

# **Turning the tables – An optimized supervision model for master thesis students from the students’ perspective**

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## **Abstract**

Writing a master thesis is a great achievement and can be quite challenging for many students. Especially in those study programs, where writing assignments are not practiced on a regular basis such as the health science educations, students often experience the master thesis writing process to be very difficult. Issues like the timing of feedback on writing, which methods are used to assess the writing process and the matching of expectations between supervisor and student are of great importance for how the writing process is experienced by the student. If these issues are not taken into consideration early on, the student may experience a growing degree of stress, and in the worst case experience a burnout and drop out of the program altogether during the master thesis writing. This article will outline the student’ perspective on an improved supervision model which highlights different key elements that are decisive for a successful process.

## **Introduction**

Extended study time, frustration and stress are unfortunately the reality for many students who are writing their master thesis (Lodge, Lockyer, Arguel & Pachman, 2018). The master thesis is intended to be the crown jewel of an education after five years of studying, but unfortunately the thesis writing process very often becomes tedious, stressful and

frustrating for the students. Poor communication, language barriers and excessive criticism have been attributed to ‘collapses in cordiality’ and non-completions of higher education graduates (Li & Seale, 2007).

Furthermore, a large number of students, teaching of large audiences in big classrooms, receiving limited tutoring time and high expectations to themselves are some of the factors that are believed to cause the extended study times and the so-called “thesis swamp” among the students (Lodge, Lockyer, Arguel & Pachman, 2018). The university of Copenhagen releases statistics on student enrolment and drop-outs every year. The latest statistics show that 83% of students enrolled at the university of Copenhagen spend at least one year in addition to the standard study time to complete their master education (ku.dk, 2023). Furthermore, the “thesis swamp” can cause the students to develop stress symptoms and sometimes even to drop out of the study program (Mazzola, Shockley & Spector, 2011).

The question is whether the model of student supervision that is often used to guide the students, could be optimized to enable the supervisor to help the individual student more efficiently and prevent the students from ending up in the “thesis swamp”. An optimization of the thesis process might ensure that the student finishes the master program and submits their thesis within the stipulated time. Several studies have described how to improve the master thesis supervision process and tried to create different tools for supervisors to use during the supervision process. These tools include the apprenticeship model (Maunder, 2012) formative feedback (Ellegaard, Bruun & Johannsen, 2018), a co-created feedback Rubrics (Andrade, 2015). However, a major limitation of these studies is that they often focus on the perspective of the supervisors alone (Brisk, 2014, Fairbairn & Winch, 2011). One previous study by Odena & Burgess (2017) investigated the students’ perspectives on facilitating experiences and strategies for their thesis writing learning process (p. 572-590). They report that the students included in their study characterized organizing ideas, creating a mind map and being clear about the structure of the writing before starting to write as facilitating strategies for their writing process (Odena & Burgess, 2017, p. 572-590). However, the student perspective on supervision of the entire process including both the experimental and the writing process is still unclear. Thus, the aim of

the present study is to investigate the students' perspective on the supervision process of both the experimental and writing process of their master thesis project and to co-create an optimized supervision model to improve the supervision and the writing process of a master thesis that is accounting for the students' perspectives and demands.

## **Methods**

### **Design:**

A questionnaire was developed and given to a total of eight students (n=6 female; n=2 male students) from six different educational programs at the Faculty of Health Science & the Faculty of Science, University of Copenhagen Denmark. The educations that the students were enrolled in include: Sports science, Medicine, Veterinary Medicine, Biomedical Engineering, Biology, and Animal Science. All students completed the questionnaire, and all participants gave their informed written consent for the answers of their questionnaires to be used for further analysis and publishing. The questionnaire contained 13 questions regarding the type of supervision, that the students received feedback on and the stress level they experienced throughout their writing process of the master thesis (Supplementary material Table A). In addition, the students were interviewed on a one-by-one basis for further clarification of their answers and to outline the most important focus areas of supervision.

### **Analysis:**

To elaborate which parts and areas of supervision were the most crucial for the students, all data including the questionnaires and the interviews were assessed in terms of overlapping comments of the students' answers, critical comments addressing the health well-being and satisfaction of the students, and critical comments determining successful and unsuccessful supervision. The key areas of supervision were then crystalized (Table 1), and a flowchart of an optimized supervision model was co-created by the author and the included students (Figure 3, appendix). Finally, for the

discussion key quotes from students were selected representing common statements from the students.

