

A Process for Student Group Supervision

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1 Introduction

KTH Royal Institute of Technology recently introduced new guidelines and common objectives for Master's thesis courses [3]. Besides common objectives, each school at KTH can give further objectives and directions. The School of Information and Communication Technology (ICT) has decided to impose more structure, including the requirement that each thesis project should have a separate supervisor and examiner. Such a requirement introduces new challenges for the different stakeholders in a project. In particular, without clear guidelines, the risk is high that the workload for the supervisor and examiner increases and that the students get confused when communicating with several persons. As a consequence, the desired effect of improving the quality of Master's theses may not be easily achieved.

This report discusses a structured process for how a group of students can be supervised together. The term group supervision has, however, an ambiguous meaning. For instance, in the review article by Prieto [8], group supervision means that a group of people supervises each other, that is, supervision is done by peers. By contrast, in this report, the focus is different: a supervisor together with an examiner supervise *a group of students*. Hence, to make the distinction clear, we use the term *student group supervision*.

The rationale of focusing on student group supervision is twofold. Firstly, it may give benefits for the *student's learning*, by including peer interaction, such as peer assessment and peer feedback. Secondly, student group supervision may also improve the structure of handling Master's students, potentially making supervision and examination of Master's theses more *efficient*.

2 The Process

The following section describes a simple process for supervising students in groups. We focus on Master's student projects at the KTH Royal Institute of Technology in Sweden, where the normal duration of a thesis project is 20 weeks.

2.1 Phases and Group Seminars

Consider Figure 1 that depicts the proposed process for organizing a Master's thesis project. There are four phases (illustrated with rectangles) and four group seminars (shown in rounded rectangles). Some of the seminars are adopted from the milestones that are proposed to be part of the ICT school's thesis project process [5]. At the group seminars, all stakeholders are present, including the students with different thesis topics, the supervisor, and the examiner. The seminars may be seen as milestones, where the examiner judges the progress of the students' work. Besides being an opportunity for feedback, the group seminars are also a good way for the examiner to assess the process.

The process starts with a *kickoff seminar*. During the this first seminar, the examiner explains the process and his/her expectations of the thesis work. Each student gives a very short presentation about his/her *thesis idea* and a short outline of the project plan. At this seminar, the supervisor also presents his/her role in the project and the examiner and supervisor give initial feedback on the student's project plan. This seminar is also an opportunity for the students to ask general questions about the thesis work.

The second seminar is the *proposal seminar*. This seminar forms the milestone and the end of the *formulate phase*. At this seminar, the students first present their preliminary work, including related

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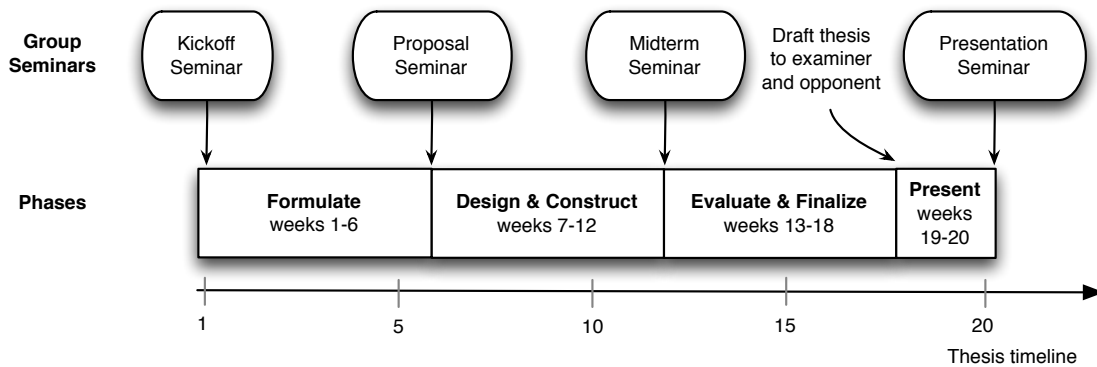


Figure 1: Overview of the proposed student group supervision process. Group seminars are shown with rounded rectangles and phases are depicted with standard rectangles.

work, problem area, problem formulation, suggested approach, expected contributions, and proposed research and evaluation methods. The students should also show that they have created an outline of their thesis and that there exists a first draft of the introduction and related work sections. Besides presenting their work for their peers, the main idea is that this is the first time that the students perform peer review/assessment. Practically, each student has prepared feedback for another student's work and gives feedback at the seminar. Both the supervisor and the examiner give additional feedback on the oral presentation. The seminar should include a general discussion, with the intention that the students reflect and learn from each other.

In the *midterm seminar*, the students present their preliminary design and results. This seminar is the milestone that ends the *design and construct phase*. The student should also show that they have created a draft of the basic technical description of their approach. Besides peer review/assessment, the students should also perform a self assessment. That is, each student should reflect on their progress so far, both in terms of results and the way that they have been working. The student should also present any changes in their project plan.

