Research article

Bachelor Thesis in nursing: A qualitative study of the teaching-learning process from the experience of the students, academic tutors and nurses

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1. Introduction

The incorporation of the Bachelor Thesis (BT) within European higher education, particularly in nursing education programs, represents an advancement in developing student competencies (Grønning et al., 2022; Jordal et al., 2021). Framing the BT within the context of the current nursing profession is crucial, given its potential to facilitate knowledge transfer to clinical practice (Günay and Kılınç, 2018) and its associated opportunities (Rodríguez et al., 2015).

In Spain, the BT is a core requirement of the nursing degree curriculum, symbolizing the culmination of academic training (ORDEN CIN/2134/2008, 2008). It carries 6 to 12 European Credit Transfer and Accumulation System (ECTS) (Roca et al., 2018) credits, equivalent to 25–30 h per credit. Completion of the BT, which consists of a written thesis and a public defense during the final year of study, is mandatory for graduation (Fernández-Cano et al., 2021). The project is an individual endeavor with an assessment based on a rubric system encompassing supervision or process, the final written product, and the oral defense (Llaurado-Serra et al., 2018; Roca et al., 2018).

This independent capstone project offers students a platform to develop research competencies and apply the knowledge acquired throughout their studies (AQU, 2024). Supervised by an academic tutor, it (Fernández-Cano et al., 2021) involves an autonomous research project, intervention, or innovation within a specific professional field (AQU, 2009). However, BT projects vary widely across Europe and other continents (Johansson and Silén, 2018; Fernández-Cano et al., 2021). Recognized as a teaching-learning experience, the BT encompasses various educational activities and scenarios, with outcomes transferable to nursing practice. Two primary learning modalities characterize the

BT process: on-site learning, such as seminars, theoretical classes, supervising, defense, exams, and autonomous work, including information search, online tasks, and thesis drafting (Roca et al., 2018). These modalities provide a unique opportunity for students to demonstrate their ability to analyze, synthesize and apply scientific evidence in health (Karlsholm et al., 2024).

Nursing students widely acknowledge that the BT is an essential component of their education (Canet et al., 2016; Fernández-Cano et al., 2021; Henttonen et al., 2021). It fosters the development of competencies not fully addressed during earlier academic experiences (Reguant et al., 2018), particularly those essential for evidence-based practice and critical appraisal (González-Chordá et al., 2016; Llaurado-Serra et al., 2018). Writing a BT positively influences nursing students' attitudes toward and awareness of research (Toraman et al., 2017; Gros-Navés et al., 2022). Graduates who completed a BT often display greater interest and a more favorable attitude toward research and professional nursing development (Gros-Navés et al., 2022).

Additionally, students perceive the BT as an opportunity to enhance generic competencies such as decision-making, foundational and nursing-specific knowledge, problem-solving, oral and written communication, critical reasoning and basic research skills (Mohammadi-Shahboulaghi et al., 2021; Roca et al., 2018). Many students report satisfaction with the knowledge acquired throughout the BT process (Fernández-Cano et al., 2021; Gros-Navés et al., 2022).

At the same time, the BT can be a source of stress for some students, as it represents an indispensable capstone project within the nursing curriculum. Stressful factors significantly affect learning outcomes (Berdida, 2023). Identifying and addressing these factors allows for the development of interventions that promote adaptive coping strategies,

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with academic tutoring and mentoring recognized as particularly effective (Tomas and Poroto, 2023). As Jaensson et al. (2024) highlighted, group tutoring and collaborative learning during BT development can further enhance student engagement. This underscores the importance of targeted interventions to foster collaborative learning between students and educators throughout the undergraduate teaching-learning process (Simmonds et al., 2020). Nursing students place high expectations on support not only from their tutors but also from peers and themselves (Jaensson et al., 2024). Consequently, academic tutorials play a central role during the BT process (Rebollo Quintela and Espiñeira Bellón, 2017). These sessions aim to guide and supervise students, ensuring they achieve the objectives and competencies outlined for the BT (Roca et al., 2018). Supervision and support activities underscore the essential role of academic tutors, who significantly contribute to the learning process and knowledge generation within the discipline (Gratrix and Barrett, 2017; Jackson et al., 2021). In this context, tutors must balance interactions with students and institutional responsibilities. They are expected to facilitate learning while promoting student autonomy and development (Ädel et al., 2023).

