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SUPERVISING WITHOUT MOTHERING: FINDING THE BALANCE WITH STEAM AND NOTION

Travail de fin d'étude en vue de l'obtention du Diplôme en Enseignement Supérieur et Technologie de l'Education

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Je déclare sur mon honneur que mon travail de fin d'étude est une œuvre personnelle, composée sans concours extérieur non autorisé.

Abstract

This *Travail de Fin d'étude* (TFE) examines the implementation of a supervision framework designed to promote student autonomy in higher education. Anchored in the Scholarship of Learning and Teaching (SoTL) framework, the project combines reflective practice with empirical data collection to evaluate the effectiveness of a pedagogical model inspired by STEAM (Scaffolding, Tutoring, Engaging, Argumentation, Modeling) and supported by the digital platform Notion.

The supervision model was implemented with students at different academic levels (Bachelor practical work, Bachelor thesis, and Master research). Two custom-designed questionnaires were used to evaluate students' experiences with both the supervision approach and the use of Notion as a structuring tool. A mixed-methods analysis was conducted, combining descriptive statistics with thematic coding of open-ended responses.

Quantitative findings revealed strong agreement with the value of structured, responsive supervision, particularly among less experienced students. Notion was perceived as a helpful organizational tool, though its impact on autonomy was more nuanced. Qualitative data reinforced the importance of striking a balance between support and independence, highlighting the roles of modelling, feedback, and clear expectations.

Overall, the project supports the use of the STEAM model and Notion within a flexible, adaptive supervision strategy. It contributes to a reflective understanding of supervisory practice and offers concrete recommendations for fostering autonomy in diverse research contexts. However, as we continue to rethink what adequate supervision entails, how can we better adapt our roles, tools, and expectations to meet students where they are, without holding them back from reaching their full potential?

Keywords: Student autonomy, Supervision framework, STEAM model, Notion (digital platform), Pedagogical tools, undergraduate students

To all my students

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Table of Content

1. Introduction and Personal Context ***8***

2. Theoretical context ***10***

2.1. Introduction to Supervision **10**

2.2. The Link Between Autonomy and Supervision: A Deep Dive **11**

2.2.1. Autonomy as a Developmental Process 11

2.2.2. The Paradox of Supervision: More Guidance Leads to More Autonomy 12

2.2.3. Balancing Support and Independence: The Role of Adaptive Supervision 13

2.2.4. Autonomy as the Final Product of Supervision 14

2.3. Personal Reflection: My Experience with Autonomy in Supervision **14**

2.4. Towards a Supervision Model that Promotes Student Autonomy: A Pedagogical and Collaborative Approach **16**

2.4.1. From Theory to Practice: Implementing the STEAM Supervision Model 19

2.5. Integrating Notion to Foster Student Autonomy in Supervision **20**

2.5.1. Notion: A Flexible Organization and Management Tool 21

2.5.2. Structuring Supervision with Notion: A Dynamic and Interactive Approach 23

3. Problem Statement and Research Questions ***24***

3.1. General Problem **24**

3.1.1. Sub-problem 1: The Supervision Model 25

3.1.2. Sub-problem 2: The Implementation Tool – Notion 25

4. Objectives of the TFE ***25***

4.1. Objective 1: Theoretical and pedagogical framework **25**

4.1.1. Sub-objectives 26

4.2. Objective 2: Practical implementation using Notion **26**

4.2.1. Sub-objectives 26

5. Research Design ***26***

6. Methodology ***27***

6.1. Instruments and Procedure **27**

6.2. Participants and Context **28**

6.3.1. STEAM-Based Supervision Questionnaire 28

6.3.2. Notion Usage Questionnaire 29

7. Data Analysis ***30***

7.1. Descriptive Analysis of the STEAM Supervision Questionnaire **31**

7.1.1. Quantitative Results – STEAM-Based Supervision Questionnaire 31

7.1.2. Qualitative Results – STEAM-Based Supervision Questionnaire 36

7.2. Descriptive Analysis of the Notion Questionnaire **38**

7.2.1. Quantitative Results – Notion Usage Questionnaire 38

7.2.2. Qualitative Results – Notion Usage Questionnaire 41

8. Discussion ***43***

8.1. Reflections on the STEAM Supervision Framework 43

8.2. Extending the Analysis: Qualitative Perspectives on the STEAM Framework 45

8.3. Reflections on the Use of Notion in Supervision 46

8.4. Qualitative Insights on Supervision with Notion..... 47

8.5. Linking Results to Research Objectives and Questions..... 48

8.5.1. Objective 1: Developing a collaborative supervision model based on STEAM ...48

8.5.2. Objective 2: Implementing the framework using Notion 48

9. Limitations and Future Directions 49

10. Conclusion..... 49

10.1. Personal Reflections and Future Directions 50

10.1.1. Recommendations for Other Supervisors 51

10.1.2. What do I take away from Notion and STEAM?.....51

Reference..... 53

Appendix A - Questionnaire on the Use of Notion as a Supervision Tool 54

Appendix B - Questionnaire on the Supervision Framework and the STEAM Model 57

Appendix C – Visual Preview of the Notion Supervision Questionnaire in Microsoft Forms..... 59

Appendix D – Microsoft Forms Version of the Questionnaire on the Supervision Framework and the STEAM Model..... 61

Appendix E – Full Results of the STEAM Supervision Framework Questionnaire..... 63

Appendix F – Quantitative Data from the Notion Supervision Questionnaire..... 64

Appendix G – Qualitative Data from the Notion Supervision Questionnaire 64

Appendix H – Evolution of Supervision Timelines (2021–2025): From Structured Scaffolding to Autonomy Support 65

1. Introduction and Personal Context

This teaching project focuses on the theme of supervision in higher education and developing my supervisory identity. Before delving into the theoretical and reflective components of this work, I will first provide a brief overview of my experience with both student supervision and the supervision I have received throughout my academic and clinical training.

A progressive evolution toward student mentoring and supervision has marked my academic journey. I initially pursued a bachelor's degree in primary education, completing my first year at the *Université du Québec en Outaouais* (UQO) before continuing my studies in Geneva, Switzerland, for my second year. However, upon returning to Quebec, I felt a deep sense of disorientation and quickly realized that teaching young children was not for me, mainly due to challenges in classroom management, which had always been a weakness of mine. I explored other career paths, such as social work, but did not find a program that suited me until a spot opened in a psychology certificate program, where I enrolled. This decision proved pivotal, allowing me to transition into a full bachelor's degree in psychology.

One of the first courses I took in social psychology was taught by Caroline Blais, who soon became my thesis supervisor for my bachelor's and doctoral research. I joined her Laboratory of Visual and Social Perception (LPVS), where I was appointed as the lab coordinator, which provided me with experience in managing and organizing research activities. In 2016, I graduated with my bachelor's degree in psychology. I dedicated myself entirely to securing admission to the highly competitive doctoral program in neuropsychology, which admitted only five students per cohort. I was the only student from UQO to be accepted.

In 2016, I began a doctoral program in clinical psychology, with a specialization in neuropsychology. My first year was entirely dedicated to theoretical coursework, including neuropsychopathology and neurobiology, followed by a first clinical internship at UQO in my second year. I completed my first neuropsychology internship at a child psychiatric hospital in my third year. My fourth year marked a turning point with a research internship in Switzerland at Professor Caldara's lab, where I am now completing my PhD in research. During this internship, I began co-supervising my first undergraduate students alongside a colleague from the lab. In my fifth year, I completed a second neuropsychology internship in a private practice, where I also supervised second-year doctoral students in neuropsychology for six months.

I ultimately completed my clinical neuropsychology doctorate in December 2021, submitting my dissertation in an article-based format. Meanwhile, in September 2021, I began a research-focused PhD in Switzerland, where I immediately supervised twelve undergraduate students with my colleague while also teaching the "Bachelor's Thesis" course. Since 2021, I have supervised practical work (Travaux Pratiques, hereafter referred to as “TP”), overseeing five to six groups of four students each year. These TP involve two research

projects over a year and require close supervision, as they often represent the students' first exposure to research.

Since moving to Switzerland, my supervisory responsibilities have continued to evolve. In 2022-2023, I supervised eleven students and hosted interns. In 2023-2024, I supervised nine students. Currently, in 2024-2025, I supervise four undergraduate students and seven master's students, whose projects are more long-term. My experience in supervision has progressively expanded, enabling me to refine my approach and tailor my mentoring to various academic levels and student needs.

Alongside my experience as a supervisor, my development has been equally shaped by the diverse and rich supervision I have received throughout my training. I began working with Prof. Caroline Blais in 2014 during the completion of my bachelor's thesis. I continued under her guidance for my doctoral thesis from 2016 to 2021, with Dr. Daniel Fiset joining as a co-supervisor. During my clinical doctoral training, I benefited from multiple supervisory experiences, including a 2017–2018 internship at the UQO University psychology clinic, where Dr. Anne-Karine Gauthier supervised me. In January 2018, I began working in a private practice under the supervision of both Dr. Anne-Karine Gauthier and Dr. Julie Ayotte. Later that year, from September 2018 to March 2019, I was supervised by Dr. Simon Précourt during my pediatric neuropsychology internship at a psychiatric hospital in Quebec. Concurrently, I also worked under the supervision of Dr. Sarah Tardif in a private clinic and volunteered as a neuropsychologist at a pediatric center, again under the supervision of Dr. Anne-Karine Gauthier.

In September 2019, I began a research internship in Switzerland under the supervision of Prof. Roberto Caldara. A year later, in September 2020, I started my second clinical internship in a private practice, supervised by Dr. Kim Hébert and Dr. Marie-Karèle Chevalier. In September 2021, I officially started my PhD in Switzerland, still under the supervision of Prof. Roberto Caldara, while simultaneously completing the final components of my clinical doctorate remotely. Since March 2022, I have been working as a neuropsychologist-in-training at the Psynap6 clinic, first supervised by Louise Reichler, and later by Priska Bodmer. Most recently, in the context of my current Diploma of Advanced Studies (DAS) in university pedagogy, I am receiving supervision from Dr. Marie Lambert.

Although my clinical work as a neuropsychologist-in-training is not considered "supervision" academically, it nevertheless involves a close, individualized form of support. In neuropsychological assessments, I accompany patients throughout a sensitive and often challenging process: from initial interviews to testing sessions and feedback (“restitution”). This ongoing relational dynamic, characterized by empathy, guidance, and continuity, has significantly shaped how I interact professionally with others.

I have realized that I sometimes carry this clinical posture into my academic supervision, instinctively forming close bonds with students and striving to ensure they feel supported and understood at every stage. While this can foster trust and motivation, it also presents challenges: I sometimes find it difficult to maintain the necessary professional distance or

to let students struggle and find their way. One of the main challenges I face is my tendency to provide overly nurturing supervision, which can hinder students' development of autonomy. I am actively working to address this through reflective practice and ongoing pedagogical development.

2. Theoretical context

Although this project began as a practical reflection on enhancing my supervision of students, it has evolved into a structured inquiry that closely aligns with the principles of the Scholarship of Teaching and Learning (SoTL; Bélanger, 2010; Colet et al., 2011). Without explicitly naming it, I employed a SoTL-inspired approach: I identified a pedagogical challenge within my teaching practice (how to support student autonomy in supervision), implemented a change, a supervision framework based on STEAM and supported by Notion, and designed a small-scale study to evaluate its impact. This process led me to regard a part of my teaching, namely, the enhancement of supervising, as a researchable object. By creating a methodological framework, collecting and analyzing data, and interpreting the results, I adopted a complete research cycle typically applied in traditional academic research, but here directed towards my pedagogical practice. Writing this TFE enabled me to formalize that process and transition from a purely intuitive understanding of my teaching to a more structured, reflective, and evidence-based approach. In doing so, I positioned myself as a practitioner-researcher who uses inquiry to enhance practice and contribute to a broader professional discourse on teaching and learning in higher education.

2.1. Introduction to Supervision

Supervision is an ancient practice that originates from apprenticeship-based professions, where masters passed down their skills and knowledge to apprentices. Over time, supervision has evolved to meet increasingly complex educational and training needs in academic and professional fields (Lee, 2008). Initially focused on the direct transmission of knowledge and skills, it has become a structured process aimed at fostering autonomy, professional development, and critical thinking among students and early-career professionals (McCallin & Nayar, 2012; Pearson & Brew, 2002).

The history of supervision can be traced back to Socrates, who guided his students through dialectical questioning rather than simply imparting knowledge. In the Middle Ages, guilds developed a master-apprentice model in which experienced artisans trained and assessed apprentices through hands-on learning and structured guidance. This system laid the groundwork for modern supervision by emphasizing experiential learning and individualized mentoring (Lee, 2008).

In academic settings, supervision emerged with the foundation of medieval universities such as Bologna, Paris, and Oxford in the 12th century, where students were supported by tutors or masters responsible for overseeing their intellectual development (Lee, 2008; Manathunga, 2005). Over time, this evolved into today's mentorship and supervisory systems used in higher education and research training programs (Grant, 2003).

In psychology and neuropsychology, structured supervision gained prominence in the 20th century with the rise of clinical practice. Key figures such as Sigmund Freud and Carl Rogers significantly influenced the field of clinical supervision by introducing relational and reflective approaches that emphasized skill development, self-awareness, and professional growth (Watkins, 2011).

Supervision is now recognized as a critical component of training for future researchers and practitioners in both academic and clinical contexts. It not only facilitates the acquisition of technical skills but also encourages a reflective approach to ethical, methodological, and interpersonal challenges in research and practice (McCallin & Nayar, 2012; Pearson & Brew, 2002). Far from being a mere evaluative oversight, supervision is a dynamic space for knowledge exchange and co-construction, where the supervisor takes on the roles of guide, facilitator, and mentor (Grant, 2003).

As a guide, the supervisor provides direction and structure, helping students navigate academic or clinical expectations. As a facilitator, the supervisor supports learning by creating conditions that promote autonomy, critical thinking, and self-discovery. As a mentor, the supervisor offers long-term support, shares personal experience, fosters professional identity, and contributes to the student's broader development beyond any specific task or project (Pearson & Brew, 2002).

My journey aligns with this evolving tradition of supervision. Throughout my academic and professional journey, I have assumed increasing supervisory responsibilities, gradually taking on more responsibilities. Whether in the laboratory, during clinical or practical training sessions, or while mentoring research projects, I have developed a supervision approach that supports students' progression while encouraging their autonomy in scientific and professional endeavors.

2.2. The Link Between Autonomy and Supervision: A Deep Dive

Supervision and autonomy are often perceived as opposing forces, one representing oversight and guidance, the other self-sufficiency and independence. However, in an effective supervisory relationship, autonomy is not the absence of supervision but rather its goal. A good supervision process does not seek to control or dictate the supervisee's actions; instead, it fosters a progressive development of independence, critical thinking, and self-regulation.

2.2.1. Autonomy as a Developmental Process

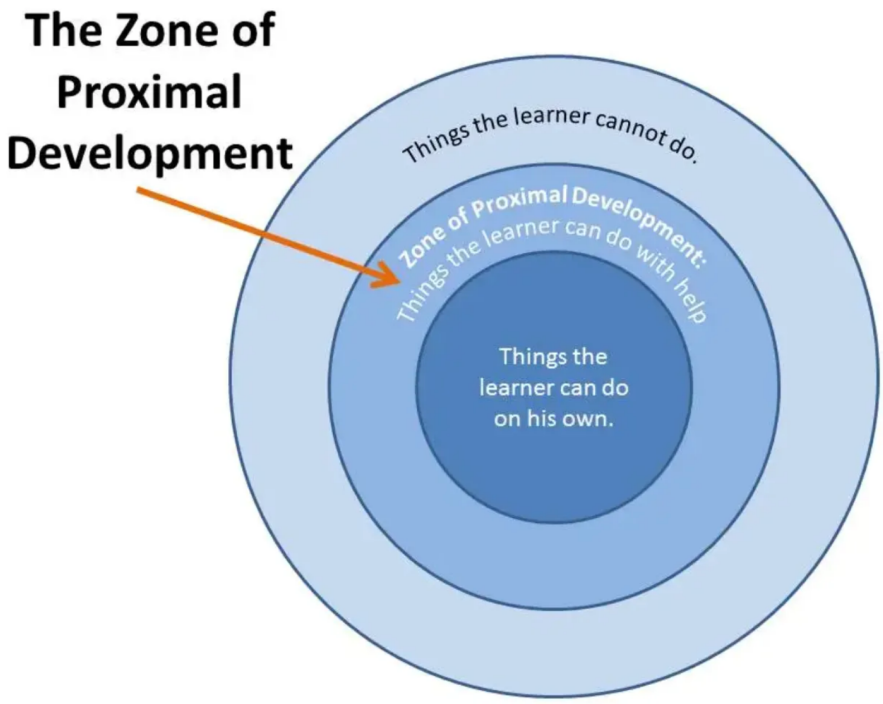
Autonomy is not an inherent trait; rather, it is a developmental process that emerges gradually through the acquisition of competence, confidence, and self-direction (Wisker, 2012). This progression is particularly evident in academic, research, and clinical supervision, where students or early-career professionals often begin with limited expertise and rely heavily on their supervisors (Pearson & Brew, 2002). Through ongoing learning, feedback, and progressively increased responsibilities, they begin to internalize key skills

and gradually develop independence (McCallin & Nayar, 2012). Supervision that provides scaffolded support, balancing guidance with opportunities for self-directed learning , plays a crucial role in this transformation (Lin & Tsai, 2021). As autonomy develops, so too does the supervisee's capacity for critical reflection, initiative, and ownership of their professional journey.

Psychologist Lev Vygotsky's concept of the "Zone of Proximal Development" (ZPD, see Figure 1; Vygotsky, 1978) is highly relevant in this context. The ZPD refers to the gap between what a learner can do independently and what they can achieve with guidance and support. Adequate supervision operates within this zone, providing just enough support to enable growth without overwhelming or restricting the learner's capacity for independent thinking.

Figure 1.

The Zone of Proximal Development (ZPD)



2.2.2. The Paradox of Supervision: More Guidance Leads to More Autonomy

A paradox in supervision is that strong mentorship and structured guidance promote autonomy rather than hinder it. This phenomenon is underpinned by the educational psychology concept of *scaffolding*, where temporary cognitive or procedural support is provided by a more knowledgeable individual and gradually withdrawn as the learner gains competence. While *structured guidance* refers to tangible support, such as goal-setting, modelling tasks, or offering formative feedback, *strong mentorship* encompasses broader

relational support aimed at fostering confidence, professional identity, and long-term development (McCallin & Nayar, 2012; Wisker, 2012).

The key lies in striking a dynamic balance: offering enough structure to reduce uncertainty and cognitive overload while gradually transferring responsibility to the learner in a manner that promotes agency and self-regulation (Lin & Tsai, 2021; Pearson & Brew, 2002).

For instance, in research supervision, a student may initially need close guidance in designing an experiment, analyzing data, or interpreting results. As they develop their competence, the supervisor steps back, allowing them to take ownership of their project. This gradual release of responsibility fosters confidence in their decision-making and problem-solving abilities (Lee, 2008). Similarly, early-stage trainees might require direct observation and feedback during clinical supervision before they can assess and treat patients independently. Over time, the supervisor intervenes less frequently, promoting the development of self-efficacy and professional judgment.

2.2.3. Balancing Support and Independence: The Role of Adaptive Supervision

The most effective supervisors practice adaptive supervision, adjusting their level of involvement based on the supervisee's readiness, competence, and confidence. This aligns with Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD), which has been echoed in higher education literature (Wisker, 2012), emphasizing the importance of responsive supervision that evolves in tandem with the student's progression.

