-student
	The individual study plan supports the development of my PhD-students

Higher Education Ordinance qualitative targets	I am well aware of the Higher Education Ordinance qualitative targets for PhD education
	The Higher Education Ordinance qualitative targets for PhD education inform my PhD-students' studies
Recruitment	I exert great influence in the recruitment of my PhD-students
	The services of the LTH faculty office HR staff act as support when PhD-students are recruited
	It is easy to recruit PhD-students with the right competence to my third-cycle subject area
Thesis projects	It is easy for me to find research funding for my PhD-students
	Expectations from sources of external research funding and (if relevant) scholarship grants correspond to the formal requirements of PhD education
Supervisor and PhD-student relation	The relation between me and my PhD-students is based on security and trust
	I and my PhD-students can share problems, frustrations, and difficulties with each other
	If conflicts arise, we find viable solutions most of the time
LTH strategic goals	The PhD studies within which I am active are conducted on the frontline of research
	The PhD studies within which I am active develop the PhD-students' abilities to conduct critical research
	The PhD studies within which I am active develop the PhD-students' abilities to conduct independent research
	The PhD studies within which I am active develop the PhD-students' abilities to conduct creative research
	The PhD studies within which I am active promote interdisciplinarity
	The PhD studies within which I am active are closely connected to sustainable development
Contentment	All in all, I am content with the PhD education we offer in my PhD study environment
	All in all, I am content with my efforts and contributions as PhD supervisor

*Only questions that are part of an index are listed here