## Results

The data analysis revealed six key factors that 75-100% of the students described in their questionnaire as important factors (Table 1). The students described all six factors (1: Structured and focused supervision process, 2: Expectation alignment, 3: Clear instructions of the supervisor for the student, 4: Frequent in person supervision sessions, 5: Early feedback on the writing and 6: Experience of stress towards the end of the thesis) as being crucial for a productive, positive, and successful writing process of their master thesis.

A structured and focused supervision process was an overall desire of 88% of the students and a lack of structure and clear instructions by the supervisor to the student was the main reason for a bad experience and dysfunction during the writing process. In addition, the alignment of expectations was mentioned by 75% of the students either as a suggestion for improvement or as a lacking element causing a bad experience and unnecessary stress for the student. Furthermore, clear instructions of the supervisor for the student are at essence especially in the beginning of the project, and 75% of the students suggested that both oral and written instructions are given by the supervisor.

Moreover, frequent in-person supervision session was suggested by 88% of the students as being the best form of supervision. In regards to the writing process, 75% of the students reported that early feedback on their writing would have helped them tremendously and that feedback on smaller pieces continuously throughout the process are the best and least stressful way of receiving feedback. Finally, all the included students reported that they were stressed during the writing process and that the most stressful period was the last few weeks of the writing process. During this time an increased focus on time management, clear instructions on what to do next would be necessary to manage the students stress levels.

## Discussion

The present study revealed that all students experience certain levels of stress throughout the writing process of their master thesis. Furthermore, the present results clearly indicate that the most stressful period is the last month of the writing process. In addition, the current data reveal a connection between students reporting high levels of stress and students describing bad experiences with their supervisor during the supervision process in terms of miscommunication, misalignment of expectations and a dysfunctional supervision process in general.

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### 11. Would your stress level have been different if you had had a different kind of supervision?

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Yes, definitely. I think I have learned from this process that I need more concrete tasks rather than only open questions. So it would probably have helped me if my supervisor had had a little more time for me, and also would have been a little more present. It was as if our expectations to one and another were not really aligned, and unfortunately we were not very good at communicating with each other. It would probably have been for the best if I had chosen a completely different supervisor, after I took a break.

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#### Fig. 1.

It is worth mentioning that this particular student had to take a break from writing his master thesis because of stress, and that this student needed two years to finish the master thesis. On the other hand, the students reporting to be very satisfied with their supervision process and their relationship and communication with their supervisor, finished their thesis in normalized time with minimal stress. This indicates that the relationship between student and supervisor, the communication between them, and the alignment of expectations is essential for a positive, productive and functional master thesis writing process. This is in line with findings from Kleijn et al (2014) showing that a less optimal supervisor–student relationships cause less student satisfaction and a lower perception of that their supervisor contributes to their learning process (p. 336-349). This further underlines the importance of good communication between student and supervisor.

Another important key element for successful supervision revealed by the present data was structure. The present results showed that “*more structure*” – during their supervision process was what most students called for. The students who reported that they had a good experience with both their supervisor and the writing process as such,

when writing their thesis, attributed their positive experience to the structured approach they experienced during supervision and during the writing process. Additionally, the students who report bad experiences with their supervisor and the supervision process, attributed it to the lack of structure and suggested more structure to improve the supervision process.

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**13. If you were to supervise a student during the writing process of a master thesis, how would you do it, and what would you focus on?**

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I would focus more on the process itself and planning the thesis. I would make sure that I had a detailed and realistic schedule and a structured approach to both my experiments and to writing the thesis.

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**Fig. 2.**

Furthermore, a study by Odena and Burgess (2017) showed, that Self-organization, planning in advance, time management and frequent deadlines were reported as necessary for successful completion for graduate students (Odena & Burgess, 2017, p. 572-590). Thus, together these results indicate that comprehensive planning and systematic and structured implementation of both the experiments and the writing process is a successful way of supervising master students.

The current study shows that the very practical circumstances regarding how the supervision of the students takes place in terms of supervision format, frequency of supervisions and number of participants in the supervision are another decisive factor for whether the supervision is successful. All the included students preferred one-by-one supervision rather than group supervision. The students emphasized that group supervision still could be helpful and beneficial, but that it could not fully replace one-by-one supervision. This indicates that group supervision advantageously can be used as add-on supervision to individual supervision of students and that individual supervision might improve the master thesis process. This is somewhat in line with findings from Niclasen & Strøbæk (2019) who recommend a combined group/individual supervision model after comparing individual supervision with group supervision (p. 118-135).