This is crucial because both too much and too little supervision can hinder autonomy:

- Over-supervision (micromanagement) can create dependence, anxiety, and a lack of self-confidence, preventing students from developing problem-solving skills.
- Under-supervision (hands-off approach) can leave students feeling lost, unsupported, or even vulnerable to making critical mistakes.

Adaptive supervision requires ongoing assessment and adjustment. The supervisor must recognize when to intervene and refrain, ensuring that the supervisee feels supported and empowered to take initiative. In this process, asking questions rather than providing immediate answers can be particularly impactful: it helps the supervisee develop autonomy in reasoning and decision-making. This questioning approach aligns with the concept of constructive guidance, promoting reflection, exploration, and ownership of the learning process. This practice is central to pedagogical models such as the CQFD framework, developed at the *Université catholique de Louvain (Université catholique de Louvain, internal training document)*.

The CQFD model identifies four key supervisory functions specifically designed for group tutoring: Conduire (Guide), Questionner (Question), Faciliter (Facilitate), and Diagnostiquer (Diagnose). Rather than prescribing a fixed supervisory style, the model promotes flexible and adaptive approaches that respond to learners' needs and the evolving dynamics within the group. Supervisors can alternate between guiding the group through different stages

(Conduire), stimulating reflection through open-ended questions (Questionner), encouraging collaboration and a positive group dynamic (Faciliter), and stepping back to observe and analyze learning processes (Diagnostiquer). Table 1 provides concrete examples of each function through sample questions that can be used during group tutoring sessions. Each function plays a distinct role in fostering student autonomy while sustaining a constructive and engaging learning environment. By integrating the CQFD model into their supervisory practice, educators can better align their interventions with students' level of readiness, ensuring that support is timely and appropriately balanced.

When applied intentionally and flexibly, these supervisory strategies contribute to a broader pedagogical goal: fostering learners' progressive emancipation.

Table 1.

Examples of Supervisory Functions and Questions in Group Tutoring Using the CQFD Model

Function	Main Purpose	Sample Questions
Conduire (Guide)	Guide the group through stages, clarify goals and timelines	Where are we now? What do we already know? What is our next step?
Questionner (Question)	Stimulate reflection through open-ended questions	Why do you think that? Can you explain your reasoning?
Faciliter (Facilitate)	Foster a positive dynamic, encourage collaboration	How do the different views in your group complement each other?
Diagnostiquer (Diagnose)	Observe group processes and identify learning difficulties	What has been most difficult for you? What patterns do you observe in your process?

2.2.4. Autonomy as the Final Product of Supervision

The goal of supervision is to foster individuals who no longer need oversight. In academia, this involves training researchers to design and conduct independent studies. In clinical settings, it entails producing professionals capable of making autonomous clinical decisions while upholding ethical and professional standards.

However, autonomy does not imply isolation. The best supervisors instill in their mentees a sense of lifelong learning and professional collaboration, where autonomy is balanced with the ability to seek guidance and participate in peer supervision when necessary.

2.3. Personal Reflection: My Experience with Autonomy in Supervision

In my supervisory experiences, I have witnessed firsthand the delicate balance between guidance and independence. Whether supervising bachelor's students in research projects or mentoring master's students on long-term projects, I have had to adapt my supervision style based on the students' experience levels, confidence, and learning styles. My own experience as a supervisee has also profoundly shaped this understanding: over the years, I have benefited from various supervisory styles, ranging from highly structured clinical guidance to more open-ended academic mentorship. These experiences have taught me the

empowering effect of a supervisor adjusting their level of involvement to match the supervisee's evolving needs.

For instance, in TP, students often have their first exposure to research. This requires close supervision initially to ensure they grasp methodologies, ethical considerations, and data analysis techniques. However, by the end of the project, I aim for them to feel confident in designing and conducting a study independently, making their own decisions, and critically evaluating their results.

The Bachelor's Thesis follows students' practical work, serving as a transition into independent research. At this stage, students undertake a research project independently, without their teammates, even though they are often part of a group, each supervised by a team of *X* students working on the same project. While they are not technically alone, they usually perceive themselves as such, which can be both an empowering and daunting experience. As supervisors, we aim to guide students through research and help them develop a scientific mindset. We strive to provide them with a smooth and non-anxiety-inducing introduction to research, ensuring they feel supported as they gradually gain confidence in their abilities. At the same time, we encourage them to cultivate critical thinking, ask meaningful questions, and challenge assumptions, whether their own, those of their peers, or even ours. Beyond fostering their autonomy and academic writing skills, our ultimate objective is to nurture their scientific curiosity, ability to discern relevant information, and capacity for critical judgment. A fundamental part of this learning process is teaching them that research is not about simply following instructions or accepting information at face value. Saying, *"I did it this way because that's what I was told to do,"* is not enough. Instead, they must question, analyze, and engage with the rationale behind their project, why certain variables were chosen, specific conditions were tested over others, and what scientific principles justify these decisions. Research is about understanding, reasoning, and developing the ability to think independently, which is the proper foundation of scientific inquiry.

At the master's level, where students have already acquired research experience through their undergraduate work, my supervision becomes more strategic than directive. I offer comprehensive conceptual guidance and personalized feedback. Still, I expect them to take greater ownership of their projects, formulate their research questions more confidently, and justify their methodological choices more effectively. Our expectations of master's students are higher regarding their autonomy, project involvement, and ability to engage critically with their research. We encourage them to shape their projects rather than passively follow instructions and to actively engage in refining their hypotheses, interpreting their results, and addressing challenges independently. We challenge them to reflect on their future career paths at this stage. Through discussions and critical questioning, we encourage them to consider where they want to go next, academia, industry, clinical work, or another direction, and how their current research aligns with those aspirations. By fostering this self-reflection

alongside their academic development, we aim to prepare them as researchers and professionals who can confidently navigate their next steps.

2.4. Towards a Supervision Model that Promotes Student Autonomy: A Pedagogical and Collaborative Approach

Student supervision plays a fundamental role in shaping learners' academic, professional, and personal development. As part of my PhD, I oversee bachelor's students in their practical work and thesis projects, as well as master's students working on long-term research. One of the main challenges I encounter is my tendency to provide overly nurturing supervision, which can sometimes hinder the development of student autonomy. It is therefore essential to adopt an approach that supports learning while progressively encouraging initiative, independence, and responsibility.

To address this, I draw inspiration from Lin & Tsai's (2021) model of collaborative supervision and pedagogical principles derived from the STEAM approach (Science, Technology, Engineering, Arts, and Mathematics). Their framework outlines five key supervisory strategies, *scaffolding, tutoring, engaging, argumentation, and modeling*, each linked to specific outcomes such as autonomy, motivation, critical thinking, and creativity (see Figure 2). This model provides a structured yet flexible approach to conceptualizing supervision, not merely as a dyadic transmission of knowledge but as a dynamic process that evolves in response to the learner's needs.

While supervision is often perceived as a one-on-one relationship centred on guidance and feedback, such a model can risk creating dependency, particularly among students who seek frequent validation. To mitigate this, I aim to integrate modern pedagogical strategies that balance support with challenge and guidance with self-directed exploration, enabling students to develop competence and confidence over time.

In supervision, *scaffolding* is crucial as it provides a structured yet adaptable framework that enables students to take ownership of their learning progressively. Rather than offering solutions outright, effective scaffolding involves equipping students with research guidelines, methodological tools, and structured timelines while encouraging self-reflection. When applied appropriately, scaffolding fosters autonomy by enabling students to manage their progress and gradually transition from dependence on the supervisor to self-directed learning. This process prepares them to function as independent researchers and even future supervisors.

To illustrate how I operationalize scaffolding, I have included in Appendix H a series of visual timelines that I have progressively developed since the beginning of my doctoral work in 2021. These timelines reflect the evolving structure I use to guide Bachelor students through their research process. The initial versions (2021–2022, 2022–2023) were quite minimalist and linear, providing basic submission dates and milestones. Following feedback in 2023 indicating that I was being overly directive ("too maternal"), I revised the structure for 2023–2024 and again for 2024–2025 to achieve a better balance between structure and autonomy.

The current version is more comprehensive, integrating regular formative assessments, collaborative checkpoints, and enhancing student ownership over planning and analysis. Each new version builds on the previous one, demonstrating a clear trajectory toward more autonomy-supportive scaffolding.

Tutoring is complementary by ensuring that supervision is tailored to each student's needs. Some students require more direct guidance at the beginning of their research journey, while others benefit from more independence from the outset. A well-adapted tutoring approach involves maintaining regular check-ins to assess progress while encouraging students to make independent decisions and take ownership of their learning. Instead of solving problems for them, a good supervisor guides them toward identifying their solutions. By striking a balance between support and challenge, tutoring enhances motivation and encourages students to take ownership of their work.

In practice, I conduct regular 30- to 45-minute supervision sessions (biweekly or monthly, depending on the phase), during which I ask open-ended questions such as “What options are you considering?”, “What do you see as the next step?”, and “What is blocking you right now?”. To further support students' reflection and ownership, I realized that creating a shared digital workspace (such as Notion) could have been helpful, providing a place for them to track decisions, formulate questions, and monitor their progress over time. This kind of space could encourage deeper engagement with the supervision process and support autonomy development in a structured way.

Engagement is a crucial aspect of supervision, as students are more likely to succeed when they take an active role in their research. Encouraging student-led discussions, regular project presentations, and peer collaboration fosters a sense of responsibility and investment in their work. When fully engaged, students develop better problem-solving skills and become more resilient in overcoming research challenges. Furthermore, promoting hands-on experience through practical research tasks reinforces learning and allows students to apply theoretical knowledge in real-world contexts. A structured yet flexible supervision model reduces the burden on the supervisor while ensuring that students remain accountable for their progress.

Due to institutional constraints, I am unable to implement regular work-in-progress presentations or invite students to attend external research seminars. Nonetheless, in a separate research project for which I serve as principal investigator (outside the scope of my doctoral research), I have been able to actively engage a scientific collaborator and an intern at every step of the process. This includes drafting ethics materials (e.g., consent forms), co-authoring abstracts, attending conferences, and presenting our project at a clinical colloquium with nurses at the CHUV. These students are encouraged to provide feedback on methodological and ethical aspects and to participate in decision-making processes. This hands-on, collaborative involvement significantly enhances their engagement, sense of ownership, and professional development.

Argumentation is another key component of research supervision, as it *enhances* students' ability to assess their work and defend their research choices critically. Encouraging students to justify their methodological and theoretical decisions helps them refine their academic reasoning and develop a strong scientific voice. Engaging in peer discussions and structured debates also enhances their ability to think analytically and construct well-supported arguments. Ultimately, a strong foundation in argumentation leads to higher-quality research outputs and increased confidence in scientific discourse.

In supervision meetings, I often ask, "Why did you choose this method over another?", "How would you defend this decision in a viva?" or "What would be the counter-argument here?". I provide annotated examples of strong research writing (e.g., excerpts from published papers) to model what a solid justification looks like. These examples are stored in a shared resource bank.

Modeling plays a crucial role in bridging the gap between theoretical knowledge and practical application. When supervisors demonstrate how to structure a research project, analyze data, or write a scientific paper, they provide students with concrete examples to follow. Making cognitive and problem-solving processes explicit helps students internalize best practices and develop independent research strategies. Offering writing templates, sharing well-structured academic arguments, and exposing students to different methodological approaches encourages creativity and innovation in research.

During meetings, when I read a section of their draft, I highlight what works, what's unclear, and how I would rephrase it so that they can understand the reasoning behind my suggestions. This approach helps them internalize the logic of academic writing and progressively develop their voice and structure.

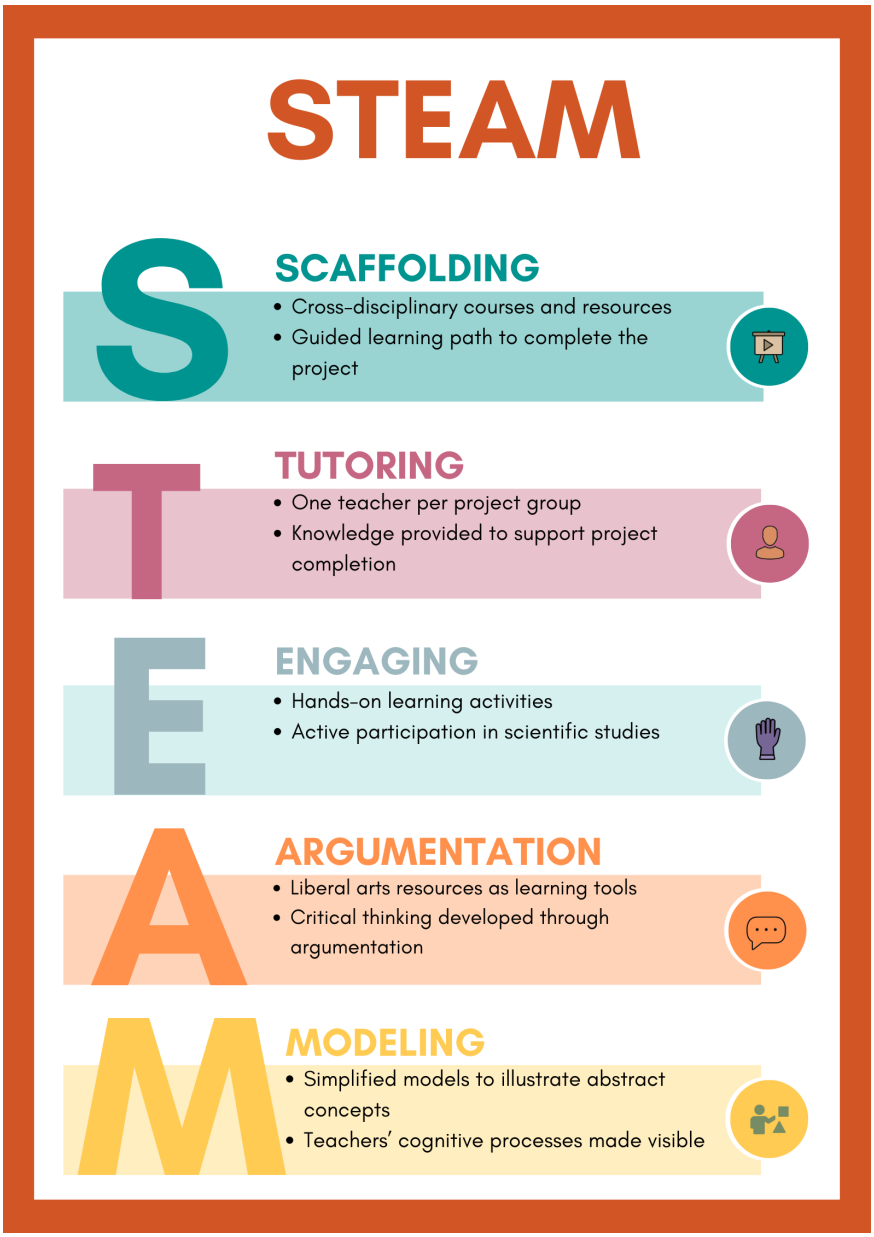
By integrating these five elements into supervision, the supervisor's role shifts from that of an authoritative figure to a facilitator in a collaborative learning process. This aligns with McCallin & Nayar's (2012) proposition that supervision should not merely be a top-down transfer of knowledge but a dynamic and interactive exchange where both parties actively contribute to learning. A progressive approach to supervision ensures that early-stage students receive structured guidance and frequent feedback, mid-stage students engage in deeper research discussions and argumentation, and late-stage students transition to a more autonomous work style with minimal intervention from the supervisor.

Ultimately, adequate supervision should not be about constant oversight but about fostering independent thinking and self-regulation. By applying Lin & Tsai's (2021) pedagogical STEAM model, supervision can be transformed into a developmental pathway that encourages students to take responsibility for their learning. A well-structured yet adaptable supervision framework ensures that students not only receive academic support but also develop the essential skills necessary for conducting independent research. Encouraging active learning, critical thinking, and creativity within supervision settings prepares students to navigate academic challenges with confidence and autonomy. This, in turn, enhances their

ability to make meaningful contributions to research communities and excel in their future careers as independent scholars.

Figure 2.

Overview of the STEAM Supervision Model



2.4.1. From Theory to Practice: Implementing the STEAM Supervision Model

Considering these theoretical principles, I sought to implement the STEAM supervision model (Lin & Tsai, 2021) as the pedagogical foundation of my supervisory practice. This model offers a structured yet flexible framework for balancing guidance and autonomy through five key strategies: scaffolding, tutoring, engaging, argumentation, and modeling. While this supervision framework can be deployed independently of any specific platform, I

chose to implement it using Notion, a digital tool particularly well-suited to operationalizing these principles in practice due to its versatility and collaborative features.

Notion provided the means to design personalized, structured, and interactive supervision environments aligned with the goals of each STEAM component. It allowed me to support organization and communication (scaffolding), offer targeted resources and feedback (tutoring), promote active student involvement (engaging), encourage critical thinking and justification (argumentation), and make my reasoning processes visible (modeling). In this sense, Notion functioned not as the supervision model itself, but as the technological vehicle.

Its integration helped me bridge the gap between theoretical intention and supervisory reality, allowing me to tailor support to students' evolving needs while staying aligned with the core values of autonomy-supportive supervision.

2.5. Integrating Notion to Foster Student Autonomy in Supervision

Following the decision to adopt Notion as a platform to implement the STEAM framework, I sought to integrate it in a manner that would directly support student autonomy during the supervision process. Instead of relying on traditional models that can unintentionally encourage dependence, I aimed to create a digital space that fosters responsibility, structure, and active engagement in learning.

Notion offers an intuitive and flexible environment that enables students to organize their tasks, track progress, centralize key resources, and collaborate asynchronously. These features are especially beneficial for supporting the pedagogical goals of scaffolding, tutoring, and engagement. By utilizing Notion as a central platform, students are not only guided through their projects but also encouraged to take ownership of their learning journey, developing essential skills such as time management, self-regulation, and initiative along the way.

In this sense, Notion does more than facilitate supervision logistics; it reinforces a shift in pedagogical posture, from directive oversight to co-constructed learning, by creating the conditions for students to work independently while still feeling supported.

Table 2.

Operationalizing the STEAM Supervision Model Through Notion

STEAM Component	Supported Through Notion by	Contributes to Student Autonomy by
Scaffolding	Structured timelines, task tracking, and shared dashboards	Helping students organize their workflow independently
Tutoring	Personalized feedback, embedded comments, and resource linking	Guiding while allowing students to choose and act
Engaging	Student-managed checklists, collaborative editing, and status updates	Promoting initiative and accountability
Argumentation	Encouraging justification of choices via shared reflections or discussion spaces	Strengthening critical thinking and reasoning
Modeling	Supervisor-shared templates, examples, and step-by-step project outlines	Demonstrating processes students can later apply on their own

2.5.1. Notion: A Flexible Organization and Management Tool

The choice of Notion over other tools, such as Microsoft Teams, is based on key factors related to collaborative work, information organization, and flexibility of use. Unlike traditional platforms that focus primarily on communication or task assignment, Notion offers an integrated, dynamic, and customizable approach to supervision and project tracking.

Comparison with Microsoft Teams

In contrast to Notion, which primarily serves as an organizational tool for structuring and centralizing information, Microsoft Teams focuses on enterprise communication. It excels in instant messaging, video calls, and seamless integration with Microsoft tools, including Outlook, SharePoint, and OneDrive. However, its functionality is limited when it comes to structuring complex information and maintaining a well-organized project workflow.

File management in Teams relies significantly on SharePoint and a folder system that can become disorganized quickly as the amount of information increases. Furthermore, task management should be conducted through separate tools, such as Microsoft Planner or To-Do, which adds a layer of complexity to the user experience.

