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DOCTORAL SUPERVISION: A REFLECTION MATRIX FOR PROCESS AND PROGRESS

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Abstract

Successful doctoral studies rely heavily on the quality of supervision, particularly the relationship between supervisor and doctoral student. This relationship influences both the doctoral process and the final product—the completed thesis. Prior research indicates that supervisory alliances play a critical role in doctoral completion, with insufficient supervisor support often cited as a key factor in student attrition. To assist supervisors, especially those new to the role, this paper proposes a structured yet flexible reflection matrix. Grounded in two systematic reviews, the matrix combines five key supervisory dimensions—relationship, domain/research knowledge, pedagogical competencies, functional aspects, and methodological understanding—with both external (e.g., departmental structures, financial opportunities) and internal (e.g., motivation, academic identity) factors affecting doctoral progression. This framework encourages supervisors to continually examine and refine their practices, thereby fostering an environment that supports effective doctoral training. Ultimately, the reflection matrix serves as a customizable tool to prompt ongoing awareness, adaptation, and development in supervisory practice.

Keywords: doctoral supervision, doctoral completion, reflective practice, mentorship, doctoral training

Sammanfattning

Framgångsrika doktorandstudier är i hög grad beroende av kvaliteten på handledningen, och särskilt förhållandet mellan handledare och doktorand. Denna relation påverkar både processen under forskarutbildningen och slutprodukten – den färdiga avhandlingen. Tidigare forskning visar att en välfungerande handledningsrelation är avgörande för att doktorander ska slutföra sina studier, och otillräckligt stöd från handledaren lyfts ofta fram som en nyckelfaktor till avhopp. För att stötta handledare,

särskilt de som är nya i rollen, föreslår denna artikel en strukturerad men flexibel, reflekterande matris. Med utgångspunkt i två systematiska översikter sammanför matrisens fem centrala handledningsdimensioner – relation, ämnes-/forskningskunskap, pedagogisk kompetens, funktionella aspekter och metodologisk förståelse – med både externa (t.ex. institutionella strukturer, finansiella möjligheter) och interna (t.ex. motivation, akademisk identitet) faktorer som påverkar doktorandernas framsteg. Detta ramverk uppmuntrar handledare att kontinuerligt granska och förfinas sin praktik, vilket i sin tur skapar en miljö som främjar en framgångsrik forskarutbildning. Reflektionsmatrisen fungerar slutligen som ett anpassningsbart verktyg för att främja löpande medvetenhet, anpassning och utveckling av handledningspraktiken.

Nyckelord: doktorandhandledning, reflekterande praktik, akademiskt mentorskap, forskarutbildning

Introduction

Doctoral studies as a process, epitomized by a successfully defended thesis as a product, are to a large extent affected by the supervisor as the supervisor plays an essential role in both. The product is contingent on the process, and the process is largely shaped by the supervisor and the supervisor's relationship/alliance with the doctoral student. In fact, the most influential external factor for successful doctoral studies is the relationship between student and supervisor (Haley et al., 2024; Sverdlik et al., 2018). Forty percent of non-completers stated insufficient support from their supervisors to be one of the main reasons for doctoral student to drop out of their studies (Högskoleverket, 2012). This fact places great responsibilities on a supervisor. Arguably, any supervisor in general, and junior supervisor in particular, must create an awareness of the supervisor's role in the process and how it affects the product via the relationship with a doctoral student.

Towards this end, the aim of the current paper is to act as a practical help, in the form of tailored reflection matrix. The (junior) supervisor may utilize, and return to, it during the process of supervision as to not lose sight into important factors during PhD training. Although checklists in higher education are neither new nor unique (cf. Krásničan et al. 2024), the current matrix aims to be a reflective tool under continuous development; a way to raise awareness about the supervisor's own role in the process constituting third-cycle education.

Initially, I will flesh out the structure and dynamics found in third-cycle education, and subsequently present important factors for successful doctoral studies found in prior research. Finally, I will connect these and create a framework – a reflection matrix – to which a supervisor can consult, return, and revise, as an active reflection tool to follow the progression of both the process of doctoral studies as well as one's own development as a supervisor.

