Mentorship in Academia: PhD students as supervisors of MSc students

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Abstract— **Despite the central role supervision plays in shaping students' academic and professional development, Swedish regulations offer limited guidance on MSc thesis supervision by PhD students. This study conducted a qualitative research design and thematic analysis to explore the experiences and challenges of PhD students supervising MSc theses and master's students supervised by PhD candidates at the Faculty of Engineering (LTH), Lund University. Data was collected through semi-structured interviews with MSc students, PhD supervisors, and an LTH actor involved in PhD education, supplemented by institutional document analysis. Three key themes were identified: expectations, time management and meeting structure, and subject knowledge. The findings reveal diverse supervision practices shaped by individual, disciplinary, and institutional differences. While PhD supervisors were often seen as approachable and relatable, fostering positive student learning experiences, their limited training and supervision experience occasionally led to structural or communicative challenges. The study highlights the importance of supervision preparation, expectation-setting, and structured yet flexible time management. Key recommendations included providing formal supervision training, implementing clearer supervisor-student contracts, and a shift toward viewing thesis work as a learning journey rather than solely a final product.**

Index Terms— **PhD supervision, MSc thesis, Higher education, Supervision practices**

I. INTRODUCTION

DEGREE projects remain an important hallmark of academic programmes, and many students view it as the most substantial work of their education [1]. Essays can vary in scope and can be conducted alone or in pairs. Students are guided by a supervisor; hence, the master's thesis supervision is crucial for student development during this period [2]. However, often little guidance is given by the faculty on how to supervise effectively. Thesis supervision is not a one-size-fits-all activity, making it a complex and dynamic task [2]. It is therefore important to gain insight into effective supervision to support (beginning) thesis supervisors, such as PhD students.

Even though supervision is crucial for the students' progression during the thesis process, little is written in the Swedish higher education laws and regulations. In contrast to the PhD, the regulations for Master students only state that they need to complete an "independent project (degree project) of at least 30 ECTS within the main area of study for the education" (1993:100). This leaves each university and faculty to determine their own rules and guidelines, stated in the course syllabus. At the Faculty of Engineering (LTH) at Lund University, little is specified besides the formal supervisor qualifications and the requirement that each MSc student has at least one main supervisor employed at the university, which has a licentiate degree or equivalent [3]. A co-supervisor can also be appointed, where no requirements are set [3]. The main task of the supervisor is to continuously assist the thesis project, making it possible to complete within 20 full-time weeks [3]. The maximum supervision period is 12 months, and clearer supervisor roles should be defined in each course plan [3] [4].

An interview with an LTH official involved in PhD education revealed a lack of supervision resources on the faculty level, with practices varying between departments. This was partly due to the difficulties in providing general recommendations for supervision, as every student and subject is different. The official emphasized focusing on the learning process, considering the key outcomes to be both the report and the student development.

This limited regulation results in the quality and style of supervision depending largely on the accepted departmental norms and individual supervisor's approaches. When supervision is lacking, the supervisee has very few specific rights to invoke to change things. This study aims to understand how the supervision of master's students is affected by this relative lack of regulation, as well as how PhD students manage the supervisor role with little to no experience or guidance. In this report, we will answer (1) *How does the perception of supervision differ between PhD supervisors and the MSc students they supervise?* and (2) *What recommendations could be made to increase the quality of supervision by PhD students?*

II. LITERATURE REVIEW

The supervision process for master's thesis projects is complex and will vary depending on the students' needs [2]; hence, it is important to understand how to supervise effectively. In a study by Derounian [1], important characteristics of a good supervisor included subject knowledge, realism in helping students determine what is feasible, responsiveness, encouragement, and enthusiasm for the dissertation topic. Grohnert *et al.* [2] aligned with Derounian [1], concluding that effective supervision relies on a dynamic, negotiated relationship and the ability of supervisors to adapt their style. They also emphasized trust, availability, and constructive feedback as central elements of supervision. Kram's mentoring model [5], later applied

by Abbott-Anderson *et al.* [6], highlights the need for clear goals and expectations early in the supervision process.