In contrast, Notion offers a more integrated approach by allowing users to create relational databases, where each element can be categorized, filtered, and linked to other content. A research project, for instance, can be structured in multiple formats, such as Kanban boards, tables, calendars, interactive documents, or simple lists, offering an unmatched level of flexibility. While Teams is more suited for instant discussions and meetings, Notion is far more effective for structuring projects, centralizing resources, and organizing information in a hierarchical and interactive manner.

A Comprehensive Tool for Project and Research Management

Notion stands out as a strategic solution because it combines various functionalities that would otherwise necessitate multiple different tools. It is not merely a note-taking platform; it integrates dynamic databases, checklists, and collaborative project management features, making it an all-in-one workspace. Unlike Microsoft Teams, which requires add-ons like Planner or Trello for task tracking, Notion offers built-in project management tools that do not need additional extensions.

Notion also facilitates asynchronous collaboration, which is especially beneficial for research teams that do not operate in real-time. It enables students and supervisors to leave comments, set reminders, and track changes on shared documents, ensuring ongoing progress even between meetings. While many platforms scatter information across various folders and conversation threads, Notion centralizes all relevant data and structures it intuitively.

Notion's adaptability, ability to structure information effectively, and modular approach make it more potent than platforms that focus primarily on communication. This makes Notion an ideal choice for those seeking a versatile, scalable, and highly efficient digital workspace specifically designed for project management and knowledge organization.

Data Storage and the Limitations of Notion

Notion is a proprietary platform developed by Notion Labs Inc., an American company founded in 2013. Unlike some alternatives, such as Obsidian or Logseq, Notion is not an open-source project. It operates entirely on the cloud, meaning users cannot self-host their data or access the software's source code.

All information entered Notion is stored on Amazon Web Services (AWS) servers, which offer high levels of security and availability. Data is encrypted both in transit and at rest, minimizing the risk of interception or unauthorized access. However, this reliance on a centralized infrastructure raises concerns about data control and privacy, particularly for users who prefer self-hosted solutions.

Notion's Business Model and Marketing Strategy

Economically, Notion uses a freemium model. The free version grants access to core features, albeit with specific limitations on block counts and guest members. In contrast, paid plans provide expanded storage, more advanced database functionalities, and additional collaboration tools designed for teams and enterprises. Notion caters to a diverse audience, ranging from freelancers and students to large corporations, tailoring its offerings to meet the needs of each user.

Notion's marketing strategy has primarily been driven by organic growth. Unlike Microsoft Teams or Slack, which rely on enterprise partnerships and large-scale corporate integrations, Notion initially established itself within individual user communities, particularly among freelancers, content creators, and students. Its minimalist design, high

flexibility, and accessibility have made it particularly popular for personal knowledge management and structured note-taking.

Over time, Notion has expanded its capabilities to accommodate business users, incorporating features such as advanced permission controls, integrations with Slack and Jira, and an API for workflow automation. This evolution enables Notion to directly compete with solutions such as Confluence, Asana, and Airtable, offering a more flexible and often more affordable alternative.
The company also focuses on expanding third-party integrations through its API, enabling Notion to seamlessly integrate with existing work environments and increase its appeal among businesses.

Strengths and Limitations of Notion

Notion excels in its ease of use, information structuring, and versatility. It is a powerful tool for efficiently managing projects and research. However, other open-source alternatives may be preferable for users prioritizing data sovereignty and self-hosting.

One limitation to consider is that Notion's collaborative features, such as shared workspaces with multiple editors and advanced permissions, may require a paid subscription. While the free version is sufficient for individual use or limited collaboration, institutional use at scale (e.g., full-class or lab-group access) may necessitate a premium plan. In contrast, platforms like Microsoft Teams are already supported and available for free to all staff and students at UniFR, making them more appealing in terms of institutional accessibility. This raises practical considerations when choosing digital tools for supervision, especially in environments with existing infrastructure.

Despite this limitation, Notion remains a highly effective solution for those seeking a comprehensive, user-friendly, and collaborative digital workspace. By integrating Notion into my supervision process, I aim to provide students with a structured yet flexible framework that supports their autonomy, encourages self-management, and facilitates seamless collaboration, ultimately bridging the gap between independent learning and guided mentorship.

2.5.2. Structuring Supervision with Notion: A Dynamic and Interactive Approach

To enhance student autonomy while maintaining adequate supervision, I have integrated Notion as a central platform for structuring and tracking student projects in an interactive and organized way. Notion offers an intuitive and flexible environment that enables students to manage their workflow, track progress, and engage in structured collaboration. By centralizing all aspects of supervision within a single workspace, this tool allows students to take greater ownership of their research while still benefiting from guidance and structured feedback.

The supervision framework implemented through Notion includes several integrated features designed to support both students and supervisors throughout the research

process. Each student or project group is provided with a personalized workspace, a dedicated dashboard where they can track their progress, manage documents, and organize research materials. This structured digital environment allows students to visualize their workflow and ensures that all relevant information remains accessible in a centralized, coherent space.

To encourage autonomy and time management, students are invited to create and manage their checklists and deadlines. By setting key milestones themselves, they develop organizational skills and take greater responsibility for the pacing and structure of their work. Communication between supervisors and students is also streamlined through Notion's built-in commenting and discussion features. This setup enables continuous feedback, clarification, and follow-up without relying on scattered email threads, thereby fostering transparency and responsiveness in the supervisory relationship.

Additionally, each workspace provides integrated access to key scientific articles, methodological guides, and templates, thereby creating a curated repository of essential resources. Students can link documents, notes, and references directly, which minimizes fragmentation and enhances the research process. Notion can also integrate with reference management tools like Zotero, allowing students to embed their bibliographic libraries directly within the platform. This integration supports accurate citation practices, promotes better organization of scientific literature, and strengthens students' ability to manage references autonomously and efficiently.

Notion transforms supervision into a dynamic, interactive, and student-centred process by incorporating these elements. Instead of relying on traditional supervision methods that can foster dependency, this system empowers students to structure their research, manage their workload, and engage proactively in their academic development. At the same time, supervisors maintain an efficient and organized overview of each student's progress. This approach enhances research efficiency and fosters a culture of autonomy, critical thinking, and self-regulated learning, essential skills for academic and professional success.

3. Problem Statement and Research Questions

3.1. General Problem

How can I design and implement a supervision framework that promotes student autonomy while still addressing their need for guidance, without falling into overprotection or overinvolvement? This challenge brings together two complementary dimensions: the supervision model itself and the digital tool used to structure and operationalize it. This framework is tested in a real-world university context with students at both Bachelor's and Master's levels, allowing for analysis across different stages of academic development.

3.1.1. Sub-problem 1: The Supervision Model

Throughout my supervisory experience, I have consistently faced a recurring challenge: finding the right balance between guidance and independence. Excessive directive supervision can foster student dependency, while insufficient support may lead to confusion or insecurity. The collaborative supervision model inspired by Lin & Tsai (2021) and McCallin & Nayar (2012), which incorporates *scaffolding, engagement, modeling, tutoring, and argumentation*, offers a promising pedagogical framework to address this tension.

- Research Question 1 (RQ1): How can a collaborative supervision model, based on STEAM pedagogical principles, foster student autonomy while maintaining practical guidance?
- Research Question 2 (RQ2): What roles, responsibilities, and expectations should be clarified between the supervisor and the student to reduce dependency and support a co-learning relationship?
- Research Question 3 (RQ3): How does the perception or effectiveness of the collaborative supervision model vary according to student level (Bachelor vs Master) and type of academic work (e.g., practical work, bachelor's thesis, master's thesis)?

3.1.2. Sub-problem 2: The Implementation Tool – Notion

Once a suitable model is chosen, a key challenge lies in translating its principles into everyday supervisory practice. A structured and flexible digital tool can provide the foundation for effective planning, individualized follow-up, and centralized resource sharing, all while encouraging autonomy. I selected Notion as my primary platform due to its adaptability, capacity for organizing information, and potential to support collaborative and student-centred supervision.

- Research Question 4 (RQ4): To what extent can Notion effectively support the implementation of a collaborative supervision model aimed at fostering student autonomy?
- Research Question 5 (RQ5): What are the strengths, limitations, and practical conditions for using Notion in academic supervision, including other institutional tools where relevant?

4. Objectives of the TFE

This TFE has two main objectives, each corresponding to a core component of the project: the development of a supervision framework that promotes student autonomy, and the implementation of this framework through the digital tool Notion.

4.1. Objective 1: Theoretical and pedagogical framework

To define and articulate a collaborative supervision model grounded in STEAM principles (Lin & Tsai, 2021) and reflective of the supervisor–student co-learning relationship (McCallin &

Nayar, 2012), to promote autonomy, critical thinking, and progressive self-regulation in students.

4.1.1. Sub-objectives

- To identify the core components (e.g., scaffolding, modeling, engagement, tutoring, argumentation) that enable effective balance between guidance and independence.
- To explore how supervisory expectations, roles, and boundaries can be clearly defined to avoid over-dependence and emotional overinvestment.

4.2. Objective 2: Practical implementation using Notion

To explore the relevance and effectiveness of Notion as a digital tool for structuring and supporting a supervision framework that enhances student autonomy.

4.2.1. Sub-objectives

- To describe how Notion can be used to implement collaborative and pedagogical supervision strategies in day-to-day academic settings.
- To evaluate Notion's strengths and limitations in academic supervision, particularly regarding project tracking, student engagement, and supervisor–student communication.
- To define key criteria for evaluating the successful implementation of Notion in the supervision process (e.g., student engagement, ownership, reduced reliance, organizational clarity).

These objectives are rooted in my dual role as a supervisor and a reflective practitioner, as outlined in the SoTL framework. The framework views teaching practice as a subject of continuous inquiry and improvement. The goal is to enhance my professional practices and contribute to wider reflections on supervision in higher education.

5. Research Design

This project employs a practice-based evaluative research design, grounded in my experience as a supervisor actively engaged in reflective inquiry. It aims to explore and enhance supervision practices in higher education by implementing a structured framework inspired by collaborative pedagogical models, and by evaluating the use of a digital tool (Notion) to support this framework.

The study employs a predominantly quantitative design, utilizing two online questionnaires. While the instruments are mainly composed of closed-ended items, open-ended questions were added to explore students' views more deeply across two core dimensions:

1. The pedagogical value and effectiveness of the supervision model based on the STEAM framework (Lin & Tsai, 2021).
2. The relevance and usability of the Notion platform as a tool to operationalize this model and foster student autonomy.

The study is exploratory and descriptive, aiming to document student experiences while identifying strengths and areas for improvement in both the model and its implementation. This exploratory design was selected due to the novelty of applying the STEAM supervision model within a digital framework, as well as the absence of existing evaluative tools in this specific pedagogical context. It does not aim to test causal hypotheses but instead seeks to generate informed insights that can guide future pedagogical practices.

The research takes place within a naturalistic educational context, where the supervision model was implemented in actual academic settings at University of Fribourg, specifically in bachelor's and master's level research projects. The design is therefore contextual and situated, enabling a rich understanding of how theoretical principles are applied in practice.

The evaluation focuses on three principal axes:

- Pedagogical alignment: How well the supervision model supports autonomy, critical thinking, and engagement.
- Organizational support: How the use of Notion facilitates structure, clarity, and independent project management.
- Student experience: How my students perceive the balance between guidance and autonomy, and how supervision practices influence their motivation and sense of ownership.

By anchoring the research in lived supervisory experience and gathering structured student feedback, this design promotes a reflective, iterative, and improvement-oriented approach to supervision in higher education. It may also serve as a valuable resource for other educators seeking to implement autonomy-supportive supervision practices utilizing digital tools.

6. Methodology

The objective was to evaluate a supervision framework inspired by the STEAM collaborative model (Lin & Tsai, 2021) and to assess the relevance of the Notion platform as a tool to support student autonomy.

6.1. Instruments and Procedure

Two custom-designed questionnaires (see Appendix A and B) were developed to assess different but complementary dimensions of the supervision experience: (1) the pedagogical supervision model based on the STEAM framework (see Appendix B), and (2) the implementation of the Notion platform as a support tool for project supervision (see Appendix A). Both questionnaires were administered once at the end of the academic year (May 2025) through Microsoft Forms. Participation was voluntary and anonymous. Students completed the forms independently online, with an estimated completion time of approximately 7 minutes per questionnaire.

6.2. Participants and Context

A total of 30 students under my supervision during the 2024–2025 academic year were invited to participate in the study. Participation was voluntary, with no specific inclusion or exclusion criteria. The sample included 21 Bachelor students in practical research projects (TP), 4 Bachelor students completing their theses (TB), and 5 Master's students engaged in longer-term research projects. All were supervised within the same institutional context and pedagogical framework.

Questionnaires were distributed online via Microsoft Forms in May 2025. Responses were anonymous and took approximately 15 minutes to complete. All students began their supervision in September 2024, following the same STEAM-based approach (Lin & Tsai, 2021), which combines scaffolding, tutoring, engagement, argumentation, and modeling. Project timelines varied: TP students finished by the end of the semester, TB students submitted their work in May, and Master's students are expected to complete their work by late summer or early fall.

Among the TP cohort, I supervised five groups totalling 21 students. In February 2025, I requested consent from these groups to use Notion as part of my DAS project. Four groups agreed (16 students), and 12 of them completed the Notion questionnaire, yielding a 75% response rate for this cohort.

In total, 20 students completed the STEAM questionnaire: 14 TP students (66.7%), 3 TB students (75%), and 3 Master's students (60%), offering diverse perspectives across academic levels.

Notion was used exclusively with the 12 TP students who participated in the trial, serving as a central hub for task management, communication, and resource sharing. TB and Master's students were supervised using more traditional methods, such as email and video meeting.

6.3.1. STEAM-Based Supervision Questionnaire

This questionnaire was constructed to align explicitly with the five core components of the STEAM supervision model as defined by Lin & Tsai (2021; see Appendix B), with three items developed for each dimension.

1. Scaffolding – providing structure, clear milestones, and accessible resources.
2. Tutoring – offering individualized guidance tailored to student needs.
3. Engaging – fostering active involvement and student ownership.
4. Argumentation – encouraging critical reflection and justification of choices.
5. Modeling – sharing strategies and providing examples to support independent learning.

The questionnaire was initially designed in two main sections:

- Section 1 – STEAM supervision experience, comprising a series of statements evaluated on a 5-point Likert scale (from “Strongly Disagree” to “Strongly Agree”), grouped under the five pedagogical components listed above.
- Section 2 – Global evaluation, which included open-ended questions to gather qualitative feedback on students’ experiences, suggestions for improvement, and reflections on what supported or hindered their engagement and autonomy.

However, when implementing the questionnaire on Microsoft Forms, the original organization was slightly adapted to facilitate completion (see Appendix D). Specifically, the Likert-scale items were presented as a single continuous block, rather than grouped by STEAM dimensions, which streamlined the response process for students. This layout adjustment was made solely for technical and ergonomic reasons and does not affect the alignment of each item with its corresponding theoretical component of the model. The order and structure were preserved during analysis to maintain consistency with the STEAM framework.

This format ensured that the questionnaire remained both comprehensive and accessible while being user-friendly on the Microsoft Forms platform.

6.3.2. Notion Usage Questionnaire

The second questionnaire specifically targeted the students who were supervised using Notion (i.e., the Bachelor students engaged in practical work). It aimed to assess both the usability of the platform and its perceived impact on student autonomy, project organization, and satisfaction (see Appendices A and C for the questionnaire and MSForms version).

The questionnaire was organized into four main sections, each comprising both closed-ended and open-ended questions:

1. User experience with Notion – including items on ease of use, intuitiveness, and technical difficulties.
2. Pedagogical and organizational impact – evaluating how Notion supported project planning, communication, and understanding of supervisor expectations.
3. Impact on student autonomy – assessing perceived effects on task prioritization, self-management, and project ownership.
4. Overall satisfaction and future recommendations – capturing students’ general appraisal of the platform and suggestions for optimization.

By combining Likert-scale questions with qualitative prompts in both instruments, the aim was to collect a nuanced and multidimensional view of how students experienced supervision through both pedagogical and digital lenses.

7. Data Analysis

Quantitative Analysis

The quantitative data were analyzed using descriptive statistics to provide an overview of student responses to the 16 Likert-scale items in the STEAM questionnaire. Frequencies were calculated for each item to identify general trends among all participants. Additionally, the scores of the three items corresponding to each STEAM dimension were aggregated to calculate a total score per component (scaffolding, tutoring, engagement, argumentation, and modeling).

In addition to overall trends, comparative analyses were conducted to examine potential differences in perceptions across student groups, particularly based on academic level (Bachelor thesis, Bachelor practical project, Master). The aim was to explore whether certain components of the supervision model were perceived differently by students based on their prior research experience or the degree of autonomy required in their project.

Descriptive statistics and group comparisons were carried out using MATLAB R2022b. The analysis helped identify which aspects of the supervision were most positively evaluated (e.g., clarity of expectations, quality of feedback) and where variation existed between student profiles.

Qualitative Analysis

Qualitative responses to open-ended questions in both questionnaires, the STEAM supervision model, and the Notion implementation were analyzed using a thematic approach. A deductive coding framework was applied to the STEAM questionnaire, grounded in the five core components of the supervision model. This framework allowed for a structured analysis of how students experienced and reflected on each pedagogical dimension.

For the Notion questionnaire, the coding process was also guided by predefined themes, drawn from the questionnaire structure itself: *user experience*, *pedagogical and organizational impact*, *impact on autonomy*, and *overall satisfaction and future perspectives*. In both cases, inductive coding was used in parallel to identify emerging themes beyond the initial categories, especially when students shared nuanced or unexpected reflections.

Thematic patterns were identified, grouped, and synthesized to capture commonalities and variations in student perspectives. This combined approach provided a rich and contextualized understanding of how students experienced the supervision process, encompassing both pedagogical support and digital implementation.

Open Science and Data Transparency

In line with Open Science principles and to ensure full transparency of the research process, all raw data from both supervision questionnaires have been included in Appendices E, F,

and G. Appendix E presents the complete quantitative and qualitative results of the STEAM Supervision Framework Questionnaire, while Appendices F and G contain the quantitative and qualitative data, respectively, from the Notion Supervision Questionnaire.

7.1. Descriptive Analysis of the STEAM Supervision Questionnaire

A total of 20 students completed the STEAM-based supervision questionnaire. This included 14 Bachelor students involved in practical work (TP, 66.7%), 3 Bachelor students completing their theses (TB, 75%), and 3 Master's students (60%). These proportions reflect the diversity of academic levels and project types represented in the study, offering a broad perspective on how the supervision framework was experienced across different supervision contexts during the 2024–2025 academic year.

While most participants completed all 16 Likert-scale items in the quantitative section, several instances of missing data were noted. Notably, Participant 8 left six consecutive items unanswered (questions 2 to 7), which represents the most significant gap in this section. Participant 20 also left several responses blank, contributing to the overall pattern of partial completion. Additionally, Participants 9 and 13 each omitted one Likert-scale item.

In the qualitative section (open-ended questions), missing responses were more common. Most students answered at least some of the prompts; however, Participants 9 and 13 left five out of six qualitative questions unanswered. Several others, including Participants 4, 7, 11, 16, and 17, skipped three open-ended items. A few participants, such as 3, 6, 8, 15, 19, and 20, each omitted one qualitative response.

Despite these omissions, the overall response rate across both the quantitative and qualitative sections remains high. The available data provides a rich foundation for analyzing student perceptions of the supervision model, both in terms of structure and reflective insights.

7.1.1. Quantitative Results – STEAM-Based Supervision Questionnaire

The following section presents the quantitative findings from the 20 completed STEAM-based supervision questionnaires. The analysis focuses on five key components of the supervision model, Scaffolding, Tutoring, Engaging, Argumentation, and Modeling, each assessed through three Likert-scale items. Responses ranged from "Strongly Disagree" to "Strongly Agree." Figures illustrate the distribution of scores across academic levels and supervision contexts.