Doctoral studies as system and dynamics

A way of framing the dyads mentioned above – process-product and supervisor-doctoral student – is by discerning between *structure* and *dynamic*. In the context of academia, and doctoral studies in particular,

a system can be viewed in terms of structure and dynamics. Here, structure refers to the components of the system and how they are **arranged**, while *dynamics* refers to the **interactions** between these components. Figure 1 serves as an illustration of this system.

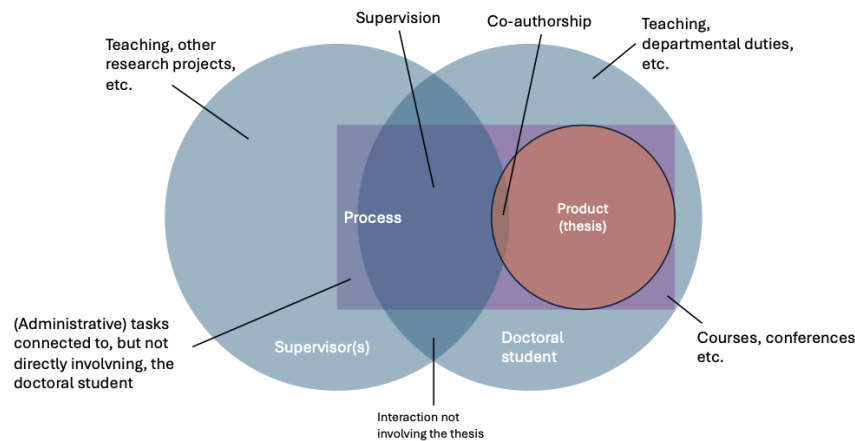


Figure 1: Doctoral study **structure** (in white text) and **dynamics** (black text)

Figure 1 illustrates the four distinct aspects of doctoral studies mentioned above (process-product/supervisor-doctoral student) and how they interrelate. For instance, there are aspects which do not overlap, such as when the supervisor's and the doctoral student's tasks are unconcerned with one another (e.g. teaching, the supervisors independent research, departmental duties, etc.). There are also aspects which overlap but do not concern the doctoral studies. Such could be the case when the supervisor is also the head of the department and as such has a more formal employer liability. Furthermore, there are parts of the process which do not necessarily involve the direct interaction between supervisor and doctoral student. For instance, when the supervisor discusses the process in the supervisors' committee, when they want to push the project into a certain direction without involving the student, or when the doctoral student attend courses or conferences. Finally, the core of figure 1 illustrates the central overlaps of how the process is more than the product, and how it is manifested by, for instance, supervision and/or co-authorship. Here, we find components of the supervision relationship such as working alliance, power relations, and ethical values and principles (Lindén, 2020a).

The figure serves as a schematic overview into the structure and dynamics of academic life concerning doctoral studies. It will of course vary depending on whether, for instance, the doctoral student is an industrial PhD, to what extent the student is involved in teaching, whether the thesis is a monograph or compilation thesis, to what extent the supervisor(s) micro-manage, and so forth. The size and location of each part in the figure might vary but are arguably always present.

The figure also serves to illustrate the dynamic components; how the parts are distinct but interrelated in different ways and can affect other dynamics (Sverdlik et al., 2018). For instance, the supervisor's engagement in other research projects might steal time from supervision. As such, the structure and dynamics in figure 1 illustrating the relationship between product and process, between supervisor(s) and supervisee, raise important questions concerning the dynamics of actors involved and their journey towards a successfully defended thesis. For instance, how do they affect the quality of the doctoral studies and the dissertation? How is it affected by the supervisor/supervisee relationship? How does the

continuous interactions between supervisor(s) and doctoral student create situations which require a resolution, and how do power relations feed into these interactions?