However, most studies on the BT primarily focus on students and graduates, with limited research examining the roles of tutors (Aguayo-González et al., 2020). This creates a knowledge gap regarding tutors' experiences and interactions with other stakeholders in the BT process. More evidence is needed to fully understand the teaching-learning process involved in the BT. Examining the experiences and perspectives of key stakeholders can help optimize the integration of the BT into curricula, enhancing its educational value, particularly its application to clinical practice.

To address this gap, we designed a study to provide an integrated perspective, drawing on the experiences of all key stakeholders: nursing students (actively engaged in the BT process), BT tutors (guiding students through the development process), and nursing graduates (who have completed the BT and can reflect on its relevance to professional practice).

The research question was: How do nursing students, tutors, and graduates describe their experiences with the teaching-learning process of the BT in nursing education? The study's general objective was to explore the teaching-learning experiences of these three groups during the BT process.

This approach enabled a multidimensional examination of the BT's impact on nursing education. It underscored the qualitative nature of the study in capturing diverse perspectives within a dynamic, unique, and subjective educational context (Doyle et al., 2020). Such studies provide direct insights into stakeholders' experiences and perspectives, offering valuable information for understanding the phenomenon and identifying areas for improvement (Villamin et al., 2024).

2. Methods

2.1. Design

A qualitative descriptive design was used to provide a comprehensive overview of the phenomenon under study (Doyle et al., 2020), emphasizing its subjective nature, as perceived through participants' diverse experiences. The Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (Tong et al., 2007) were followed to enhance transparency (Dossett et al., 2021).

2.2. Context and participants

Participants came from two Spanish universities: the Faculty of Health Sciences Blanquerna, Ramon Llull University (Barcelona) and the Faculty of Nursing and Physiotherapy, University of Lleida (Lleida). Convenience sampling was employed to maximize participant representativeness and heterogeneity (Kiger and Varpio, 2020). Participants comprised nursing students (n = 10), BT academic tutors (n = 9), and graduate nurses (n = 20).

Inclusion criteria were: a) Nursing students actively engaged in their BTs; b) graduate nurses who had completed a BT during their education and had been professionally active for at least 5 years in clinical care; and c) BT tutors with a minimum experience of 5 years in BT tutoring and a master's or doctoral degree (PhD). The sole exclusion criterion was potential language barriers. Table 1 outlines the main sociodemographic characteristics by participant groups.

2.3. Data collection

Four focus groups were conducted: one with tutors, one with students, and two with graduate nurses. Voluntary participation was requested for each group, with research team members contacting potential participants based on the inclusion criteria (face-to-face, telephone, and email). Four graduate nurses declined to participate for work reasons. Subsequently, after receiving verbal and written information about the study, participants who agreed to participate signed an informed consent form.

A script for conducting the focus groups was developed, detailing three areas of analysis (see Table 2). The research team then validated the script, which included experts in qualitative methodology and the BT field.

Focus group sessions were conducted in university-provided rooms and lasted between 60 and 90 min each. The focus groups were audio recorded, and an observer maintained a field log during each session. However, the field notes were not included in the data analysis. All focus group conversations were transcribed verbatim. The researchers conducting the focus groups (2 per session) had no academic relationship with the students, were not BT tutors for the graduates, and had no hierarchical or managerial ties with the tutors. All focus groups were conducted during the 2021–2022 academic year.

2.4. Data analysis

The data underwent inductive thematic analysis (Kiger and Varpio, 2020) following the phases outlined by Braun and Clarke (2006), supported by the qualitative software program Atlas-ti v.9. This interactive process consisted of six steps: a) data familiarization, b) coding units of analysis, c) establishing themes, d) verifying themes, e) defining themes and subthemes, and f) selecting verbatim quotes for writing up the results. Two researchers (GSN and OC-V) analyzed all focus group transcripts separately using Atlas-ti v.9, conducting audits after analyzing each focus group. In the event of discrepancies, the text was reanalyzed separately until a consensus was reached. Initial data coding was performed, and the other research team members confirmed the content.

The research team consisted of 6 nurses (4 teaching researchers and 2 clinical researchers), all with expertise in qualitative research and an interest in the study topic. This composition allowed for a rigorous inductive analysis, ensuring saturation and comprehensively identifying emerging themes (Saunders et al., 2018).