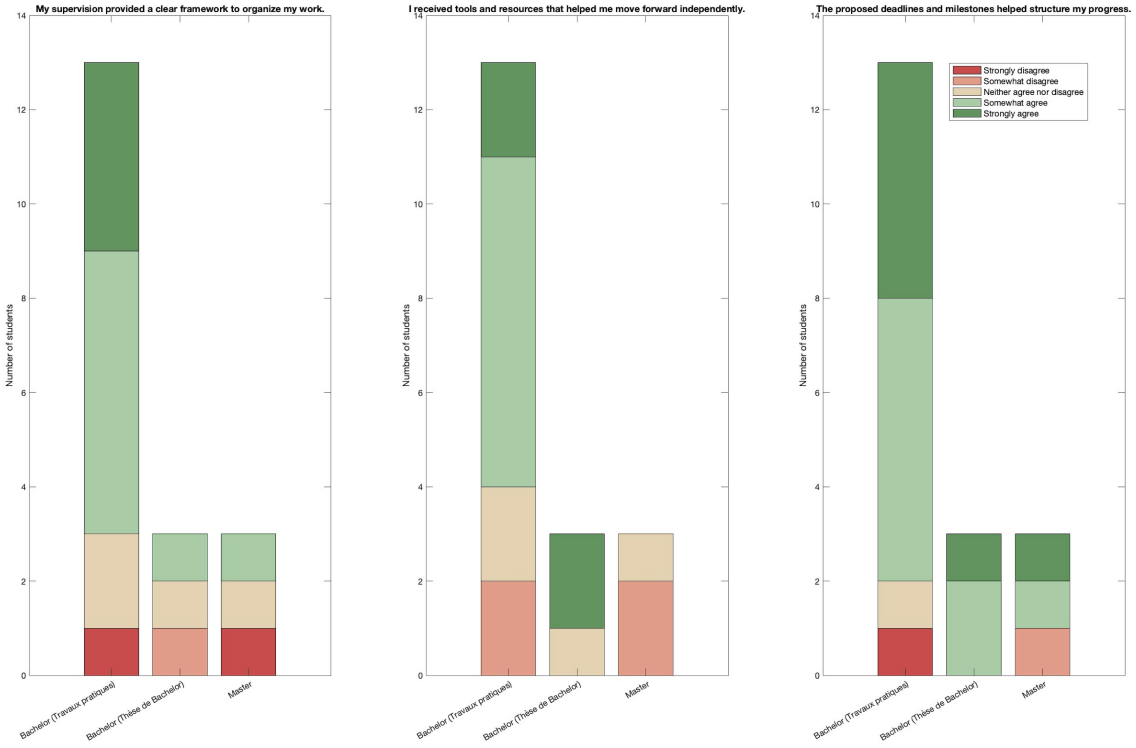
7.1.1.1. Scaffolding

The *Scaffolding* dimension (see Figure 3) received consistently high ratings across all academic levels, particularly among TP students. Among the 14 TP respondents, 9 to 10 students *agreed* or *strongly agreed* that the supervision provided a clear framework, that tools and resources helped them advance independently, and that deadlines and milestones contributed to structuring their progress. Among the 3 TB students, the

agreement was moderate: two students selected *"somewhat agree"* across most items, while one leaned more towards neutrality. The three Master's students showed more varied responses, with one student choosing *neutral* or *somewhat disagreeing* on two items, particularly regarding the helpfulness of tools and resources, while the others leaned more positively. These patterns confirm the importance of strong structural support in the early stages of research, while also suggesting that more experienced students may seek greater flexibility or self-direction.

Figure 3.

Scaffolding – Framework clarity, autonomy support, and milestone structure



7.1.1.2. Tutoring

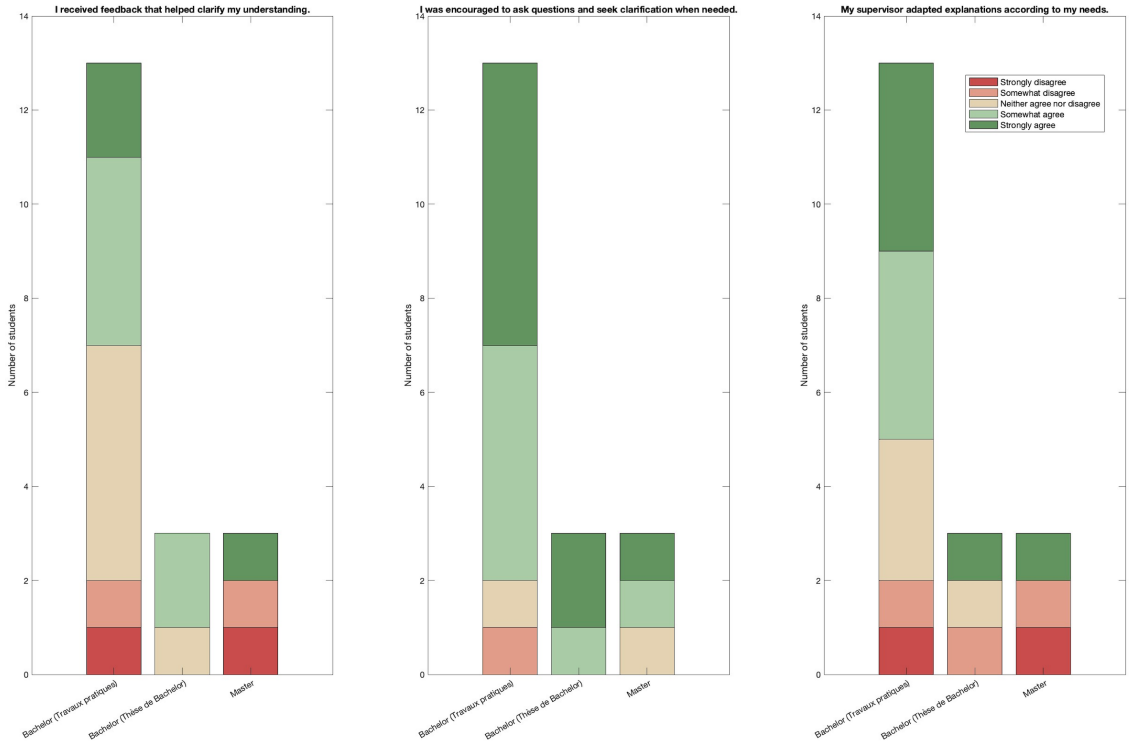
The *Tutoring* dimension (see Figure 4), which focuses on feedback clarity, encouragement to ask questions, and responsiveness to individual needs, received moderately positive ratings, although with more variation than the *Scaffolding dimension*. Among the 14 TP respondents, the majority reported positive experiences: 9 students agreed or strongly agreed that they were encouraged to ask questions, 8 felt that feedback clarified their understanding, and 9 believed that explanations were adapted to their needs. However, some TP students expressed more neutral or slightly negative views, particularly concerning feedback clarity.

TB students (n = 3) responded more cautiously. All agreed that they were encouraged to seek clarification, but two remained neutral regarding the helpfulness of feedback and the personalization of explanations. Master students (n = 3) showed the most divergent views: while one student responded positively across all items, the other two expressed neutral or

negative perceptions, particularly regarding my ability to adapt explanations. These patterns suggest that while feedback and responsiveness were well received at the TP level, expectations and needs may differ as students advance, necessitating more tailored forms of support.

Figure 4.

Tutoring – Feedback clarity, responsiveness, and personalization



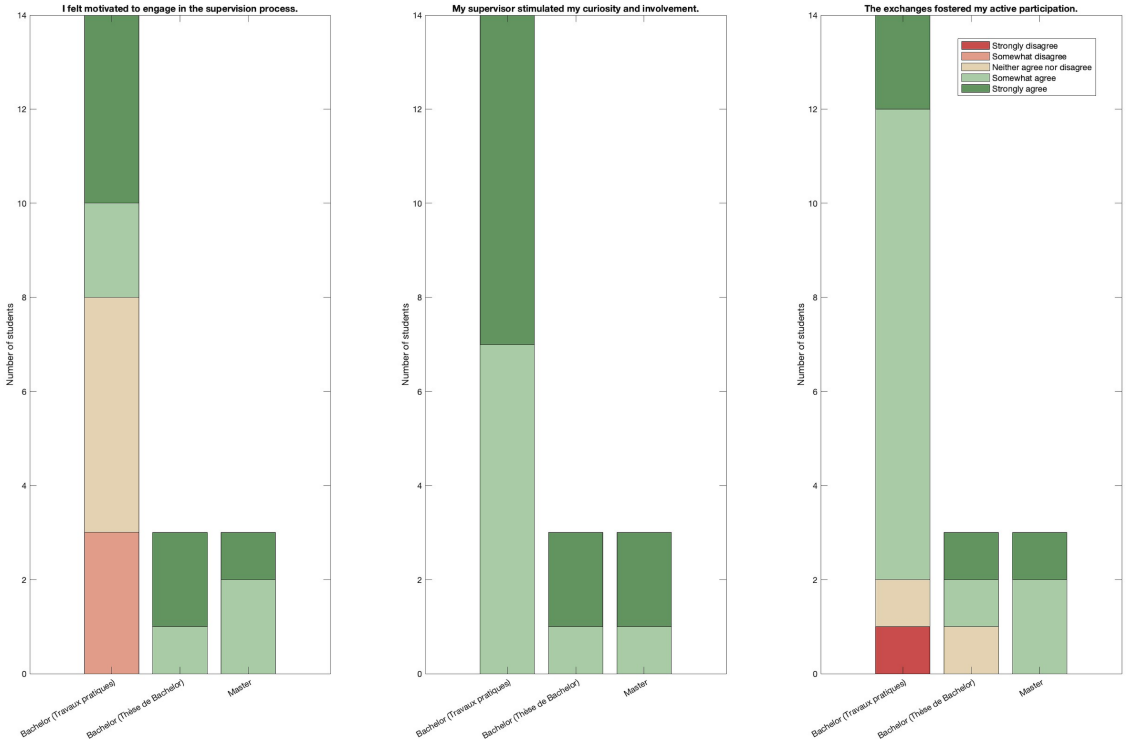
7.1.1.3. Engaging

The *Engaging* dimension (see Figure 5), which evaluates motivation, curiosity, and active participation, received some of the strongest ratings across all groups. Among the 14 TP students, 12 reported that the supervision process fostered their participation, and 10 agreed or strongly agreed that their curiosity and involvement were stimulated. However, responses regarding motivation were slightly more nuanced: while 6 students responded positively, 3 remained neutral, and 3 reported disagreement.

TB students (n = 3) reported overall satisfaction, with all students agreeing or strongly agreeing that supervision fostered both participation and curiosity. Two students additionally felt motivated by the process, while one student remained neutral. Among Master students (n = 3), responses were consistently positive: all agreed or strongly agreed on all three items. These findings indicate that engagement was generally well-supported across levels, although motivational factors may vary more significantly among less experienced students.

Figure 5.

Engaging – Motivation, curiosity, and participation



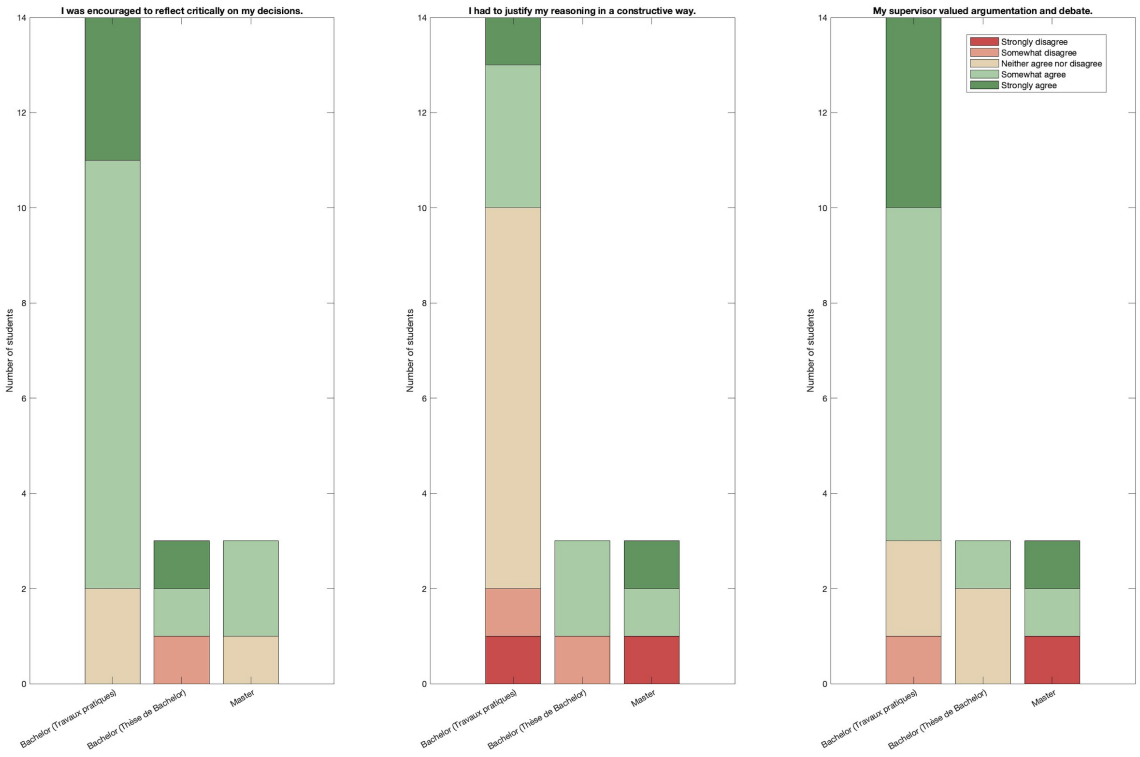
7.1.1.4. Argumentation

The *Argumentation* dimension (see Figure 6), which captures students' perceptions of critical reflection, justification of reasoning, and the value of debate, displayed greater variability across academic levels. Among TP students, 12 out of 14 felt encouraged to reflect critically on their decisions, and 10 agreed or strongly agreed that their supervisor valued argumentation and debate. However, opinions were more divided regarding the requirement to justify their reasoning: while 7 responded neutrally, 2 disagreed, and only 5 provided positive responses.

TB students (n = 3) provided more balanced responses. Two expressed agreement on all three items, while one remained neutral or slightly disagreed, particularly regarding justification. Master's students (n = 3) also demonstrated mixed perceptions: two reported agreement about reflection and debate, but all three exhibited more neutral or reserved responses concerning constructive justification. These results indicate that while the value of argumentation was generally acknowledged, more advanced students may have encountered fewer structured opportunities for expressing or defending their reasoning, or may have anticipated a deeper level of critical engagement.

Figure 6.

Argumentation – Critical thinking, justification of choices, and debate



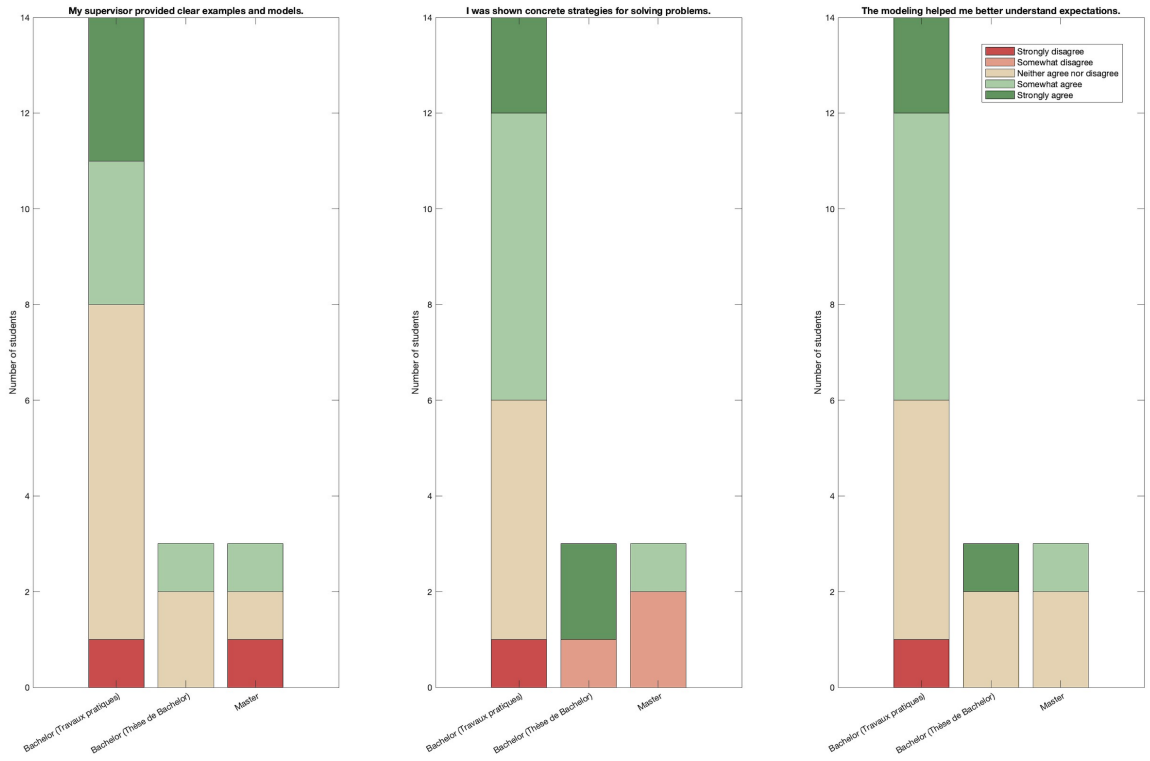
7.1.1.5. Modeling

The *Modeling* component (see Figure 7) received the most varied responses across all dimensions of the supervision model. Among TP students, perceptions were mixed: 8 to 9 out of 14 students agreed or strongly agreed that their supervisor provided clear examples, demonstrated problem-solving strategies, and helped clarify expectations through modeling. However, several TP students also selected neutral responses, and 2 to 3 expressed disagreement, particularly concerning the clarity of modeling strategies.

TB students (n = 3) exhibited similar ambivalence. While one student agreed or strongly agreed with all three items, the other two provided neutral responses, indicating that modeling was present but not always prominent. Master students (n = 3) were the most reserved; while one reported agreement, the remaining students mainly offered neutral or somewhat negative responses. This pattern indicates that modeling may have been less visible or less explicitly framed for more advanced students, or perhaps they anticipated more nuanced forms of modeling aligned with their higher level of autonomy and prior research experience.

Figure 7.

Modeling – Examples, strategies, and expectation clarification



7.1.2. Qualitative Results – STEAM-Based Supervision Questionnaire

The following section analyzes the six open-ended questions from the STEAM supervision questionnaire, focusing on recurring themes and distinctions across academic levels. Since the same 20 students completed both the quantitative and qualitative sections of the survey, their profiles have already been described. A thematic analysis was conducted to identify meaningful patterns, and all responses were initially written in French before being translated into English for reporting purposes.

It is important to note that some students did not answer all open-ended questions. Among TP students (n = 14), between 2 and 8 responses were missing, depending on the question. Among TB students (n = 3), one student skipped 2 questions, while the others responded to all. Master students (n = 3) were the most consistent, with only one missing response across all qualitative prompts. Despite these omissions, the overall response rate remained high, providing a rich and diverse insight into how students experienced the STEAM supervision framework.

What helped you most in structuring your project or work?