Furthermore, 88% of the included students reported that they preferred frequent and regular in-person supervision meetings. The students who reported that they had a good experience during their master thesis process report that they experienced supervision sessions on a regular basis (weekly or bi-weekly sessions) throughout the entire process of their master thesis. This type of supervision format resulted in a close and positive relationship between student and supervisor. During the following interviews, one student described her experience as follows:

“We had many short meetings throughout the process and met at least once a week. Often it was just fifteen minutes where I just gave the status of the project and my supervisor, and I together decided what had to be done until the next meeting the following week. This meant that the whole process was very focused, and I always felt that I had my supervisor's full support. I really feel that I had a good relationship to my supervisor, and it also made the whole process run very smoothly.”

On the other hand, the students having complaints about the process associate their complaints to the lack of regularity, frequency, and format of their supervision sessions. One student reports the following regarding the supervision format that the student experienced:

“I needed clearer answers, more individual guidance and more personal meetings at a regular basis rather than email correspondences with my supervisor and group meetings. If my supervisor had been more accessible and more present, the whole process would have been much easier for me.”

The present data indicate that regular and frequent individual supervision helps the students through the process of their master thesis and lowers the experience of stress. Thus, even though one-by-one supervision might be more time consuming for the supervisor compared to group supervision, as well as frequent meetings might be more time consuming for the supervisor as well, the present data show, that frequent one-by-one supervision sessions are the most beneficial way of supervision for master thesis students in terms of positive experience and a functional

and good student-supervisor relationship. Since very short supervision sessions seem to have a very good effect on students, the supervisor might be able to manage the time consumption on each student by implementing frequent short supervision sessions rather than infrequent longer supervision sessions. Furthermore, a low frequency of supervision sessions in graduate students have been shown to be related to experiences of burnout (Corner, Löfström & Pyhältö, 2017) supporting the notion that frequent, and regular supervision sessions are at essence for student satisfaction and completion.

Regular and frequent meetings between student and supervisor also have another advantage. When the student and supervisor meet frequently, it is possible to give the student feedback on written material already early in the thesis process. Continuous feedback on the written material will also ease the stress level of the student, especially in the last phase of the writing process, as the student will not receive all the corrections at once but distributed over the entire thesis period. This is precisely what 75% of the students have requested. One of the students suggested that supervisors give the students feedback on the individual sections in the corresponding phases of the thesis course. The student proposed the following:

“It would definitely have helped me with more deadlines, and if I had received some feedback early on, on thesis writing and data analysis during the project instead of leaving most of the writing work close to the end. If I were the supervisor, I would focus on the scientific writing style and writing the different sections of the thesis along the project (e.g., writing of the introduction and method before collecting the data, results and discussion after the data was collected and analyzed) and I would give my student feedback on each section along the way and not leave everything to the end.”

Thus, the results of the current study indicate that early feedback on the writing might be very beneficial for the student’s progress throughout their master thesis process and might ease the stress level especially towards the end of their project. This is in agreement with the writing



suggestions by Lauvas & Handal (2005) where it is suggested that supervisors stimulate the students to start writing early, systematically and constant in order to become a better writer throughout the process (p. 177-189).

Finally, the present study revealed that all master students experience stress towards the end of their master thesis projects. Furthermore, the present results showed that this study period of stress lasts between 2-8 weeks for the majority of students. These results indicate that it is crucial that the supervisor is aware of the stress that the students are experiencing during the end phase of their master thesis in order to ensure a successful finalization of the thesis. In order to help the student through this stressful phase, the supervisor can try to help the student with time management to ensure that the students hand in their thesis in time and have a positive experience while doing so. Furthermore, the present study revealed that students call for an increased focus on structure and clear instructions on what to prioritize and what to do next to conquer the stress. Previous studies have shown that purposeful supervision and guidance can reduce the level of stress and anxiety in students (Bazrafkan, Yousefi & Yamani, 2016). Thus, awareness of the stress and concrete tools to manage this challenge seems key for a happy end of writing a master thesis for both the supervisor and the student.

## **Optimized supervision model**

To improve the supervision process of master students, an optimized supervision model was co-created by the author and the included students (Figure 3, appendix). In this model, a promising way of creating a positive, productive, and successful supervision process for master students writing their master thesis is described step by step throughout the different phases of a master thesis project. The model includes all key aspects ( $\alpha$ , 1, 2, 3a, 3b, 3c, 3d, 3e, & 4) that were crystalized in the present study and were evaluated as being decisive for success and a positive experience of conducting a master thesis. A detailed description of the model follows:

$\alpha$  Focus on structure and clear instructions throughout the process - This applies to every single step throughout the process at all stages. A

sense of structure and focus and clear instructions and good communication is of the essence both for the student and for the supervisor. Without structure and clear communication, it is very unlikely that the supervision process will be a positive, productive, and functional process.