Reflective work identified subjective elements that contributed to achieving greater rigor, richness, and credibility in the research process and results. Scientific rigor criteria of credibility, dependability, and transferability (Graneheim and Lundman, 2004) were ensured through the following actions: 1) Focus groups were conducted by researchers (OC-V, SGN, JR) not affiliated with participants to ensure a more transparent and open research process (reflexivity); 2) Participant characteristics were detailed; 3) Focus groups were transcribed verbatim, and the interview script was agreed upon by the interviewing team (JR, SGN, MS); 4) Thematic analysis triangulation was conducted by two researchers for all focus groups (OC-V and SGN), with dependability audits established; 5) Low inference descriptors were used to ensure confirmability; 6) Data were presented with complementarity and triangulation between participant groups; 7) A stopping criteria was established when no new categories appeared in the focus group that

Table 1
Sociodemographic data.

Students		N	%	Graduated nurses		n	%	Tutor		n	%
Age*		23.7	8.59	Age*		26.2	2.42	Age*		48.70	9.84
Sex	Men	1	10 %	Sex	Men	6	30 %	Sex	Men	3	33 %
	Women	9	90 %		Women	14	70 %		Women	6	67 %
Way to university	Baccalaureate level	7	70 %	Education level	Master's university	9	45 %	Education level	Master's university	3	33 %
	Others	3	30 %		Postgraduate program	11	55 %		PhD	6	67 %
				Place of work	Hospital	15	75 %	Academic staff	Associate	3	33 %
					Nursing homes	1	5 %		Lecturer	4	45 %
					Primary care	4	20 %		Senior lecturer	2	22 %

* Mean and deviation standard.

Table 2
Interview script.

Areas of analysis	Students	Graduated nurses	Tutor
Experience	How would you describe your BT experience?	How do you assess completing the BT?	How do you assess your experience as a BT tutor?
	What are your strengths in undertaking the BT?	What (personal, academic) elements contributed to your BT success?	Are students ready for the BT? What are their weaknesses and strengths?
Educational process	What are you learning through the BT?	What did you learn from completing the BT?	What do you believe students will learn from the BT?
	What factors do you anticipate being determinants in the BT learning process?	What factors do you believe were determinants in the BT learning process?	What factors do you believe are determinants in the BT learning process?
	What competencies do you think you will develop?	What competencies did you develop?	What competencies do you think students will develop?
Expectations	What are your expectations regarding the BT?	What were your expectations regarding the BT?	What are the expectations of students regarding the BT?
	What do you expect from your tutor?	How do you assess the tutor's role during the BT process?	What qualities do you consider essential for an effective tutor?

was analyzed (Hennink and Kaiser, 2022); and 8) Final report of results was drafted according to the COREQ checklist to report findings (Tong et al., 2007).

2.5. Ethical aspects

The CAERFIF Research Committee approved this study for the University of Lleida (Spain). Participation was voluntary, and all participants signed an informed consent form on the day of the focus group session, confirming that they reviewed and approved the transcripts. No economic compensation was received for participation. Participants were anonymized in the transcriptions and identified with an alphanumeric code for the focus group and the participants.

3. Results

The analysis yielded four main themes with corresponding eight sub-themes: 3.1) Learning elements (identification of facilitators and barriers in the learning process); 3.2) Developed competencies (description of skills acquired by students and their potential transferability to other

contexts through competencies developed); 3.3) Tutor's role (exploration of the tutor's role from their self-perception and the perspectives of students and graduate nurses); and 3.4) Improvement proposals (identification of elements to enhance the process and outcomes of the BT). It should be noted the 420 units of meaning or verbatims were identified. Fig. 1 illustrates the themes and sub-themes. In the provided verbatim transcriptions, T denotes Tutor, S denotes Student, and G denotes Graduate Nurses.

3.1. Learning elements

3.1.1. Determinant facilitating factors during the development of the BT

Tutors highlight integrating knowledge and fostering autonomous work capabilities as crucial elements. As a culminating capstone project, the BT challenges students to synthesize their acquired learning and exhibit self-reliance. Both students and tutors agree that individual completion of the BT is central to this process, requiring students to take charge of a project at the end of their training and apply their accumulated knowledge. Moreover, students and graduate nurses identify several facilitators of the learning process, including awareness of personal capabilities, training benefits, tutor supervision, and selecting a motivating topic.

> T1 "Exactly. This experience of solitude, I mean, geez, it's just me, becoming aware of my adulthood, of my maturity…" 29582–29837

> T2: "Here's where we spot people who can't handle certain things when faced with tension, they freeze up a lot, … and by the fourth year, after a few months, they'll be professionals, and there might be things they should've picked up on earlier…" 27829–28234

> S6 "Choosing the topic is an important point, and also having a tutor who gives you feedback" 26470–26529

Graduate nurses unanimously stress the importance of constructive feedback during the BT process. They caution that providing mere corrections without context can lead to l doubt and demotivation. Effective tutoring, characterized by constructive feedback and guidance, significantly bolsters meaningful learning.