Most students emphasized the importance of a clear, shared framework and timeline (Scaffolding). TP students appreciated having a central document to refer to: "The project timeline in Notion helped me keep track of expectations and structure my steps." (TP) TB and Master students highlighted the role of supervisor feedback: "The guidance provided at key

moments allowed me to clarify the sequence of tasks." (Master) "The introductory meeting helped me get a global view of the project structure." (TB; Tutoring)

Do you have suggestions for better balancing autonomy and support?

This question generated varied responses. Some TP students wished for slightly more structure or feedback in the early stages (Scaffolding, Tutoring), while others suggested less involvement as the project progressed (Engaging). One TP student noted: "It might help to clarify at what point we are expected to make decisions independently." (TP) TB and Master students generally felt the balance was appropriate, although one TB student commented: "Sometimes I needed a bit more push to take initiative." (TB; Engaging)

What most motivated you to engage or, on the contrary, hindered your engagement?

Motivating factors mentioned by all groups included the freedom to choose the research topic, clarity of expectations, and feeling supported, combining elements of Engaging, Scaffolding, and Tutoring. One TP student wrote: "What motivated me was being taken seriously and given space to explore." (TP) In contrast, feelings of stress or uncertainty were occasionally cited as demotivating: "The lack of intermediate feedback sometimes made me doubt my direction." (Master; Tutoring)

How did exchanges with your supervisor influence your decisions or reflections?

Students described these exchanges as key moments for clarifying methodology or theoretical choices (Argumentation, Tutoring). A Master student explained: "The conversations helped me justify my design decisions more rigorously." (Master) Similarly, a TP student noted: "When I explained my idea out loud and got feedback, it helped me realize what was unclear or missing." (TP)

What concrete examples, demonstrations, or shared experiences were helpful, and why?

This question received the most variable number of responses. Among those who answered, the most appreciated modeling actions included example documents, live demonstrations of how to approach a task, and previous student projects, all related to Modeling. "Seeing how past students structured their analysis gave me a concrete model." (TB) "I found it helpful when my supervisor showed how she organizes references." (TP)

Do you have any general suggestions for improving the supervision framework?

The most common suggestion, especially among TP students, was to provide more initial guidance or tutorials on project expectations (Scaffolding, Modeling). Others suggested integrating more peer feedback: "Maybe we could meet once as a group to compare our approaches." (TP; Engaging). TB and Master students had fewer suggestions, though one noted: "It could help to define more precisely what is expected in each section of the written report." (TB; Scaffolding).

7.2. Descriptive Analysis of the Notion Questionnaire

This section presents the quantitative results from 12 Bachelor students who were supervised using Notion during their TP. The questionnaire included five main parts: general information, user experience, pedagogical and organizational impact, impact on autonomy, and overall satisfaction and perspectives. Only closed-ended questions are reported here, and each figure below visually summarizes the responses grouped according to the thematic sections of the questionnaire.

7.2.1. Quantitative Results – Notion Usage Questionnaire

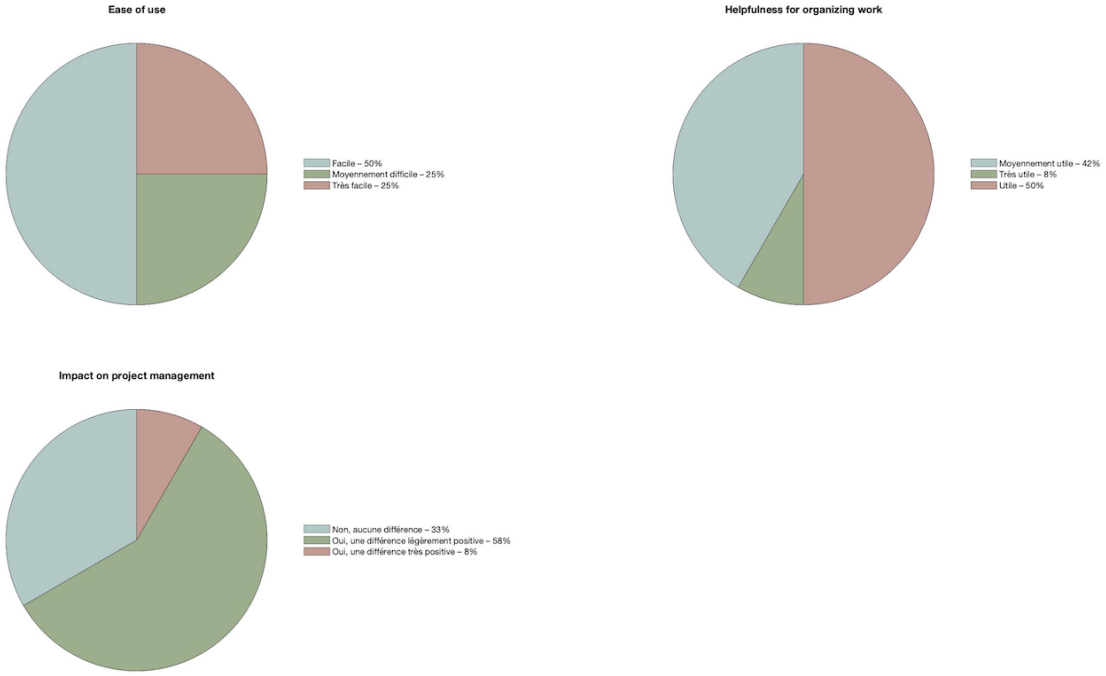
The first set of questions explored students' prior experience with Notion, their perception of its usability, its usefulness for organizing work, and its impact on project management (see Figure 8). While 67% of students had never used the platform before, 25% had used it occasionally, and only one student reported frequent use. Despite this limited familiarity, students generally found Notion easy to use: 50% rated it as "easy," 25% as "very easy," and 25% as "moderately difficult."

However, students were more divided on the helpfulness of Notion in organizing their work. Half reported that it offered little assistance, 42% found it moderately useful, and only 8% considered it very useful. This suggests that, although the platform was accessible and user-friendly, it was not consistently perceived as an effective organizational tool.

Regarding its impact on project management, most students (65%) reported a somewhat positive effect, while 8% described a very positive impact. One third of students (33%) indicated that Notion made no noticeable difference in this regard. This suggests that, although the platform had some perceived value in supporting project coordination, its benefits were not universally recognized.

Figure 8.

General experience with Notion



When it came to pedagogical and organizational impact, students reported mixed but generally positive perceptions of Notion's influence on their research projects (see Figure 9). Regarding interface intuitiveness, 67% found the platform “intuitive,” while 17% described it as “very intuitive.” Only 8% found it “not at all intuitive,” and another 8% stated it was “somewhat unintuitive.”

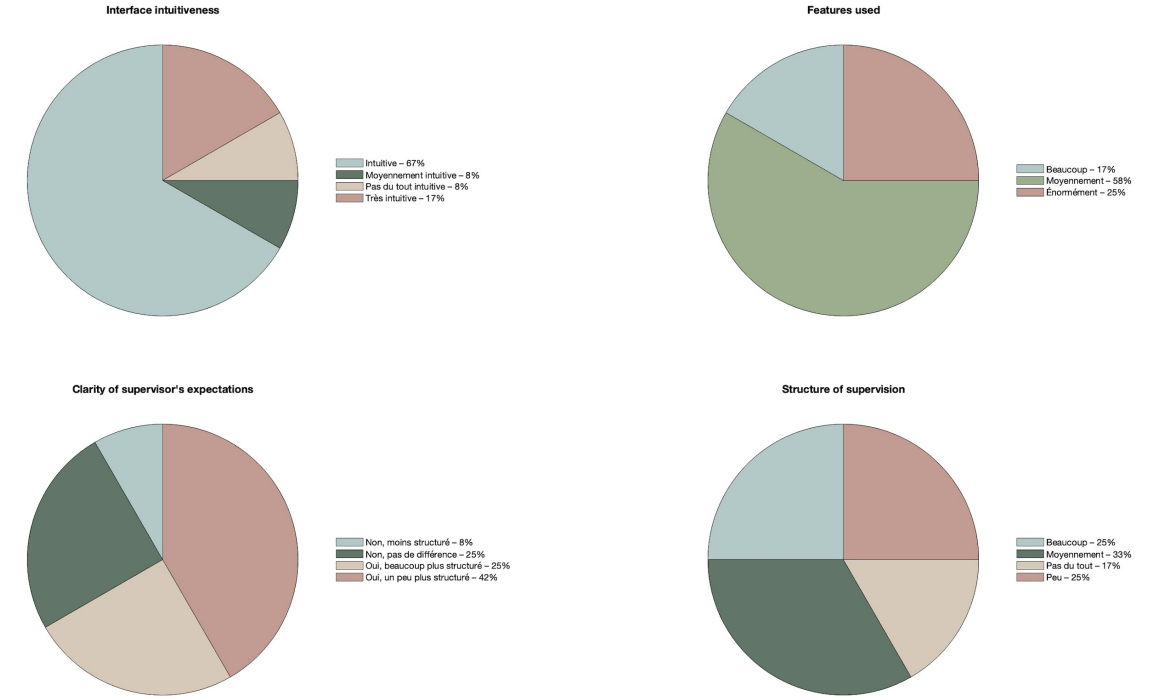
In terms of how extensively Notion's features were utilized, 58% of students reported using the platform “moderately,” 25% “extensively,” and 17% “very little.” This suggests that while most students utilized Notion to some extent, its full potential was not fully realized.

Regarding the clarification of the supervisor’s expectations, 42% of students indicated that the platform made supervision “a bit more structured,” while 25% found it “much more structured.” Another 25% perceived no difference, whereas one student (8%) thought supervision was less structured than usual.

Finally, when asked about the overall structure of supervision, 42% found it “a bit more structured,” 25% “much more structured,” 25% “not very structured,” and 8% “not at all structured.” These results indicate that while Notion contributed to a clearer and more structured supervision process for most students, a minority perceived it as insufficiently organized.

Figure 9.

Pedagogical and organizational impact



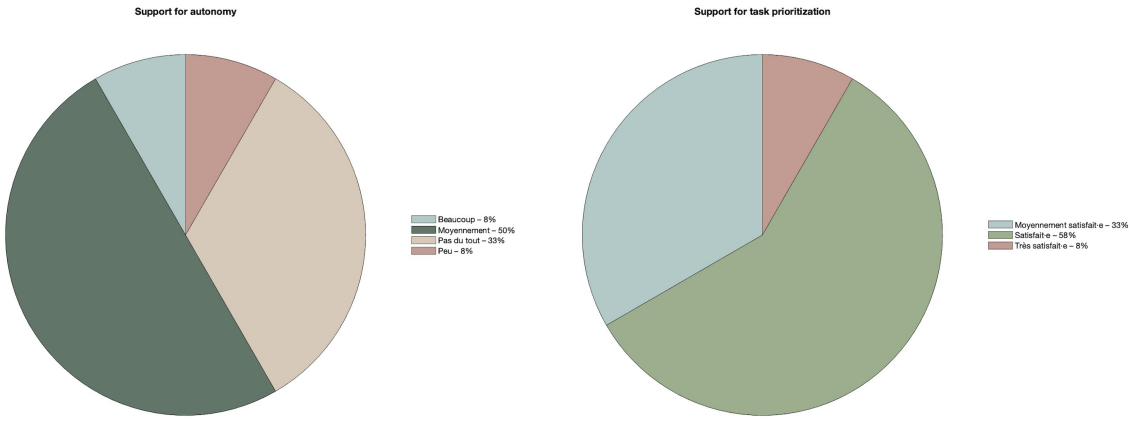
Students' perspectives on autonomy were nuanced and showcased varied experiences regarding Notion's impact on their ability to work independently (see Figure 10).

When asked whether Notion helped them become more autonomous in managing their projects, 50% of students reported a moderate benefit. In comparison, 33% indicated that it had no impact, and 8% found it not at all helpful. Only 8% felt that Notion significantly supported their autonomy. These results suggest that while the platform offered some support for independent work, its impact was limited for a significant number of students.

In terms of task prioritization, the responses were somewhat more positive: 58% of students found that Notion helped them prioritize effectively, 33% described the effect as moderate, and 8% were delighted with this aspect. This indicates that, although Notion was not a strong driver of autonomy overall, it was more successful in helping students structure their workflow and identify priorities.

Figure 10.

Impact on Autonomy

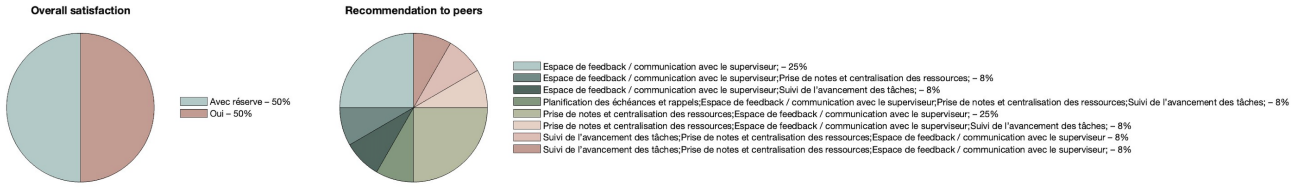


Overall satisfaction with Notion was cautiously optimistic (see Figure 11). Half of the students indicated that they were satisfied with the platform, while the other half expressed satisfaction "with reservations." Notably, no student reported dissatisfaction, suggesting that although Notion was generally appreciated, some limitations or hesitations remained.

When asked whether they would recommend the platform to peers, the responses varied and highlighted the importance of specific features. The most frequently cited strengths included the feedback and communication space with the supervisor (cited by 25% of students) and its combination with note-taking and resource centralization or task tracking (also noted in several response combinations). These results underscore that students particularly valued the integrated use of multiple functions rather than any single feature in isolation.

Figure 11.

Overall satisfaction and perspectives



7.2.2. Qualitative Results – Notion Usage Questionnaire

This section provides the qualitative responses from the Notion questionnaire. Open-ended items were included in each section to explore students' perceptions in greater depth. Thematic patterns were identified, and selected verbatim responses, freely translated from the original French, are presented to illustrate students' experiences.

User experience with Notion

In the user experience section, students were invited to report any technical difficulties encountered while using the platform. Although most students did not report significant problems, several mentioned limitations concerning document synchronization, group access, or formatting constraints.

For example, one student explained: “Some group members had difficulty accessing the shared Notion space. Ctrl-Z didn’t always work properly, so having a backup was necessary.” (P1) Another noted: “Sometimes, texts didn’t synchronize correctly across computers, or parts of the text disappeared, possibly because we were all connected at the same time.” (P4) In contrast, other students responded “no” when asked if they had encountered technical issues, indicating a generally smooth experience for some.

Pedagogical and organizational impact

Students were asked to explain how Notion assisted or obstructed their work. Several noted that having everything in one location improved communication and organization. One participant shared: “Mainly helpful, especially for communication with the supervisor.” (P1) Another student highlighted both advantages and disadvantages: “It was helpful because everything was in one place and we could track each other’s progress, but also frustrating because some formatting options were limited, and parts of the text would occasionally disappear.” (P4) Another noted that the platform was visually motivating and contributed to a more centralized workflow: “Everything, introduction, methods, appendices, meetings, was in one place. That made it feel more organized and motivating.” (P6)

Overall, students appreciated the centralized nature of the tool, though formatting and synchronization limitations were mentioned as hindrances.

Impact on autonomy

Students also reflected on how Notion may have helped them achieve independence. Many emphasized the value of integrated feedback and communication features. One student wrote: “Comments allowed us to communicate our questions directly within the text, without needing to send emails.” (P1) Another pointed to the tool’s responsiveness: “Being able to ask questions easily and having all feedback centralized made the interaction feel more fluid and faster.” (P3) One student also highlighted how the structure of the Notion workspace helped organize their thinking: “The fact that everything was organized and hierarchized on the homepage helped a lot.” (P6)

While responses were generally positive, the tool alone did not necessarily foster autonomy; it was the combination of organization, clarity, and timely feedback that seemed to matter most.

Overall satisfaction and suggestions for improvement

In the final section, students were invited to suggest improvements to enhance the supervision experience using Notion. Several responses focused on technical and

formatting limitations. For example: “It’s frustrating when the content disappears, so I recommend keeping a Word backup. Also, the inability to justify or space the text properly makes it harder to read.” (P6) Others suggested more training or guidance for using the platform: “A small tutorial or explanation about how the platform works would help avoid wasting time figuring it out.” (P8) Another suggestion included improving layout tools and file integration: “Improve page layout options, allow for document uploads, and add a dedicated discussion space.” (P7)

These comments suggest that although Notion was valued for its centralized and intuitive design, additional support for its usage, especially regarding formatting and collaboration, could further enhance the user experience.

8. Discussion

8.1. Reflections on the STEAM Supervision Framework

The quantitative results from the STEAM-based supervision questionnaire provide a comprehensive perspective on how students perceived various aspects of the supervisory relationship, structured around the five pedagogical pillars proposed by Lin & Tsai (2021): Scaffolding, Tutoring, Engaging, Argumentation, and Modeling. While the overall trend was positive, a closer examination of the differences between student groups, particularly between Bachelor students in practical work (TP), those writing a thesis (TB), and Master students, reveals important nuances.

The most consistently high ratings emerged in the *Scaffolding* dimension, particularly among TP students. These students overwhelmingly agreed that the supervision provided a clear framework, concrete tools, and structured milestones to support their progression. This finding confirms the value of structured guidance in the early stages of research experience, where students often lack familiarity with project planning and self-regulation. TB and Master's students were somewhat less *emphatic*, suggesting they may expect greater flexibility or assume more responsibility for their work, thus being less reliant on externally imposed structure. These variations highlight the importance of tailoring scaffolding strategies to students’ academic maturity and prior experience.

In the *Tutoring* dimension, which focuses on individualized support and responsiveness to student needs, ratings were generally positive but more variable. TP students once again expressed satisfaction, especially regarding feedback and the perceived availability of their supervisor. However, some TB and Master students conveyed more neutral or even slightly negative perceptions. This divergence may reflect evolving expectations around autonomy: more advanced students may seek less directive support or may expect feedback to engage with more complex conceptual or methodological issues. These results reinforce the significance of “adaptive tutoring,” in which the level and nature of support evolve as students’ progress in competence and confidence.

The Engaging dimension, assessing motivation, active participation, and personal investment, was among the highest-rated across all groups. TP students reported feeling encouraged to take ownership of their work and described supervision as a motivating factor. TB and Master students expressed similar sentiments, albeit to a slightly lesser extent. The consistently strong ratings indicate that the supervision environment effectively fostered a sense of engagement and emotional investment in the research process, two essential precursors to deeper learning and autonomy.

In contrast, responses within the *Argumentation* dimension demonstrated greater variation. TP students reported feeling challenged to justify their reasoning and critically reflect on their decisions, and perceived that their supervisor valued debate and constructive dialogue. However, TB and Master students expressed more neutral or mixed views. This could indicate that more advanced students felt they had fewer opportunities for critical discourse or that they desired a more rigorous academic challenge. These findings underscore the importance of implementing deliberate strategies to foster argumentation across all levels, such as Socratic questioning, peer feedback, or structured debates, thereby reinforcing students' metacognitive and analytical skills.

Finally, the *Modeling* dimension received the most diverse range of responses. While many TP students agreed that their supervisor made the thinking processes explicit and provided practical examples, responses among TB students, particularly from Master's students, were more cautious. One interpretation is that modeling strategies were more salient or relevant for novice students, while more experienced students may have already internalized frameworks or prefer to develop their own. Alternatively, this may suggest that the (*my*) supervisor's modeling was more implicit at advanced levels, making it less visible to students. This finding highlights the importance of explicitly articulating professional reasoning processes, even when supervising more experienced learners.