Each of these questions, and many more, are interesting but too broad to cover in the scope of the current paper. For this reason, I will focus mainly on the results discussed by Haley et al. (2024) and Sverdlik et al. (2018), which are described in the next section.

Identified factors for successful supervision

Prior research has found several important factors for successful supervision. Haley et al. (2024), in their systematic review, summarized research concerning supervision from a doctoral student perspective. They discussed five factors particularly important for successful supervision. Namely, (i) domain knowledge, (ii) research methodology, (iii) pedagogical components (including relational aspects), (iv) relationships, and (v) functional aspects. Of these, the supervision relationship is the most studied area. It refers to the alliance or rapport built between supervisor and doctoral student. This highlights the importance of a supportive and collegial relationship between the two, and a general approach of the supervisor in which the development of the doctoral student is of primary importance. *Domain-/research knowledge* concerns the supervisor's level of knowledge in the field concerning both subject/domain knowledge and knowledge about research methods; but also a recognition where such knowledge might be lacking. The *pedagogical components* refer to the supervisor's ability to socialise the doctoral student into academia, to foster critical thinking and a critical approach to one's own work and to the work of others. Finally, the *functional* aspects refer to a form of doctoral studies infrastructures, concerning scheduling regular meetings and steps for the monitoring of student progress.

These five factors can be contrasted to the work by Sverdlik et al. (2018) who, in their systematic review, focused instead on factors associated with doctoral students' completion of their third-grade cycle education, achievement, and well-being from the student's perspective. They discerned between external and internal factors. The former refers to questions of supervision, personal/social lives, departmental structures and socialization, and financial opportunities – that is, structures outside the student which can directly or indirectly affect the process and progress. The internal factor, instead, refers to the student's inner processes, such as questions of motivation, writing skills and regulatory strategies, academic identity, and feelings of self-worth.

Therefore, according to prior research, all the factors described above appear to be crucial for the successful completion of third-cycle education. When these are lacking or insufficient, they create a basis for problems in supervision. Lindén (2020b) describes factors connected to the work environment (“departmental structures and socialization” above) such as stress due to *organizational* aspects, for instance when departmental resources do not match the doctoral student's expectations making it difficult to carry out tasks related to research. Or *supervisor skills*, partly tapping into “domain-/research knowledge” mentioned above, and partly tapping into the supervisor's ability of active listening (see also Christie & Jurado, 2013, for a discussion from a communicative action perspective).

In summary, there is a structure to the doctoral studies which, arguably, is found to a varying but similar extent in all third-cycle education (cf. figure 1). This structure is then embodied by dynamics, of which we have seen examples from prior research in Haley et al. (2024) and Sverdlik et al. (2018). I will

summarize this discussion by contrasting factors derived by these two systematic reviews in a form of a reflection matrix for any supervisor to revisit, and update, during the course of supervision.

Reflection matrix

The reflection matrix below does not contain boxes to be checked, but instead questions to be posed and reflected upon during the process of supervision and the process of developing as a supervisor. As such, it is a type of matrix, or checklist, in the making, subject to additions and alterations for anyone in the process of developing capable supervisor skills.

Five factors discussed by Hayle et al. (2024) constitute the column, and the two overarching categories *external* and *internal factors*, with their subfactors, constitute the rows. This creates the matrix in table 1. Each combination of factors opens the possibility of posing distinct questions concerning the specific combination. For instance, for the top left corner in table 1 combining “Relationship” and “Supervision”: questions that might arise concern (i) How can I establish a solid alliance? (ii) How do I relate to/deal with the power relations? (iii) To what extent am I actively listening to the doctoral student?

Notice the open character of the questions. They are meant to raise awareness of what issues might arise connected to the dynamics for each combination of columns/rows in the matrix. As such, they depart from traditional checklist often offering a solution. Arguably, each doctoral studies process is unique considering the process-product, supervisor-doctoral student, and structure-dynamic distinctions (cf. figure 1). At the same time, the factors that constitute the reflection matrix (table 1) are found to be general, which is the reason the questions are open. Open both for offering a device for reflection, as well as for the reader to add relevant questions of their own. Similarly, the reader is encouraged to add reflective questions of their own in currently empty cells.