1) Initiative – At this step, the idea of a master thesis project is created. The idea for a thesis project can either be an idea that the student had himself, the supervisor himself, or the idea can be developed in collaboration of the student and the supervisor. If the student chooses a project that is based on the student's own ideas alone, the motivation for conducting the project might be very high on one hand but on the other hand there might be flaws and misconceptions in the project that the student overlooks due to lack of skills and experience. If the idea for a project comes from the supervisor alone then the project is usually well planned and designed, but the risk is that the student is less motivated as there is a lack of sense of ownership as if it had been the student's own idea. Therefore, it might be beneficial that student and supervisor co-create an idea for a thesis project together. This way the student still feels ownership of the idea, but the supervisor can ensure that the design is good and well planned.

2) Alignment of expectations – This step represents the early phase of the master thesis process. In this step it is crucial to determine the formalities concerning the thesis. It is important to write a detailed thesis contract and agree in advance on the content of the project. This includes several steps and answering key questions. I – roles, responsibility, and outcome: Who else is involved in the project and what is their responsibility? Which publications, if any, will be written? What is the order of authorships? Who is doing what? Which experiments, analyses are made? What kind of thesis will be written (manuscript, monography etc.)? II – deadlines: Deadlines for submitting written material for feedback, deadlines for the various steps and phases in the project and deadlines for supervision sessions meetings. III – structure of the project: How the project proceeds? What is included in the project (experiments, analyses, etc.)? How is the completion of the project ensured? IV – expectation reconciliation: For the thesis process itself, the student's expectations and the supervisor's expectations need to align. This applies

to expectations of presence, participation, response time to emails, communication methods, and meeting formalities but also to expectations of the project authorship, completion time, general benefits, and future plans. It is important to ensure good communication between the student and the supervisor and to align the expectations of each other regarding communication. V – evaluation: It is important to prepare an evaluation method of the guidance itself and evaluation of the process to ensure a positive and productive process. Here, the student and the supervisor can advantageously co-create a feedback method that enables continuous evaluation of both the experimental and the written part of the project.

3a) Supervision Session Format – In this step the student and the supervisor create the formalities regarding the supervision together. This includes the method of communication (in person meetings, and email and phone correspondence). In-person meetings are indispensable for the students as well as one-by-one feedback, and group supervision is a good supplement to one-by-one supervision but cannot replace individual supervision. There is a feedback loop (feedback, evaluation and implementation (FEI)) in this step. The feedback loop enables an adjustment of every factor at any time during the project if necessary. If the chosen supervision format is inadequate and causes a malfunction in the process, the particular factor can be adjusted to ensure a good, positive and productive process.

3b) Supervision Session Frequency – This step describes how often the student and the supervisor meet during the process. Students experience frequent (once a week) and regular (every week) supervision sessions throughout the entire period as the most optimal setting. The feedback loop (FEI) allows for adjustments at times where the student need either less or more supervision.

3c) Feedback on Process – This step describes all elements that are crucial to include in the student supervision to ensure a productive and functional process. It is important that the supervisor includes both the experimental elements and the written elements in the supervision. It is an advantage to work on the elements in a timely manner fitted to the process of the project (e.g., supervision on project planning and data collection in the beginning of the process, supervision on data analysis and writing of the results section when all data are collected). Students

prefer clear instructions and a structured and systematic approach to the experiments, the writing process and the feedback given to the students. Furthermore, supervision on time management and frequent deadlines help the student to focus and keep the project on track. The feedback loop (FEI) allows for adjustments of the supervision process.

3d) Feedback on writing –Students prefer to receive feedback on their writing very early in the process and on smaller pieces of the writing. Furthermore, frequent deadlines and regular feedback on their writing continuously throughout the entire project cause a lower stress level for the students. This does not exclude giving the students feedback on a halfway draft or finished draft; it merely means that giving feedback only at these specific times is not sufficient for a productive, functional and positive supervision process. The feedback loop (FEI) allows for adjustments of the feedback on the writing process.

3e) Written and Oral Feedback –Students prefer to get both oral and written feedback. This means that when the student receives oral feedback on a specific topic, the student prefers to receive the same feedback in written format to better work with that very issue.

4) Finalizing the thesis – all students experience stress during the last phase of their master thesis. To conquer the stress and ensure a productive finalization of the thesis and an in-time delivery it is important that the supervisor is aware of the stress levels of the students and includes stress management in the supervision. Furthermore, the most important elements at this stage are supervision on time management, the right prioritization of tasks and clear instructions on what to do next.