Overall, these results indicate that the STEAM model provides a robust and adaptable framework for structuring supervision in higher education. Its dimensions seem to resonate differently based on students' experiences and project types, highlighting the need for reflective, differentiated supervisory practices. A one-size-fits-all approach is unlikely to meet the evolving needs of learners; instead, my supervision should be continuously adjusted to strike a balance between support and autonomy, as well as direction and discovery.

The positive reception of the supervision practices captured in this questionnaire affirms the relevance of the STEAM framework in guiding pedagogical reflection and supporting student development. However, the observed differences between groups also highlight areas for refinement, particularly in argumentation and modeling, where advanced learners may benefit from more intentional, dialogical, and explicit strategies. Ultimately, the findings support not only the implementation of the STEAM model but also its adaptation as a dynamic framework responsive to context, learner profiles, and supervisory goals.

8.2. Extending the Analysis: Qualitative Perspectives on the STEAM Framework

The open-ended responses collected in the STEAM supervision questionnaire add significant depth to the quantitative results by illuminating students' experiences in their own words. While the Likert-scale items provided a structured view of how students perceived each dimension of the supervision model, the qualitative data revealed more subtle dynamics, particularly regarding the evolving needs of students at different stages of academic progression.

A key theme across responses was the importance of clear structure and consistent guidance, particularly among students in the TP group. Many TP students shared how concrete tools, timelines, or centralized workspaces helped them understand what was expected and organize their efforts. In contrast, students in the TB and Master's groups tended to emphasize the significance of autonomy and conceptual guidance, indicating that as students gain experience, their expectations transition from procedural to strategic support.

Another recurring pattern was the emphasis on constructive feedback and dialogical supervision. Across all groups, students reported that conversations with me, their supervisor, were instrumental in shaping their decision-making processes. These interactions supported critical reflection and reinforced a sense of shared intellectual engagement. In this regard, the qualitative data strongly echo the values of argumentation and tutoring promoted by the STEAM framework.

At the same time, the responses reveal challenges in striking a balance between autonomy and support, particularly during the early phases of supervision. Several TP students expressed a desire for more guidance at the outset, while others requested clearer expectations regarding when they should take initiative. This tension is well documented in the Theoretical Context (see Section 2). It underscores the significance of adaptive scaffolding, providing support that gradually recedes as the learner becomes more competent and confident.

A fascinating insight emerged around modeling, where students at all levels valued access to examples, templates, or shared experiences. However, the way modeling was perceived varied. For TP students, modeling was often associated with concrete demonstrations and visible processes. For TB and Master students, it was more about implicit reasoning or professional standards, and some noted they would have benefited from more explicit articulation of these processes.

The final open-ended question invited general suggestions for improving the supervision framework. In this context, students emphasized the importance of clarity, regular feedback, and a clear initial orientation. Some also proposed integrating more peer interaction and "collective" discussions to normalize challenges and share strategies, an idea aligned with engaging, community-based supervision practices.

Overall, the qualitative data confirm the value of the STEAM framework as a meaningful lens for structuring and reflecting on supervision practices. They also emphasize the importance of flexibility and responsiveness, particularly in adapting strategies to meet students' evolving needs. While the general tone of the feedback was positive, the most constructive insights emerged from points of friction, moments when support felt either too present or too absent. These specific instances highlight how reflective supervision, guided by pedagogical intention, can have the greatest impact.

Notably, the qualitative data largely reinforced the patterns observed in the quantitative results, confirming the relevance of each STEAM dimension across varying academic levels. Incorporating both types of data significantly enriched the analysis by revealing not only what students experienced, but also how and why they perceived supervision in specific ways.

8.3. Reflections on the Use of Notion in Supervision

The quantitative findings from the Notion Usage Questionnaire provide valuable insights into how students perceived the introduction of a digital supervision tool within a collaborative pedagogical framework. Although the sample was relatively small (n = 12), the results suggest several noteworthy trends and offer preliminary indications of the tool's strengths and limitations in fostering student autonomy and enhancing the supervisory experience.

First, it is essential to note that most students had no prior experience with Notion before the supervision period began. Nevertheless, the platform was primarily regarded as intuitive and user-friendly. These findings support the view that Notion's interface and functionalities are accessible to new users, even without formal training. This ease of use is a crucial factor for integration in educational contexts, especially when digital tools are introduced as part of supervision rather than as standalone learning technologies.

From an organizational perspective, students generally found Notion helpful in structuring their work and understanding their supervisor's expectations. Most reported that supervision felt more organized with Notion than with traditional methods, positively impacting their research project management. This aligns well with the pedagogical intent behind the tool's implementation: to offer a clear, centralized space for communication, feedback, and task tracking. These results suggest that Notion effectively supported several core elements of the STEAM supervision model, particularly scaffolding and tutoring.

However, the findings also highlight some limitations. While many students acknowledged a moderate impact on their autonomy and task prioritization, a significant number reported no improvement or only minimal support in these areas. This suggests that although Notion may contribute to organizational clarity, it does not necessarily foster autonomy independently of other factors. Autonomy likely arises from a combination of structured tools and intentional pedagogical strategies, such as encouraging decision-making, allowing space for reflection, and progressively reducing supervisor input.

Student satisfaction was generally positive, with no participants expressing dissatisfaction. Yet, half of the students indicated that they would recommend the tool "with reservations,"

pointing to a need for further refinement and adaptation. These reservations may be linked to limitations in digital literacy, preferences for more personalized interaction, or a perceived mismatch between the tool's structure and their specific project needs.

In summary, the quantitative results suggest that Notion is a promising platform for enhancing the organization and clarity of the supervision process. It provides a supportive environment for structured guidance, particularly when students are new to research practices. However, its impact on deeper pedagogical goals, such as fostering autonomy and critical thinking, may depend more on how the tool is integrated into a broader educational strategy. These findings support the integration of Notion into supervision practices, while also emphasizing the importance of a reflective and adaptive implementation approach.

8.4. Qualitative Insights on Supervision with Notion

The qualitative responses added depth to the quantitative findings and provided valuable insights into the students' lived experiences with Notion. Overall, the comments confirmed the perceived benefits of using a centralized, structured supervision tool, particularly for streamlining communication, organizing resources, and improving clarity around expectations. However, they also highlighted practical limitations and contextual nuances that the closed-ended items may not have fully captured.

Several students highlighted how integrated feedback and real-time collaboration improved their workflow, giving them a stronger sense of connection to their supervisor. Notion's visual organization and comment features were frequently cited as key contributors to this positive experience. These reflections underline the tool's potential to support pedagogical goals such as scaffolding and tutoring, as outlined in the STEAM supervision framework.

At the same time, students raised recurring concerns related to technical issues, such as synchronization errors and disappearing content, as well as a lack of flexibility in formatting. These practical limitations, while not universally experienced, may have diminished the sense of control or autonomy that the tool intended to foster. Suggestions for improvement included better page layout options, file integration, and providing a brief tutorial at the beginning of the supervision process to support a smooth onboarding experience.

Overall, the qualitative data underscore the significance of thoughtful implementation and user support in successfully integrating digital platforms into pedagogical practice. While Notion is viewed as a beneficial tool, it should be incorporated into a more comprehensive reflective supervision strategy that encompasses technical guidance, role clarification, and a collective understanding of learning goals.

Overall, these qualitative insights aligned well with the quantitative findings, confirming the strengths and limitations of Notion as a supervision tool. The combination of structured questionnaire data and open-ended reflections provided a more nuanced and comprehensive understanding of students' experiences.

8.5. Linking Results to Research Objectives and Questions

The data collected through both questionnaires provides meaningful answers to the research questions and objectives outlined in this project. This final section highlights how the findings relate to the two core components of the TFE: the development of a supervision framework based on the STEAM model, and its implementation using the digital platform Notion.

8.5.1. Objective 1: Developing a collaborative supervision model based on STEAM

This objective was primarily explored through the STEAM questionnaire. The quantitative findings indicate that students, particularly those in the TP group, responded very positively to the structured yet flexible nature of the supervision model. High ratings in Scaffolding, Engaging, and Tutoring confirm that the framework effectively supported student progression, especially for less experienced learners. These results directly address Research Question 1, which asked how the STEAM model can foster autonomy while maintaining guidance.

The differences observed between academic levels (TP, TB, Master) provide insight into Research Question 3, highlighting that students at more advanced stages may require different supervisory strategies. For instance, Master students reported less perceived modelling and argumentation, indicating a need for more explicit and dialogical supervision at these levels. The qualitative data further reinforces this idea, showing that TP students often relied on concrete examples, while TB and Master students expected more room for conceptual co-construction.

Research Question 2, which focused on clarifying roles and expectations, was addressed through students' suggestions for improvement. Several participants indicated the need for more precise guidance at the start of supervision, particularly concerning when they were expected to take initiative. These comments underscore the importance of clearly defining expectations and boundaries from the outset, particularly in autonomy-focused models.

8.5.2. Objective 2: Implementing the framework using Notion

The results from the Notion questionnaire help address Research Questions 4 and 5. Quantitatively, students found Notion helpful for organizing their work, clarifying supervisor expectations, and tracking tasks, elements closely aligned with the STEAM components of Scaffolding and Tutoring. However, Notion's direct impact on autonomy was more modest. This suggests that Notion can support autonomy, but only as part of a broader pedagogical strategy, an essential nuance for addressing Research Question 4.

Qualitative responses further elaborated on these findings. Students appreciated the integrated feedback, comment functions, and centralized workspace, while also noting limitations in formatting and technical performance. These reflections help answer Research Question 5 by highlighting both the pedagogical value and practical limitations of

using Notion for research supervision. They underscore how digital tools can simultaneously support and constrain supervision dynamics, depending on their design and integration.

9. Limitations and Future Directions

While the findings from this project provide valuable insights into supervision practices and the implementation of the STEAM model using Notion, several limitations must be acknowledged.

First, the sample size was relatively small (n = 30 invited, with 20 completing the STEAM questionnaire and 12 out of 16 invited students completing the Notion questionnaire), and all participants were students under my direct supervision. This limitation affects the generalizability of the results, as the data reflect a specific pedagogical context and interpersonal dynamic. Additionally, students may have responded with social desirability bias, given my dual role as both their supervisor and the researcher conducting the evaluation.

Second, although the questionnaires were carefully designed to align with the STEAM framework and the project's pedagogical objectives, they were not validated through external review or pilot testing. The interpretation of some items may have varied depending on the students' academic level or familiarity with digital tools.

Third, the Notion platform itself, while versatile, may have constrained student engagement due to its technical limitations, such as formatting, synchronization, and interface complexity. Students reported these issues, which may have interfered with the tool's pedagogical potential.

Future research could extend this work by involving a broader and more diverse group of students across different institutions or disciplinary contexts. It would also be beneficial to include comparative studies that explore how various digital tools affect the implementation of autonomy-supportive supervision frameworks. Ultimately, a longitudinal approach, tracking the development of student autonomy over time, could offer more profound insights into the long-term effects of structured, reflective supervision.

This project marks an initial step in conceptualizing and testing a supervision model grounded in pedagogical theory and implemented through digital tools. The results not only indicate the potential of this approach but also emphasize the necessity for ongoing experimentation, adaptation, and reflection.

10. Conclusion

This TFE has examined the implementation of a collaborative and autonomy-supportive supervision model from both theoretical and practical perspectives. Grounded in the Scholarship of Learning and Teaching (SoTL) approach (Bélanger, 2010; Colet et al., 2011), the project integrated evidence-based reflection, systematic inquiry, and real-world

application to assess the impact of structured supervision practices on students' learning experiences.

Drawing on the STEAM supervision model (Lin & Tsai, 2021) and supported by the digital platform Notion, I designed and tested a framework that strikes a balance between structure and flexibility, thereby fostering autonomy. The results obtained from two student questionnaires, one focusing on the supervision model and the other on the digital tool, provided valuable insights into how supervision practices are experienced across various study levels, including Bachelor's practical work, Bachelor's thesis, and Master's research.

The quantitative and qualitative findings from the STEAM questionnaire strongly suggest that students perceive structured supervision, when delivered with responsiveness and openness, as highly beneficial. Elements such as clear expectations, constructive feedback, opportunities for reflection, and concrete examples were particularly appreciated. However, the results also highlighted the importance of differentiation: more experienced students expressed a greater need for conceptual dialogue and autonomy, while less experienced students required clearer scaffolding.

Similarly, the Notion questionnaire revealed that the platform was generally well-received, particularly by students who were unfamiliar with digital project management tools. It was seen as intuitive, helpful in organizing work, and conducive to clarity and communication. However, some students reported frustration related to formatting, synchronization, or a lack of technical support. This underscores a broader insight: while digital tools can enhance supervision, they must be carefully integrated into a pedagogical strategy and not merely adopted for their technical features.

Framed within the SoTL paradigm, this project has demonstrated the value of engaging in systematic reflection on teaching and supervision practices, informed by student feedback and grounded in theoretical models. It embodies the core principles of SoTL: placing student learning at the centre, engaging critically with pedagogical frameworks, and contributing to a culture of continuous improvement.

10.1. Personal Reflections and Future Directions

This TFE has prompted me to reconsider the very nature of supervision, not merely as a transfer of knowledge, but as a co-learning process. I have become more aware of the importance of balance in my supervisory approach. While I tend to be nurturing and highly available, I have come to understand better the risks of over-supporting and the necessity of intentionally fostering student autonomy.

Moving forward, I aim to enhance my supervision approach, beginning with more explicit scaffolding and gradually transitioning toward greater independence. I also recognize the importance of setting expectations early, not only regarding project deliverables but also concerning the nature of the supervisory relationship that students can anticipate.

In terms of tools, I plan to continue using Notion, but with some adjustments. I will create a brief onboarding tutorial to support students unfamiliar with the platform, exploring how to integrate peer collaboration and collective feedback spaces more effectively. I suggest complementing Notion with other tools for collaborative writing and version control, depending on the needs of more advanced students.

10.1.1. Recommendations for Other Supervisors

Drawing from this experience, I would like to offer a few recommendations to fellow supervisors involved in student supervision. First, adopting a structured supervision model, such as STEAM, can significantly enhance pedagogical coherence. It clarifies the supervisor's intentions and provides a consistent framework that supports both the supervisor and the student throughout the project.

Second, it is essential to continuously calibrate the level of support provided, considering the student's academic level, self-confidence, and the complexity of the task at hand. A one-size-fits-all approach rarely works; instead, supervision should be adaptive and responsive to the evolving needs of everyone.

Third, modeling should be explicit, even when working with advanced students. Sharing your thought processes, work strategies, and concrete examples contributes to greater transparency and helps develop students' independent skills.

Ultimately, integrating digital tools like Notion can be highly effective; however, their use should be intentional and aligned with your educational objectives. It is essential to remain attentive to students' digital literacy and ensure that the tool serves pedagogical aims rather than introducing an additional layer of complexity.

In line with the SoTL approach, I plan to share these findings and practices with colleagues, particularly in the context of the Bachelor's thesis (TB) course, where I play a more active role in coordinating supervision. While supervision itself remains individual mainly, there is space for collaboration in shaping shared structures, for instance, by proposing standard supervision guidelines, templates in Notion, or touchpoints across the semester. This dissemination may take the form of short presentations during pedagogical meetings, informal peer exchange, or collaborative adjustments to our supervisory tools. I am aware, however, that some colleagues may be hesitant to adopt a new approach due to unfamiliarity with digital tools, established supervisory routines, or differing pedagogical perspectives. For this reason, my intent is not to prescribe but to invite dialogue around what constitutes effective, balanced, and autonomy-supportive supervision in our shared teaching environment.

10.1.2. What do I take away from Notion and STEAM?

Overall, I believe Notion is an emerging tool for supervision, particularly at the Bachelor's level, as it enhances organization, communication, and transparency. However, it does not

represent a pedagogical model. Its effectiveness depends entirely on how it is used to achieve clear pedagogical objectives.

The STEAM model, in contrast, has proven to be a robust and flexible framework for conceptualizing supervision as an evolving, student-centred process. It has helped me articulate not only what I do as a supervisor but also why I do it and how I can improve my approach. More than a checklist, STEAM provides a vocabulary and structure that fosters both accountability and creativity in supervision.

In summary, this TFE has not only enriched my understanding of student learning within the context of supervision, but it has also transformed how I position myself as a supervisor: I am now more reflective, more intentional, and more attuned to the diversity of student needs.

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Appendix A - Questionnaire on the Use of Notion as a Supervision Tool

Questionnaire sur Notion

Dans le cadre de mon travail de fin d'études du DAS en pédagogie universitaire*, j'évalue l'utilisation de Notion comme outil de supervision. Ce questionnaire a pour but de recueillir vos impressions sur son utilité, son efficacité et son impact sur votre autonomie. Vos réponses sont anonymes et m'aideront à adapter cet outil au plus près des besoins des étudiant·e·s. Merci beaucoup pour votre participation !*

1. Informations générales

1.1. Votre niveau d'étude. Veuillez cocher votre réponse.

- Bachelor (Travaux pratiques)
- Bachelor (Thèse de Bachelor)
- Master
- Stage

1.2. Aviez-vous déjà utilisé Notion avant cette supervision ? Veuillez cocher votre réponse.

- Oui, fréquemment
- Oui, occasionnellement
- Non, jamais

2. Expérience d'utilisation de Notion

2.1. Comment évalueriez-vous la facilité d'utilisation de Notion ?

- Très difficile
- Difficile
- Moyennement difficile
- Facile
- Très facile

2.3. Quelles fonctionnalités avez-vous utilisées ? (plusieurs choix possibles) Veuillez cocher votre réponse.

- Suivi de l'avancement des tâches
- Prise de notes et centralisation des ressources
- Planification des échéances et rappels
- Espace de feedback / communication avec le superviseur

2.4. Avez-vous rencontré des difficultés techniques ? Si oui, lesquelles ? (Réponse ouverte)

2.5. L'interface Notion vous a-t-elle semblé intuitive pour le suivi de vos projets ?

- Pas du tout intuitive
- Peu intuitive
- Moyennement intuitive
- Intuitive
- Très intuitive

3. Impact pédagogique et organisationnel

3.1. Dans quelle mesure avez-vous trouvé Notion utile pour organiser votre travail ?

- Pas du tout utile
- Peu utile
- Moyennement utile
- Utile
- Très utile

3.2. Dans quelle mesure l'utilisation de Notion a-t-elle influencé·e votre gestion de projet, par rapport à d'autres projets réalisés sans cet outil ?

- Oui, très positive
- Oui, légèrement positive
- Non, aucune différence
- Non, cela a rendu la gestion plus compliquée

3.3. En quoi Notion vous a-t-il aidé ou gêné dans votre travail ? (Réponse ouverte)

3.4. Dans quelle mesure le suivi sur Notion vous a-t-il aidé·e à comprendre les attentes de votre superviseure ?

- Pas du tout
- Peu
- Moyennement
- Beaucoup
- Énormément

3.5. Trouvez-vous que l'accompagnement via Notion était plus structuré qu'un suivi classique ? Veuillez cocher votre réponse.