In the following phase, the *evaluate and finalize phase*, the students complete their design and construction, including experiments and evaluation of their work. During this phase, the students should also complete a final draft of their thesis, which is sent to the examiner, the supervisor, and the opponent at week 18. During the last two weeks, the students prepare themselves for the final seminar, the *presentation seminar*. If the student passes the oral presentation examination, they revise their thesis after receiving feedback from the opponent, the supervisor, and the examiner.

Note that this process is not intended to give a complete picture of all activities and tasks that need to be done in a thesis work. The focus is instead on highlighting the main milestones that should be communicated and coordinated between the different stakeholders.

2.2 Stand-up Status Meetings and On-Demand Meetings

During the phases, the supervisor has weekly *stand-up status meetings* together with the students. These meetings are inspired by the stand-up meetings commonly used in agile process frameworks, such as Scrum [9]. In particular, these meetings are timeboxed to 15 minutes. Each student should answer three basic questions: i) what have you done the last week, ii) what do you plan to do the coming week, and iii) do you have any problems? The purpose of the meeting is that the supervisor can react to the responses and plan a more detailed *on-demand supervision meeting* with specific students. This approach of handling supervision meetings is very close to the agile research group management method SCORE (SCrum fOr REsearch) [4], which has been shown to work well in practice. Note that the status meetings and the on-demand supervision meetings are handled by the supervisor and not the examiner.

3 Discussion

There are several clear benefits, compared to supervising each student individually. In this section, we discuss pros and cons about student group supervision and implementing a structured process, as described in the previous section.

3.1 Peer Assessment and Self Reflection

Peer and self assessment have a positive effect on student's learning [2], for instance: i) it increases the student's understanding of the quality of his/her own work, ii) it increases the independence of the student since the student takes more responsibility for his/her learning, and iii) the student becomes more satisfied. The last item directly relates to *motivation*, something that is also argued to be a key factor for the success in higher level (doctoral) thesis work [6]. There is, however, a risk with peer assessment and self reflection in groups, especially when the examiner is present in the room. Although this is a general problem, we have in previous work [10] seen that the involvement of teachers in retrospective meetings (organized feedback meetings) had very little negative effect on students' ability to express their opinion.

3.2 Structured Processes to Facilitate Good Feedback

The use of structured processes is not unusual for Master's thesis projects. For instance, Blomkvist and Hallin [1] propose a structured process for thesis work, where they also divide the timeline into four phases. Although some of the phases and structure have similarities with what is proposed in this report, their focus is more how the thesis artifact is produced, compared to the meeting seminar structure that is the focus of this work.

There are also several principles that can facilitate good feedback. For instance, Nicol and Macfarlane-Dick [7] emphasize the need to be clear about goals and expected standards. This is also one of the reasons for why we propose to have a kickoff seminar, where students, supervisors, and examiners clearly state their personal goals and their expectations on each others.

4 Conclusions

This report presents a simple and structured process for supervising a group of students. The emphasis of the process is to have four clearly specified seminars during the project work. The main motivation and objective with the approach is to increase the student's learning and to make the supervision effort efficient from an examiner and supervisor perspective.

References

- [1] Pär Blomkvist and Anette Hallin. *Metod för teknologer - Examensarbete enligt 4-fasmodellen*. Studentlitteratur, 2014.
- [2] FJRC Dochy, Mien Segers, and Dominique Sluijsmans. The use of self-, peer and co-assessment in higher education: A review. *Studies in Higher education*, 24(3):331–350, 1999.
- [3] Peter Gudmundson. Övergripande riktlinjer för examensarbetskurser, gemensamma mål och bedömningskriterier. KTH, Universitetsförvaltningen, 2015.
- [4] Michael Hicks and Jeffrey S Foster. Score: Agile research group management. *Communications of the ACM*, 53(10):30–31, 2010.
- [5] Anne Håkansson. Degree Project Course - MSc of Engineering, Master Degree. Presentation slides, School of Information and Communication Technology (ICT), KTH, 2015.
- [6] Barbara E. Lovitts. Being a good course-taker is not enough: a theoretical perspective on the transition to independent research. 30(2):137–154, 2005.
- [7] David J Nicol and Debra Macfarlane-Dick. Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in higher education*, 31(2):199–218, 2006.
- [8] Loreto R Prieto. Group supervision: Still widely practiced but poorly understood. *Counselor Education and Supervision*, 35(4):295–307, 1996.
- [9] Ken Schwaber and Mike Beedle. *Agile Software Development with Scrum*. Prentice Hall, 2001.
- [10] Maria Vasilevskaya, David Broman, and Kristian Sandahl. An assessment model for large project courses. In *Proceedings of the 45th ACM Technical Symposium on Computer Science Education (SIGCSE 2014)*, pages 253–258, 2014.