As emphasized in the literature, a functional and dynamic student-supervisor relationship is crucial. This relationship also includes emotional components, not just technical expertise [1]. However, many PhD students are expected to supervise master's students as part of their doctoral training [6], often without prior experience [7]. Consequently, they may face challenges such as low confidence, unclear expectations, or limited mentoring skills. Several studies report that supervising can also benefit PhD students, leading to better understanding of academic roles, career preparation, and improved communication and teaching skills [7]. Master's students, in turn, often view PhD supervisors as more approachable and relatable than faculty, fostering open communication and deeper learning [6]. Overall, mentoring relationships provide both career-related and psychosocial functions [6]. However, the specific dynamics of graduate-undergraduate supervision have been relatively unexplored [7], and it is only in recent years that more studies have appeared on the topic [6], [8], [9]. This study aims to contribute to the increase of knowledge on this matter, specifically within the context of the Faculty of Engineering at Lund University, Sweden.

III. METHOD

A. Research Design

We adopt a qualitative research design to explore both supervisor and supervisee experiences concerning the supervision process, its challenges, and best practices. For data collection, we combine semi-structured group interviews with a document review. For data analysis, we conduct a thematic analysis of the empirical material.

A qualitative research design is well-suited for our topic since it allows for an in-depth investigation of individual experiences and the underlying mechanisms that explain the phenomenon [10].

B. Data Collection

Our qualitative study triangulates multiple data sources to increase validity of results [10]. We conducted semi-structured interviews since they are an effective method for collecting in-depth insights into individual experiences [11]. We identified supervisors and supervisees based on the co-authors' personal networks, subsequently drawing on snowballing to identify further relevant participants.

Our inclusion criteria were (a) Supervisors: Participants are current PhD students in any year who have experience with (co-)supervising master's theses at LTH. Supervision can be ongoing or past and voluntary or mandatory; (b) Supervisees: Participants are current master's-level students in any subject at LTH who are currently writing their thesis (co-)supervised by a PhD student.

In terms of ethical considerations, we informed participants before interviews about the study's purpose and context as well as their rights, e.g., to withdraw participation at any point. To protect interviewees' privacy and encourage open discussions, participants are pseudonymized and only identified by department. Where participants were supervisees of co-authors, interviews were conducted and analyzed by different co-authors to prevent conflicts of interest and ensure supervisees were comfortable sharing.

C. Data Analysis

For data analysis, we conduct a thematic analysis of the empirical material. We adopted an abductive approach, i.e., going back and forth between theory and data [12]-[14]. This allowed us to analyze our material in light of previous research while simultaneously paying attention to inductively emerging insights from our particular dataset.

IV. RESULTS

A. RQ1: How does the perception of supervision differ between PhD supervisors and the MSc students they supervise?

PhD students highlighted that knowledge might not always be the most important thing, as they could learn together with the students they supervised, whereas MSc students noted lack of supervisor expertise as a problem. Similarly, Derounian [1] stated that subject knowledge and grasp of relevant literature was the most important factor for a good supervisor, supporting students' view. Further, both MSc students and PhDs agreed that structured supervision meetings are positive and help track thesis progress, even those who did not currently have structured meetings. This aligns with Grohnert *et al.* [2], finding that supervisors should have a more directive role at the start, then enabling students to take ownership of the process, e.g. scheduling regular meetings to provide students with instructions and direct guidance. Finally, discussing expectations is a key recommendation for effective supervision and especially critical at the start of the process, while remaining open to later modifications [2]. PhD students not perceiving this as a must-do may reflect on the absence of training in this role.