- Oui, beaucoup plus structuré
- Oui, un peu plus structuré
- Non, pas de différence
- Non, moins structuré

4. Impact sur l'autonomie

4.1. Dans quelle mesure Notion vous a-t-il aidé·e à devenir plus autonome dans la gestion de vos projets ?

- Pas du tout
- Peu
- Moyennement
- Beaucoup
- Énormément

4.2. Dans quelle mesure l'utilisation de Notion vous a-t-elle aidé·e à améliorer votre capacité à prioriser vos tâches ?

- Pas du tout
- Peu
- Moyennement
- Beaucoup
- Énormément

4.3. Quelles fonctionnalités ou aspects de Notion ont favorisé votre autonomie ? (Réponse ouverte)

5. Satisfaction globale et perspectives

5.1. Quelle est votre satisfaction générale envers Notion comme outil de supervision ?

- Très insatisfait.e
- Insatisfait.e
- Moyennement insatisfait.e
- Satisfait.e
- Très satisfait.e

5.2. Recommanderiez-vous l'utilisation de Notion à d'autres étudiant·e·s ? Veuillez cocher votre réponse.

- Oui
- Non
- Avec réserve

5.3. Quels améliorations suggéreriez-vous pour optimiser l'usage de Notion dans un cadre de supervision ? (Réponse ouverte)

Appendix B - Questionnaire on the Supervision Framework and the STEAM Model

Questionnaire sur le cadre de supervision et le modèle STEAM

Dans le cadre de mon travail de fin d'études du DAS en pédagogie universitaire, je souhaite évaluer comment mon style de supervision soutient votre autonomie en m'inspirant du modèle STEAM (Scaffolding, Tutoring, Engaging, Argumentation, Modeling). Vos réponses sont anonymes et serviront uniquement à améliorer la qualité de mon accompagnement. Merci pour votre participation !

1. Informations générales

1.1. Niveau d'étude. Veuillez cocher votre réponse.

- Bachelor (Travaux pratiques)
- Bachelor (Thèse de Bachelor)
- Master
- Stage

2. Supervision et modèle STEAM

2.1. Scaffolding (Échafaudage pédagogique)

Indiquez dans quelle mesure vous êtes d'accord avec les affirmations suivantes de 2.1 à 2.5 :

(1 = Pas du tout d'accord, 5 = Tout à fait d'accord)

- Mon encadrement m'a offert un cadre clair pour organiser mon travail.
- J'ai reçu des outils et des ressources utiles pour avancer de manière autonome.
- Les échéances et jalons proposés m'ont aidé·e à structurer ma progression.

Question ouverte : Qu'est-ce qui vous a le plus aidé à structurer votre projet/travail ?

2.2. Tutoring (Accompagnement individualisé)

- J'ai senti que la supervision était adaptée à mes besoins spécifiques.
- Ma superviseure m'a guidé sans faire les choses à ma place.
- Les échanges réguliers ont soutenu mon développement sans créer de dépendance.

Question ouverte : Avez-vous des suggestions pour mieux équilibrer autonomie et soutien ?

2.3. Engaging (Implication active)

- J'ai été encouragé·e à m'approprier mon projet.
- J'ai eu l'occasion d'expérimenter, tester, chercher par moi-même.
- J'ai ressenti de la motivation à m'investir dans mon travail.

Question ouverte : Qu'est-ce qui vous a le plus motivé·e ou freiné·e dans votre engagement ?

2.4. Argumentation (Développement de la pensée critique)

- J'ai été amené·e à justifier mes choix méthodologiques ou théoriques.
- Les discussions avec ma superviseure m'ont aidé à développer mon esprit critique.
- J'ai pu affiner mes arguments grâce à des retours constructifs.

Question ouverte : En quoi les échanges ont-ils contribué à clarifier vos décisions ou réflexions ?

2.5. Modeling (Modélisation)

- Ma superviseure a rendu visibles ses stratégies de travail (ex. : organisation, rédaction, analyse).
- J'ai pu m'inspirer d'exemples concrets ou de modèles partagés.
- Ces exemples m'ont permis de developer mes propres stratégies d'organisation, d'analyse ou de rédaction.

Question ouverte : Quels exemples ou démonstrations ont été les plus utiles pour vous ?

3. Évaluation globale

3.1. Recommanderiez-vous ce type de supervision (basé sur le modèle STEAM) à d'autres enseignant.e.s ou superviseur.e.s? Veuillez cocher votre réponse.

- Oui
- Non
- Avec réserve

3.3. Avez-vous des suggestions générales pour améliorer le cadre de supervision ? (Réponse ouverte)

Appendix C – Visual Preview of the Notion Supervision Questionnaire in Microsoft Forms

Questionnaire sur l'utilisation de l'outil NOTION

Dans le cadre de mon travail de fin d'études du DAS en pédagogie universitaire, j'évalue l'utilisation de Notion comme outil de supervision. Ce questionnaire a pour but de recueillir vos impressions sur son utilité, son efficacité et son impact sur votre autonomie. Vos réponses sont anonymes et m'aideront à adapter cet outil au plus près des besoins des étudiant·e·s. Merci beaucoup pour votre participation !

Veuillez indiquer votre niveau d'étude.

- ◯ Bachelor (Travaux pratiques)
- ◯ Bachelor (Thèse de Bachelor)
- ◯ Master
- ◯ Stage

Aviez-vous déjà utilisé Notion avant cette supervision ?

- ◯ Oui, fréquemment
- ◯ Oui, occasionnellement
- ◯ Non, jamais

Expérience d'utilisation de Notion

Comment évalueriez-vous la facilité d'utilisation de Notion ?

- ◯ Très difficile
- ◯ Difficile
- ◯ Moyennement difficile
- ◯ Facile
- ◯ Très facile

Quelles fonctionnalités avez-vous utilisées ?

- ☐ Suivi de l'avancement des tâches
- ☐ Prise de notes et centralisation des ressources
- ☐ Planification des échéances et rappels
- ☐ Espace de feedback / communication avec le superviseur

Avez-vous rencontré des difficultés techniques ? Si oui, lesquelles ?

L'interface Notion vous a-t-elle semblé intuitive pour le suivi de vos projets ?

- ◯ Pas du tout intuitive
- ◯ Peu intuitive
- ◯ Moyennement intuitive
- ◯ Intuitive
- ◯ Très intuitive

Impact pédagogique et organisationnel

Dans quelle mesure avez-vous trouvé Notion utile pour organiser votre travail ?

- ◯ Pas du tout utile
- ◯ Peu utile
- ◯ Moyennement utile
- ◯ Utile
- ◯ Très utile

Dans quelle mesure l'utilisation de Notion a-t-elle influencé·e votre gestion de projet, par rapport à d'autres projets réalisés sans cet outil ?

- ◯ Oui, une différence très positive
- ◯ Oui, une différence légèrement positive
- ◯ Non, aucune différence
- ◯ Non, cela a rendu la gestion plus compliquée

En quoi Notion vous a-t-il aidé·e ou gêné·e dans votre travail ?

Dans quelle mesure le suivi sur Notion vous a-t-il aidé·e à comprendre les attentes de votre superviseure ?

- ◯ Pas du tout
- ◯ Peu
- ◯ Moyennement
- ◯ Beaucoup
- ◯ Énormément

Trouvez-vous que l'accompagnement via Notion était plus structuré qu'un suivi classique ?

- ◯ Oui, beaucoup plus structuré
- ◯ Oui, un peu plus structuré
- ◯ Non, pas de différence
- ◯ Non, moins structuré

Impact sur l'autonomie

Dans quelle mesure Notion vous a-t-il aidé·e à devenir plus autonome dans la gestion de vos projets ?

- ◯ Pas du tout
- ◯ Peu
- ◯ Moyennement
- ◯ Beaucoup
- ◯ Énormément

Dans quelle mesure l'utilisation de Notion vous a-t-elle aidé·e à améliorer votre capacité à prioriser vos tâches ?

- ◯ Pas du tout
- ◯ Peu
- ◯ Moyennement
- ◯ Beaucoup
- ◯ Énormément

Quelles fonctionnalités ou aspects de Notion ont favorisé votre autonomie ?

Appendix D – Microsoft Forms Version of the Questionnaire on the Supervision Framework and the STEAM Model

Questionnaire sur le cadre de supervision et le modèle STEAM

Dans le cadre de mon travail de fin d'études du DAS en pédagogie universitaire, je souhaite évaluer comment mon style de supervision soutient votre autonomie en m'inspirant du modèle STEAM (Scaffolding, Tutoring, Engaging, Argumentation, Modeling). Vos réponses sont anonymes et serviront uniquement à améliorer la qualité de mon accompagnement. Merci pour votre participation !

* Obligatoire

Quel est votre niveau actuel d'étude *

- ◯ Bachelor (Travaux pratiques)
- ◯ Bachelor (Thèse de Bachelor)
- ◯ Master
- ◯ Stage

Supervision et modèle STEAM

Indiquez dans quelle mesure vous êtes d'accord avec les affirmations suivantes.

	Pas du tout d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Tout à fait d'accord
Mon encadrement m'a offert un cadre clair pour organiser mon travail.	○	○	○	○	○
J'ai reçu des outils et des ressources utiles pour avancer de manière autonome.	○	○	○	○	○
Les échéances et jalons proposés m'ont aidée à structurer ma progression.	○	○	○	○	○
J'ai senti que la supervision était adaptée à mes besoins spécifiques.	○	○	○	○	○
Ma superviseure m'a guidé sans faire les choses à ma place.	○	○	○	○	○
Les échanges réguliers ont soutenu mon développement sans créer de dépendance.	○	○	○	○	○
J'ai été encouragé·e à m'approprier mon projet.	○	○	○	○	○
J'ai eu l'occasion d'expérimenter, tester, chercher par moi-même.	○	○	○	○	○
J'ai ressenti de la motivation à m'investir dans mon travail.	○	○	○	○	○
J'ai été amené·e à justifier mes choix méthodologiques ou théoriques.	○	○	○	○	○

	Pas du tout d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Tout à fait d'accord
Les discussions avec ma superviseure m'ont aidé à développer mon esprit critique.	○	○	○	○	○
J'ai pu affiner mes arguments grâce à des retours constructifs.	○	○	○	○	○
Ma superviseure a rendu visibles ses stratégies de travail (ex. : organisation, rédaction, analyse).	○	○	○	○	○
J'ai pu m'inspirer d'exemples concrets ou de modèles partagés.	○	○	○	○	○
Ces exemples m'ont permis de développer mes propres stratégies d'organisation, d'analyse ou de rédaction.	○	○	○	○	○

Qu'est-ce qui vous a le plus aidé·e à structurer votre projet/travail ?

Avez-vous des suggestions pour mieux équilibrer autonomie et soutien ?

En pensant à votre projet/travail, qu'est-ce qui vous a le plus motivé·e à vous investir ou, au contraire, freiné·e dans votre engagement ?

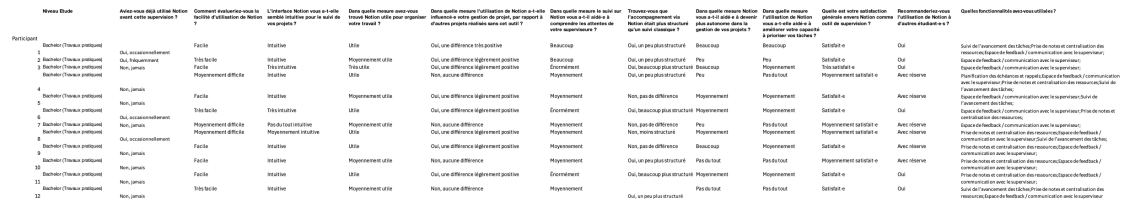
Pouvez-vous décrire comment les échanges avec votre superviseure ont influencé vos décisions ou vos réflexions, par exemple sur des choix méthodologiques, théoriques ou pratiques ?

Quels exemples concrets, démonstrations ou partages d'expérience de votre superviseure vous ont le plus aidé·e dans votre travail ? Pourquoi ?

Appendix E – Full Results of the STEAM Supervision Framework Questionnaire

Id	Quel est votre niveau actuel d'étude	Mon encadrement m'a offert un cadre clair pour organiser mon travail.	J'ai reçu des outils et des ressources utiles pour avancer de manière autonome.	Les échéances et jalons proposés m'ont aidé·e à structurer ma progression.	J'ai senti que la supervision était adaptée à mes besoins spécifiques.	Ma superviseure m'a guidé sans faire les choses à ma place.	Les échanges réguliers ont soutenu mon développement sans créer de dépendance.	J'ai été encouragé·e à m'approprier mon projet.	J'ai eu l'occasion d'expérimenter, tester, chercher par moi-même.	J'ai ressenti de la motivation à m'investir dans mon travail.	J'ai été amené·e à justifier mes choix méthodologiques ou théoriques.	Les discussions avec ma superviseure m'ont aidé à développer mon esprit critique.	J'ai pu affiner mes arguments grâce à des retours constructifs.	Ma superviseure a rendu visibles ses stratégies de travail (ex. : organisation, rédaction, analyse).	J'ai pu m'inspirer d'exemples concrets ou de modèles partagés.	Ces exemples m'ont permis de développer mes propres stratégies d'organisation, d'analyse ou de rédaction.	Qu'est-ce qui vous a le plus aidé·e à structurer votre projet/travail ?	Avez-vous des suggestions pour mieux équilibrer autonomie et soutien ?	En pensant à votre projet/travail, qu'est-ce qui vous a le plus motivé·e à vous investir ou, au contraire, freiné·e dans votre engagement ?	Pouvez-vous décrire comment les échanges avec votre superviseure ont influencé vos décisions ou vos réflexions, par exemple sur des choix méthodologiques, théoriques ou pratiques ?	Quels exemples concrets, démonstrations ou partages d'expérience de votre superviseure vous ont le plus aidé·e dans votre travail ? Pourquoi ?	Recommanderiez-vous ce type de supervision (basé sur le modèle STEAM) à d'autres enseignant·e·s ou superviseur·e·s?	Avez-vous des suggestions générales pour améliorer le cadre de supervision ?
1	Bachelor (Travaux pratiques)	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	La lecture des documents proposés		Motivation: pratique, utilisation des outils avec lesquels nous nous sommes familiarisés au long des semestres et l'obtention de nos premiers résultats statistiques.	Conseils sur le besoin ou non de pré-test, confirmation de nos choix en termes d'analyses statistiques	Assistance pour l'utilisation du vocabulaire approprié dans le cadre d'une étude de genre	Oui	
2	Master	Plutôt d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Donner des exemples était très utile	Peut-être proposer plus de réunions et pas seulement quelques fois par an	Ce qui m'a le plus motivé, c'est l'intérêt pour mon projet et la possibilité de faire du bon travail. En revanche, ce qui m'a un peu freiné, c'est une trop grande autonomie.	Il est certain que les échanges avec le superviseur m'ont aidé à mieux calibrer les stratégies, les analyses et aussi mon point de vue sur le projet.		Avec réserve	
3	Master	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Des deadlines claires	Plus de communication et, par exemple, plus d'instructions écrites	Ce qui m'a le plus encouragée c'était la confiance qu'on a eue en moi indépendamment de la tâche en question.	Dès le début, il m'a été confié des responsabilités concrètes. Ceci a encouragé mon autonomie et bien-être. A son tour ceci me rendait plus réflexive sur tous les choix autour du projet et m'a fait m'investir d'autant plus.	Je n'ai pas d'exemples concrets mais mon avis a souvent été sollicité. C'est ce qui m'a le plus aidé à me poser des questions et pas juste exécuter des tâches passivement.	Oui	
4	Bachelor (Travaux pratiques)	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	avoir des corrections directement sur le texte et pas simplement dans la grille des points		les corrections a effectuer me paraissaient plus claires et on avait des réponses directes grâce à Notion		aider à trouver une base de données pour la création d'une expérience	Oui	
5	Bachelor (Thèse de Bachelor)	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Les indications ainsi que les retours constructifs de ma superviseuse sur mon plan théorique premièrement, et ensuite sur le travail en lui-même.	Il faudrait premièrement clarifier les attentes et objectifs et ensuite si un problème est rencontré avoir du soutien ou de l'aide pour aider à le surmonter.	Ce qui m'a le plus motivée a été le thème qui était super passionnant et le fait que nous étions assez libres de choisir notre méthodologie etc. Au contraire, ce qui m'a freiné était le manque de clarté dans l'organisation des articles scientifiques pour la partie introductive.	Les échanges ont beaucoup influencé les décisions surtout lors du choix d'une méthodologie appropriée pour l'expérience ou encore pour les tests statistiques corrects. Ceci était essentiel pour ne pas se tromper de direction.	Il a été hyper utile d'avoir un suivi régulier pour les parties cruciales de notre travail comme la rédaction des hypothèses sur lesquelles se basent tout notre travail ou encore le bon choix des tests statistiques.	Oui	Non pas nécessairement
6	Bachelor (Thèse de Bachelor)	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Tout à fait d'accord	Le fait que nous avons réalisé la passation des expériences en groupe, cela nous a forcé à devoir bien nous organiser.	Donner des informations claires au début en septembre permet de bien structurer le travail pour le reste de l'année. Parfois cependant, lors des rendez-vous les réponses aux questions étaient moins claires. Avoir un peu un meilleur équilibre entre ces deux choses seraient bien.	Le thème m'a beaucoup intéressé.	Les échanges ont permis d'avoir des éléments de réflexion que nous avons pu utiliser dans nos discussions sur les questions méthodologiques notamment. Cela nous a permis d'avancer petit à petit. Cependant, des fois il n'était pas forcément clair ce qui était une suggestion ou une demande.	Pour la présentation orale, le partage d'expérience a vraiment aidé à me détendre. De réaliser que ça peut être stressant même pour des personnes plus avancées que nous est rassurant.	Oui	
7	Bachelor (Travaux pratiques)	Pas du tout d'accord	Plutôt pas d'accord	Pas du tout d'accord	Pas du tout d'accord	Plutôt pas d'accord	Pas du tout d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Pas du tout d'accord	Plutôt pas d'accord	Pas du tout d'accord	Pas du tout d'accord	Pas du tout d'accord	des échanges plus réguliers et une plus grande présence du superviseur. Plus d'engagement de sa part également, car souvent elle ne semblait même pas motivée pour comprendre ce que nous n'avions pas bien expliqué.		trop d'autonomie et trop peu de soutien	Peu d'échanges, donc pas d'influence		Avec réserve	
8	Bachelor (Travaux pratiques)							Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	le cours de Travaux Pratiques Expérimentaux	Non	le fait que ce soit obligatoire	Cela m'a permis de revoir mon travail avec une vision différente		Avec réserve	non
9	Bachelor (Travaux pratiques)	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord						Oui	
10	Master	Pas du tout d'accord	Plutôt pas d'accord	Plutôt pas d'accord	Pas du tout d'accord	Ni d'accord ni pas d'accord	Pas du tout d'accord	Plutôt d'accord	Tout à fait d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Pas du tout d'accord	Pas du tout d'accord	Pas du tout d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	La communication avec mes paires, les documents fournis par la faculté	demander les attentes des étudiant.e.s, expliciter les limites de la supreviseuse	le manque d'implication et de soutien de ma superviseuse a grandement freiné mon engagement, comme j'ai du d'abord tenter de comprendre et résoudre les problèmes par moi-même sans soutient, avant de pouvoir m'investir réellement dans mon projet			Non	se rendre disponible et montrer un intérêt par le travail fourni par les étudiant.e.s
11	Bachelor (Travaux pratiques)	Ni d'accord ni pas d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Plutôt pas d'accord	Plutôt d'accord	Pas du tout d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Tout à fait d'accord	Certaine personne du groupe de travail		Investissement parce que obliger pour la note. Freiner était la dynamique de groupe avec de la tension au sein de notre groupe			Oui	Je ne sais pas si c'est dû à notion ou un changement de méthode, mais le 2e semestre était plus précis avec les problèmes. Au premier semestre nous ne comprenions pas tjr les grilles d'évaluation et quoi améliorer
12	Bachelor (Travaux pratiques)	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	les échéance de base	pourquoi pas un petit cours pour la prise en main de l'application Notion...	pour moi il était plus difficile de rester à jour en utilisant notion cela m'a un peu freinée dans mon engagement... Car chacun travaillait dans sa "page" contrairement avec worldshare ou l'on travaillait tous ensemble sur une seule et unique page. Il était alors plus facile d'être à jour, je savais exactement ou nous en étions ce qu'il fallait faire... C'était plus motivant.	Je ne voyais pas toujours les notifications alors que je les avaient activées. J'ai trouvé que c'était plus difficile de suivre les commentaires/ réflexions de la superviseure	les commentaires, l'aide par rapport aux différentes sections à écrire	Avec réserve	à nouveau, un petit cours de prise en main, même si c'est rapide... ce qu'il est possible ou pas possible de faire avec l'application... Parler des avantages, inconvénients de l'outil...
13	Bachelor (Travaux pratiques)	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord						Oui	
14	Bachelor (Travaux pratiques)	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	S'imposer ses propes deadlines, les commentairws, le fait que tout soit sur une page	Difficile à dire, je remarque une tendance à toujours valider mes corrections auprès de la superviseuse. Peut-être be pas accepter ceci.	La mise en page "jolie" de notion + le fait que notion permet de bien structurer ses notes + la pression de bien travailler parce que c'est un travail de groupe (comparaison + on compte sur moi) - freiné : être perdue entre corrections, slides des cours, mon avis, celui de mes camarades, les exemples procurés dans le cours ect.	Plus facile de comprendre mes erreurs grâce aux commentaires de ma superviseuses	Les commentaires directement dans mon texte mon le plus aidée, ntmt p.ex. concernant les normes APA	Oui	J'apprécie les corrections/commentaires directement dans le texte. Cela est plus parlant que les grilles de correction.
15	Bachelor (Travaux pratiques)	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Les exemples mis à disposition sur Moodle, accompagnés des conseils et commentaire de notre superviseure	Je trouve l'équilibre parfaitement adapté	La motivation était très élevée au départ, car il s'agissait d'un premier travail scientifique, et le simple fait d'imaginer une méthodologie, des résultats ou tester des participants étaient très stimulant. Mais cette motivation a baissé lorsqu'il a fallu commencer un deuxième travail en continuant à devoir rendre des parties toutes les 2 semaines, avec la préparation des examens en parallèle	Elle nous a beaucoup aidé pour les parties un peu plus techniques de ce travail, comme pour le choix des analyses statistiques, le déroulement de la procédure de notre expérience... ces échanges nous ont permis de gagner du temps et de débloquer certaines situations ou problèmes qui nous paraissent sans solution	Sans citer d'exemple concret, je dirais que sa disponibilité a été notre plus grande « chance ». Dès que l'on avait une question ou un doute, on avait une réponse quasiment immédiate, ce qui nous permettait d'avancer rapidement ensemble.	Oui	
16	Bachelor (Thèse de Bachelor)	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt pas d'accord	Tout à fait d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Plutôt pas d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Plutôt pas d'accord	Ni d'accord ni pas d'accord	Les échéances proposées pour les différentes étapes	Fixer des rendez-vous à intervalle régulier pour pouvoir à la fois progresser en autonomie et faire le point sur les difficultés rencontrées	Liberté dans l'exploration de la thématique			Oui	
17	Bachelor (Travaux pratiques)	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	Tout à fait d'accord	Plutôt pas d'accord	Plutôt d'accord	Tout à fait d'accord	Tout à fait d'accord	Plutôt d'accord	les deadlines		c'était difficile d'avancer une fois qu'on était coincé car on avait de la peine a trouver des solutions a nos problèmes. Mais une fois le prblème réglé, tous a bien été	Ca n'a pas beaucoup changer nos choix. On avait des échanges avec notre superviseure uniquement pour des questions/problèmes précises		Oui	
18	Bachelor (Travaux pratiques)	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Tout à fait d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	les exemples d'ancien élève	être plus clair avec la grille	certain moment qu'on en comprenait pas qqch plusieurs fois où on aidait pas spécialement	je sais pas	je sais pas	Avec réserve	Plus précis dans la guidance pour les erreurs
19	Bachelor (Travaux pratiques)	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Les dead line ainsi que le fait de travailler en groupe.	Les feed-back rapide même s'ils sont moins détaillés aide beaucoup !	Le fait d'avoir une bonne dynamique de groupe m'a aidé à m'investir	Ils ont aidé à faire des corrections précises et ciblées sans pour autant être trop directifs	Les réunions teams sont très pratiques pour vite mettre au clair certaines situations.	Oui	
20	Bachelor (Travaux pratiques)	Plutôt d'accord	Plutôt d'accord	Tout à fait d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt pas d'accord	Plutôt d'accord	Plutôt d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Plutôt d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Ni d'accord ni pas d'accord	Les dead line ainsi que le fait de travailler en groupe.	Les feed-back rapide même s'ils sont moins détaillés aide beaucoup !	Le fait d'avoir une bonne dynamique de groupe m'a aidé à m'investir	Ils ont aidé à faire des corrections précises et ciblées sans pour autant être trop directifs	Les réunions teams sont très pratiques pour vite mettre au clair certaines situations.	Oui	