## **Conclusion**

The present study showed that a structured and focused supervision process, expectation alignment between supervisor and student, clear instructions from supervisor to student, frequent in-person supervision sessions, early feedback on the writing and awareness of stress levels especially towards the end of the process are key priorities of the students in the supervision process when conducting a master thesis. The present study suggests an optimized supervision model which has been co-

created between the author and the included students. In the proposed model, the students' perspectives and demands for supervision are accounted for. This optimized supervision model might be a helpful tool for both the students and the supervisors to ensure a positive and successful completion of the master thesis with tolerable levels of stress.

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## Appendix

**Table 1.**

<b>Key areas of interest</b>	<b>Number of students</b>	<b>Additional suggestions of the students</b>
Structured and focused supervision process	7 (88%)	Frequent deadlines for the student
Expectation alignment	6 (75%)	Good communication
Clear instructions of the supervisor for the student	6 (75%)	Both oral and written instructions
Frequent in person supervision sessions	7 (88%)	One-by-One supervision is best for the student
Early feedback on the writing	6 (75%)	Feedback on smaller pieces of writing continually
The students are stressed during the process especially towards the end	8 (100%)	Focused instructions on what to do next & Time mangement

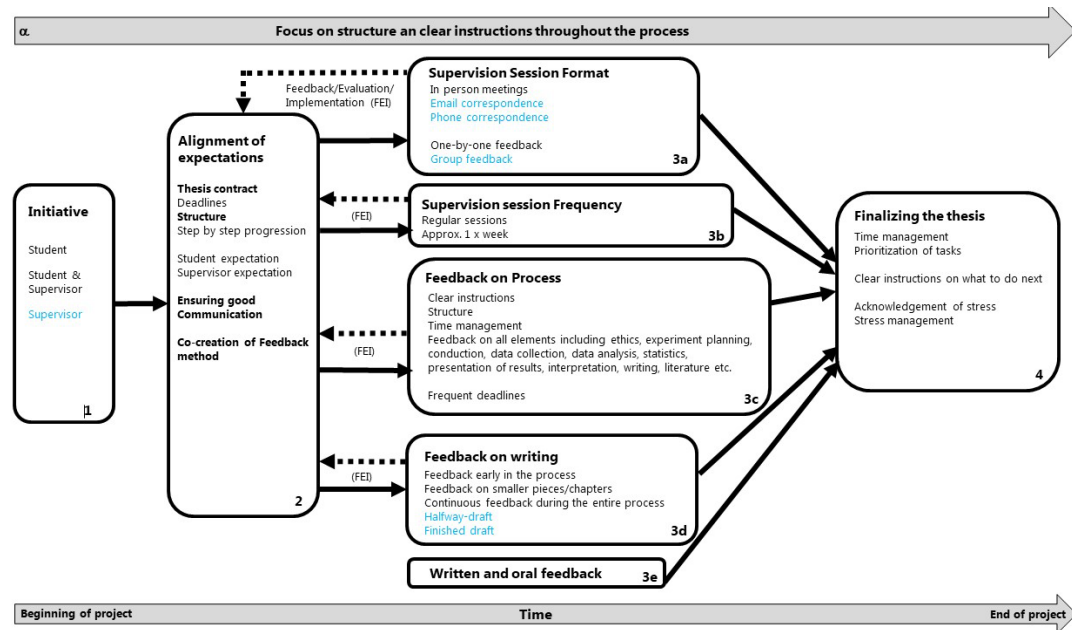


Fig. 3.

Table A. Questionnaire

### Questionnaire regarding guidance and feedback of students in the writing process of their master thesis

1. On which program did you write your thesis?
2. How long did it take you to write your thesis?
3. How did you decide the topic you wanted to write about?
4. How often did you have meetings with your supervisor?
5. What did you get feedback on from your supervisor?
6. When in the writing process did you start getting feedback on what you actually wrote (writing style, grammar, word choice, word order, spoken vs. written language, etc)?
7. How did your supervisor evaluate your writing and how did you get feedback on your writing?
8. How did you feel mentally after a supervision session?
9. Were you stressed at any point while writing your thesis?
10. When in the process were you most stressed?
11. Would your stress level have been different if you had had a different kind of supervision?
12. If so, how should that supervision have taken place and what should have been focused on?
13. If you were to supervise a student during the writing process of a master thesis, how would you do it, and what would you focus on?