Summary

The supervisor’s role is essential for successful third-cycle education. It is important for its process and product, and essential to fill the structure with nurturing dynamics. Towards this end, the current paper outlines a reflection matrix based on systematic reviews which have identified important factors for successful doctoral studies. The matrix offers a device for reflection for (junior) supervisors to ponder their role as supervisors, at the same enabling them to adapt, add to, and revise the matrix according to their own perceived benefit.

Supervisor competence (Haley et al. 2024)

External factors (Sverdlik et al. 2018)	Relationship	Pedagogical (and relational) component	Functional aspects	Domain knowledge	Research methodology
Supervision	<i>-How can I establish a solid alliance? -How do I relate to/deal with the power relations? -To what extent am I actively listening?</i>	<i>- Is my feedback constructive and does it foster critical a critical approach? - Do I facilitate the students contacts with other researchers or groups (networking)? - How can I keep developing as a supervisor? - Am I clear enough on how I perceive my role as a supervisor, and does this align with the students view?</i>	<i>Is the structure of supervision (schedule etc.) 'functional' for both?</i>	<i>Am I knowledgeable enough in the student's field? Do I have the resources to become more knowledgeable, or would it be better to bring in help?</i>	<i>Am I knowledgeable enough in the student's field? Do I have the resources to become more knowledgeable, or would it be better to bring in help?</i>
Personal/ social lives	<i>Am I observant of signs of mental illness, on the students work/life balance, etc?</i>	<i>What experience can I share on how to balance work vs. life?</i>	<i>How can I create a structure for supervision that creates a good work/life balance (e.g. schedule, offline meetings etc)?</i>	<i>- Am I transparent about which parts I am not knowledgeable about? - Does this create stress for the student (or for me?)</i>	<i>- Am I transparent about which parts I am not knowledgeable about? - Does this create stress for the student (or for me?)</i>
Departmental structures and socialization	<i>- In what way am I 'socialising' the student and integrating them in the department? - Do I facilitate the students contacts with other researchers or groups (networking)?</i>	<i>Am I clear enough on how and why things 'are done' in a certain way?</i>	<i>Are there any departmental structures that form a barrier for the student?</i>	<i>Am I aware of the structures, can I verbalise them?</i>	
Financial opportunities	<i>-In case of external funding, am I and the student in agreement of the path forward? - In what way can I help the student seek own funding (e.g. grants or post-doc)?</i>	<i>In cases of external funding, am I clear enough on the expectations of the funder?</i>	<i>Is the financing secured, or are there any risks?</i>	<i>Am I aware of possible funding for the student to apply (e.g. travel grants etc)?</i>	

Internal factors

Motivation	- In what way am I motivating the student? - Am I observant of signs of lacking motivation? - Can I increase motivation, and in what way (e.g. suggesting another research question, method etc)?	- Am I an active listener? - Can I and am I supporting the student to follow topics of their choice?		Am I knowledgeable enough to pinpoint or direct the student towards gaps in the literature?	
Writing skills and regulatory strategies	- Am I giving constructive feedback on the students writing? - In collaborative writing, am I letting the student to take lead/responsibility?	- Have I suggested writing courses at the university? Am I giving constructive feedback on the students writing?			
Academic identity	- In what way am I 'socialising' the student into 'academia'? - Do I facilitate the students contacts with other researchers or groups (networking)? - Am I inviting the students to more informal meetings, and encouraging conference participation?	- Am I engaging in active listening?	- Am I facilitating conference participation (i.e. suggesting, funding etc.)?	- Am I aware of relevant conferences in the student field?	
Self-worth	- Am I giving positive feedback and praise to the student? - Am I mentioning positive aspects to others?				
Self-efficacy	- Am I giving positive feedback and praise to the student?			Am I knowledgeable enough to support the student?	Am I knowledgeable enough to support the student?

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