B. RQ2: What recommendations can be made to increase the quality of supervision by PhD students?

Supervision **is highly individual, and, thus, there is no 'one-size-fits-all' model,** as found by Grohnert *et al.* [2]. Both supervisees and supervisors emphasised that approaches and preferences can vary significantly and that finding or developing a fit is important for a successful supervision relationship. Besides personal preferences in working style or guidance vs. independence, this depends on disciplinary context: students in engineering or natural sciences face different struggles and needs than students in social sciences or interdisciplinary fields. Further, departments varied in their support or training of first-time supervisors, with some requiring reaching the halfway point and/or co-supervising first, whereas others allowed or required supervision from a few months into the PhD. Thus, both preconditions and preferences vary substantially, and it became clear that no ideal checklist applies, though best practices were identified and are detailed in the conclusion.

Consequently, **clear and early expectation management** is important to clarify and align individual preferences and prevent conflicts. Given the range of disciplines, institutional requirements and working styles, expectations that supervisee, supervisor, and institution have on the thesis can vary a lot. Our study suggests discussing expectations early on and formalizing them in a supervisor/supervisee contract, concerning, e.g., meeting frequency, supervisor

availability or level of autonomy, as suggested by Derounian [1]. Some benefited of adding a thesis timeline, developed by the student and jointly reviewed. This ranged from detailed weekly plans to broader Gantt charts with key milestones, which can support progress tracking. Students lagged behind for different reasons, from slow progress to overly ambitious scope, but regular meetings allowed for timely reality checks against the agreed-upon timeline and expectations. This also allowed for constructive adjustments, with flexibility and adaptation based on student needs. Effective supervision, according to Grohnert *et al.* [2], allows for this re-evaluation to keep students accountable while ensuring deadline feasibility.

Subject knowledge of PhD supervisors mattered, but not in a straightforward way. While lack of expertise could lead to delays, some PhD supervisors managed their limitations by learning alongside their students, which enhanced the relationship and students' learning experience. This suggests that openness and willingness to engage with new topics to support the student may be more valuable than having all the answers. Supervision has previously been shown to be improved when supervisors show a genuine interest in their students [2] and their work [15].

Along the same lines, for the **overall role of PhD students as master's thesis supervisors**, our study finds both advantages and drawbacks. Supervising master's theses, particularly at early PhD stages, comes with unique challenges such as a lack of training and supervision expertise, role ambiguity (e.g., between being co-supervisor on paper but sole supervisor in practice), and possibly a lack of specific knowledge. Yet, in our study, PhD students were often described as more relatable, available, and overall closer to the practical and emotional challenges with thesis writing, compensating the drawbacks and contributing to a positive learning environment, in accordance with prior literature [6]-[8] [16].

This relates to our final point concerning the **product-process paradox**, i.e., the need to balance the focus on product (i.e., the thesis) vs. process (i.e., student learning during thesis). Particularly, our interview with an LTH official in charge of a supervision course highlighted that students and supervisors tend to overfocus on the written report. Struggling with time management, unfamiliar topics, or writing – and overcoming them – is in fact beneficial. PhD supervisors could play an important role by reframing challenges as part of the journey and guiding students to keep both product and process in mind.

V. CONCLUSION

This study finds that – while supervising as a PhD student can have both drawbacks and benefits for both supervisor and supervisee – the following can improve the process:

List of recommendations:
- Every student is different, and the supervisor needs to be accommodating to the needs of the student.
- Clear communication from the start helps supervision if the degree project runs into problems.
- Supervisor and student should have a meeting discussing and agreeing on expectations.
- Students should develop a draft timeline – details should be jointly decided by student and supervisor.
- Supervisors should focus on process (i.e., student learning) over product (i.e., the thesis) in supervision.
- Students respond to engagement – even if the supervisor is not an expert in their exact topic.

While these recommendations provide a valuable starting point, the authors of this study believe that institutional measures are essential to provide formal guidance, such as mandatory pedagogical training, and ensure high-quality supervision and support for PhD students. Thus, we urge Swedish universities, in particular LTH, to implement these measures, e.g., starting with formal dissemination of the above guidelines as an effective initial step.

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