Appendix F – Quantitative Data from the Notion Supervision Questionnaire

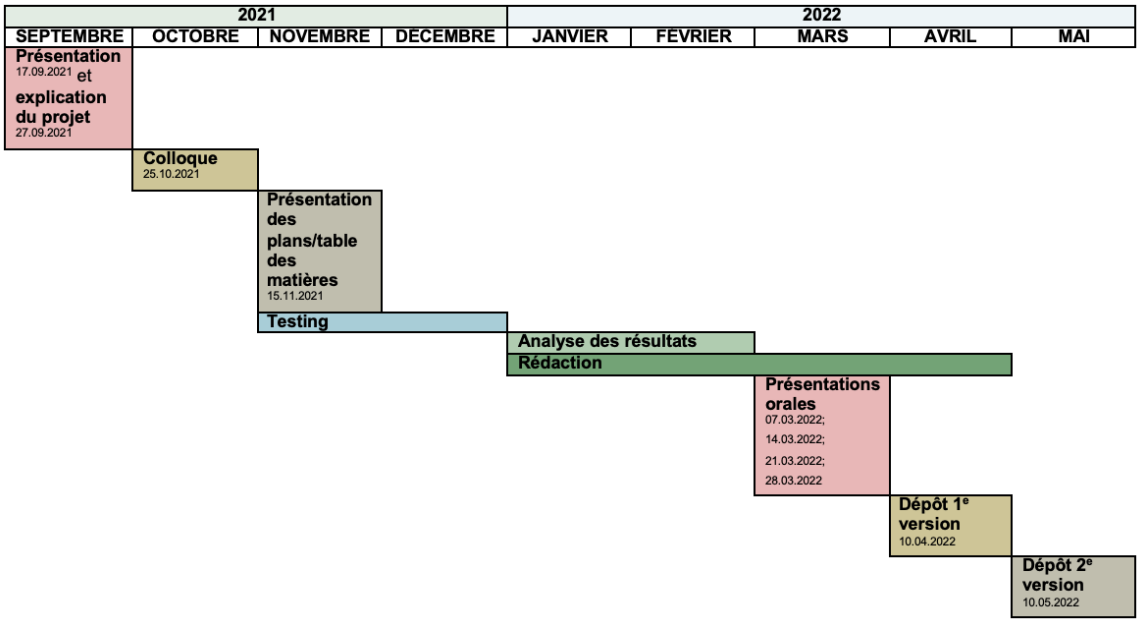


Participant	Niveau Etude	Aviez-vous déjà utilisé Notion avant cette supervision ?	Comment évalueriez-vous la facilité d'utilisation de Notion ?	L'interface Notion vous a-t-elle semblé intuitive pour le suivi de vos projets ?	Dans quelle mesure avez-vous trouvé Notion utile pour organiser votre travail ?	Dans quelle mesure l'utilisation de Notion a-t-elle influencé votre gestion de projet, par rapport à d'autres projets réalisés sans cet outil ?	Dans quelle mesure le suivi sur Notion vous a-t-il aidé à comprendre les attentes de votre superviseure ?	Trouvez-vous que l'accompagnement via Notion était plus structuré qu'un suivi classique ?	Dans quelle mesure Notion vous a-t-il aidé à devenir plus autonome dans la gestion de vos projets ?	Dans quelle mesure l'utilisation de Notion vous a-t-elle aidé à améliorer votre capacité à prioriser vos tâches ?	Quelle est votre satisfaction générale envers Notion comme outil de supervision ?	Recommanderiez-vous l'utilisation de Notion à d'autres étudiant·e·s ?	Quelles fonctionnalités avez-vous utilisées ?
1	Bachelor (Travaux pratiques)	Oui, occasionnellement	Facile	Intuitive	Utile	Oui, une différence très positive	Beaucoup	Oui, un peu plus structuré	Beaucoup	Beaucoup	Satisfait·e	Oui	Suivi de l'avancement des tâches;Prise de notes et centralisation des ressources;Espace de feedback / communication avec le superviseur;
2	Bachelor (Travaux pratiques)	Oui, fréquemment	Très facile	Intuitive	Moyennement utile	Oui, une différence légèrement positive	Beaucoup	Oui, un peu plus structuré	Peu	Peu	Satisfait·e	Oui	Espace de feedback / communication avec le superviseur;
3	Bachelor (Travaux pratiques)	Non, jamais	Facile	Très intuitive	Très utile	Oui, une différence légèrement positive	Énormément	Oui, beaucoup plus structuré	Beaucoup	Moyennement	Très satisfait·e	Oui	Espace de feedback / communication avec le superviseur;
4	Bachelor (Travaux pratiques)	Non, jamais	Moyennement difficile	Intuitive	Utile	Non, aucune différence	Moyennement	Oui, un peu plus structuré	Peu	Pas du tout	Moyennement satisfait·e	Avec réserve	Planification des échéances et rappels;Espace de feedback / communication avec le superviseur;Prise de notes et centralisation des ressources;Suivi de l'avancement des tâches;
5	Bachelor (Travaux pratiques)	Non, jamais	Facile	Intuitive	Moyennement utile	Oui, une différence légèrement positive	Moyennement	Non, pas de différence	Moyennement	Moyennement	Satisfait·e	Avec réserve	Espace de feedback / communication avec le superviseur;Suivi de l'avancement des tâches;
6	Bachelor (Travaux pratiques)	Non, jamais	Très facile	Très intuitive	Utile	Oui, une différence légèrement positive	Énormément	Oui, beaucoup plus structuré	Moyennement	Moyennement	Satisfait·e	Oui	Espace de feedback / communication avec le superviseur;Prise de notes et centralisation des ressources;
7	Bachelor (Travaux pratiques)	Oui, occasionnellement	Moyennement difficile	Pas du tout intuitive	Moyennement utile	Non, aucune différence	Moyennement	Non, pas de différence	Peu	Pas du tout	Moyennement satisfait·e	Avec réserve	Espace de feedback / communication avec le superviseur;
8	Bachelor (Travaux pratiques)	Non, jamais	Moyennement difficile	Moyennement intuitive	Utile	Oui, une différence légèrement positive	Moyennement	Non, moins structuré	Moyennement	Moyennement	Moyennement satisfait·e	Avec réserve	Prise de notes et centralisation des ressources;Espace de feedback / communication avec le superviseur;Suivi de l'avancement des tâches;
9	Bachelor (Travaux pratiques)	Oui, occasionnellement	Facile	Intuitive	Utile	Oui, une différence légèrement positive	Moyennement	Non, pas de différence	Beaucoup	Moyennement	Satisfait·e	Avec réserve	Prise de notes et centralisation des ressources;Espace de feedback / communication avec le superviseur;
10	Bachelor (Travaux pratiques)	Non, jamais	Facile	Intuitive	Moyennement utile	Non, aucune différence	Moyennement	Oui, un peu plus structuré	Pas du tout	Pas du tout	Moyennement satisfait·e	Avec réserve	Prise de notes et centralisation des ressources;Espace de feedback / communication avec le superviseur;
11	Bachelor (Travaux pratiques)	Non, jamais	Facile	Intuitive	Utile	Oui, une différence légèrement positive	Énormément	Oui, beaucoup plus structuré	Moyennement	Moyennement	Satisfait·e	Oui	Prise de notes et centralisation des ressources;Espace de feedback / communication avec le superviseur;
12	Bachelor (Travaux pratiques)	Non, jamais	Très facile	Intuitive	Moyennement utile	Non, aucune différence	Moyennement	Oui, un peu plus structuré	Pas du tout	Pas du tout	Satisfait·e	Oui	Suivi de l'avancement des tâches;Prise de notes et centralisation des ressources;Espace de feedback / communication avec le superviseur

Appendix G – Qualitative Data from the Notion Supervision Questionnaire

Participant	Avez-vous rencontré des difficultés techniques ? Si oui, lesquelles ?	En quoi Notion vous a-t-il aidé·e ou gêné·e dans votre travail ?	Quelles fonctionnalités ou aspects de Notion ont favorisé votre autonomie ?	Quels améliorations suggéreriez-vous pour optimiser l'usage de Notion dans un cadre de supervision ?
1	Oui, certains membres du groupe ont eu de la peine à avoir accès au groupe Notion. Le contrôle z ne fonctionne pas toujours parfaitement, donc nécessité d'avoir un back-up.	Principalement aidé, surtout pour la communication avec la superviseure	les commentaire ont permis de communiquer simplement et rapidement nos questions/demandes en les implémentant directement à l'intérieur du texte, sans avoir à les citer dans un mail.	
2				
3	non		Pouvoir poser des questions plus facilement et avoir tous les feedbacks centralisé. Ca donne l'impression que le contacte avec la superviseuse est plus instinctif et rapide	
4	Parfois, les textes ne se coordonnaient pas directement sur tous les ordis ou parfois même, des parties s'effaçaient (peut être que le problème était que nous étions souvent tous connecté en même temps)	Gêne parce que les textes s'effaçaient et les mises en pages ne sont pas jolies (pas justifier) aider parce que tout au même endroit et on peut voir l'avancée de toute le monde		
5	non			
6	Lorsque plusieurs personnes sont sur la même page, le contenu (nouvelles phrases écrites) peut s'effacer.	Aidée : feedback superviseuse, tt est à une seule place (intro, méthode, annexes, rdv, ...), l'aspect jolie + motivant et organisateur - gênée : pas possible de centrer ni de justifier le texte, pas possible de mettre un interligne de 1,5 donc difficile de se relire - quand contenu s'efface lorsque nous sommes sur la même page	Le fait que le tout soit bien organisé et hiérarchisé sur la page de garde	Les instants où le texte s'efface peuvent être frustrantdonc garder une version copier-coller sur word et le fait que le texte ne soit pas aéré et justifié rend la lecture désagréable. Il existe, toutefois, certainement un code pour justifier et aéré le texte mais je n'ai personnellement pas réussi à le mettre en œeuvre.
7	Difficultés de connexion, d'utilisation générale, impossibilité de mise en page	Pas de gêne directe dans le travail mais ne la pas facilité pour autant		améliorer les options de mise en page, ajout de documents, espace discussion
8	mise en page, travail qui ne se synchronise pas toujours entre plusieurs élèves	prise en main pas évidente, donc parfois frustration à utiliser certaines fonctions		Un petit "cours" explicatif de comment fonctionne l'application, pour éviter de perdre du temps à comprendre
9	Parfois desyncronisations, difficulté à rejoindre le même groupe	Pour pouvoir avancer sur le même travail en direct sur des écrans différents		
10	Non, c'est juste pas très pratique pour la mise en forme de travail	gêné pour la mise en forme (norme APA...) / positif par le fait que tout le groupe peut écrire sur un même document, voir les avancées et avoir un suivi par le prof (les corrections direct dans le travail sont positives)	-	
11		Il nous a aidé à mieux comprendre nos erreurs et les améliorations à effectuer via les commentaires de la superviseurs / il nous a gêné pour la mise en page des différentes parties du travail (qui est quand même limité sur cet outil) et quelques fois, des parties disparaissent de la page, sans possibilité de les récupérer	La possibilité d'échanger des commentaires directes avec la superviseur, plus besoin de rdv ou de mail	La façon dont il a été utilisé par la superviseur était très adéquate, mais c'est plutôt l'outil en lui même qui pourrait être amélioré sur certains aspects pour encore faciliter la réalisation de ce type de travail (mise en page par exemple)
12	Non			Le travail qu'on devait rendre été déjà très structuré avec des parties à rendre au fur et à mesure. Je n'ai donc pas vraiment vu d'impact de l'usage de notion, pour moi c'etait juste un autre endroit ou écrire mon travail. Je pense que cette outils à pleins de point positifs mais je n'ai pas vraiment eu l'occasion de les exploiter.

Appendix H – Evolution of Supervision Timelines (2021–2025): From Structured Scaffolding to Autonomy Support



2022				2023				
SEPTEMBRE	OCTOBRE	NOVEMBRE	DÉCEMBRE	JANVIER	FÉVRIER	MARS	AVRIL	MAI
Présentation 22.09.2022 **Explication du projet** 03.10.2022	**Colloque** 24.10.2022	Remise sur Moodle **plans/table des matières** 14.11.2022, 23h59	Remise sur Moodle **hypothèses et méthodologie** 12.12.2022, 23h59 Remise sur Moodle **Demande éthique** 26.12.2022, 23h59	Remise sur Moodle **Intro** 16.01.2023, 23h59	Remise sur Moodle **Analyses** 06.02.2023, 23h59	Remise sur Moodle **Talks** 01.03.2023, 23h59 Remise sur Moodle **questions** 15.03.2023, 23h59 Remise sur Moodle **Réponses aux questions** 24.03.2023, 23h59	Dépôt sur Moodle **1e version** 10.04.2023, 23h59	Dépôt sur Moodle **2e version** 08.05.2023, **23h59**

2023				2024								
SEPTEMBRE	OCTOBRE	NOVEMBRE	DÉCEMBRE	JANVIER			FÉVRIER			MARS	AVRIL	MAI
Présentation 21.09.2023 **Explication du projet** 06.10.2023	**Colloque** 23.10.2023	Dépôt sur Moodle **plans/table des matières** 13.11.2023, 23h59	Dépôt sur Moodle **hypothèses et méthodologie** 11.12.2023, 23h59 Dépôt sur Moodle **Demande éthique** 01.01.2024, 23h59	Dépôt sur Moodle **hypothèses** 15.01.2024, 23h59	Fin de la collecte des données 15.01.2024	Semaine du 22 au 26 janvier disponibilités pour discuter du plan des analyses par Teams	Dépôt sur Moodle **Analyses OUTPUT + interprétation** 05.02.2024, 23h59 OBLIGATOIRE	Dépôt sur Moodle **Introduction** 16.02.2024, 23h59	Dépôt sur Moodle **Analyses format Texte** 19.02.2024, 23h59	Dépôt sur Moodle **Présentations** 01.03.2024, 23h59 OBLIGATOIRE **Présentations en présentiel** 04.03.2024 11.03.2024 18.03.2024 25.03.2024 OBLIGATOIRE	Dépôt sur Moodle **Discussion et Conclusion** 01.04.2024, 23h59 Dépôt sur Moodle **1e version** 08.04.2024, 23h59	Dépôt sur Moodle **2e version** 06.05.2024, 23h59 OBLIGATOIRE

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Timeline

Début octobre 2024	21.10.2024	Mi-octobre 2024	Mi-novembre 2024	02.12.2024	Mi-janvier 2025 à début février 2025	03.03.2025 10.03.2024 17.03.2025 24.03.2024	11.04.2025	09.05.2025
Explication de la thématique et partage d'articles	Colloque	Explication de la méthode et de l'expérience	Séance en réserve	Remise du plan de travail et Hypothèses	Discussion du plan des analyses)	Colloques	Remise de la première version *Obligatoire	Remise finale du travail *Obligatoire

Testing

Les supervsieures s'engagent à remettre :

- Feedback du plan de travail et des hypothèses avant noël 2024
- Feedback de la première version entre le 07.04.2025 et le 18.04.2025