> G11 "It's better to add notes in the Word document than correct the text directly. That way, you realize the mistakes you make, and you can discuss them." 42542–43443"

> S2 "… In the end, the tutor is very important, like a personal trainer. They have to motivate you. I mean, you can deliver and show them, but if they don't review the information and tell you, 'Look, improve this…,' it doesn't help."

3.1.2. Barriers to preparation, readiness, and perceived utility

Tutors, students, and nurses agree that many students are ill-prepared to undertake the BT. Tutors suggest that while students
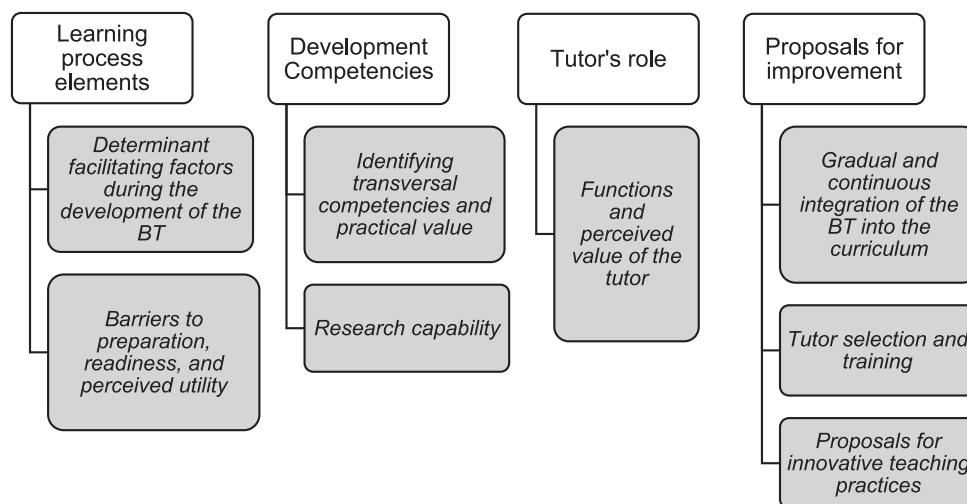
Fig. 1. Themes and sub-themes.

acquire curricular knowledge, they do not apply it until they reach the BT phase. Consequently, there is a compelling need to embed competencies throughout the curriculum to ensure readiness and validate knowledge acquisition over time.

> T4 "Some of them lack vital skills. By the fourth year, this becomes a real issue for them. So, what can we do to prevent this? We need to plan ahead to ensure that they will have mastered them during these four years. Because teaching something once is not enough, we need to find ways to reinforce these skills throughout their coursework over the years; otherwise, they won't learn them." 33855–34492

Nurses and students acknowledge that the BT phase is a pivotal moment for self-assessment regarding readiness and areas for improvement. Initially, some of them may have underestimated the importance of certain aspects of the curriculum, only to realize their significance during the BT process.

> T7 "Something we did was neither feasible nor viable, and we didn't do it very well because by the fourth year, you're asked to do a literature review with scientific evidence, and you have no idea how." 11279–11744

> G9 "This is your problem. They taught you how to do it, but you didn't do. There was always someone in the group who was good at Mendeley who took care of it…Come on, you do it, and I'll do another part." 19678–19881

Students initially demonstrate a limited willingness to engage with the BT, with their disposition often fluctuating but generally improving as they progress. Some articulate feelings of apprehension or respect for the BT, attributing this to its perceived overvaluation, which they feel places demands beyond their capacity. Nurses generally adopt a more positive attitude while recognizing the BT's challenging nature. Tutors perceive students' attitudes toward the BT as influenced by factors such as: 1) peer experiences, 2) tutor stress, 3) topic motivation, 4) methodological challenges, and 5) fear of the oral defense.

> S5 "Everyone I talk to says the same thing, that they were terrified at first, but then things started to get better, and in the end, everything turned out fine." 15387–15548

> T3 "I think it has a lot to do with your classmates' experiences." 20999–21088

> G2" It's toward the end when you see it more clearly and approach it more eagerly…when you start to focus and realize you're on the right track, you get motivated." 37812-38077

Although some stakeholders question the BT's usefulness, others highlight its role in consolidating curricular learning and preparation for future academic pursuits. Students and tutors view the BT as a formative complement to their profession, while others fail to recognize its utility.

> T4: "Sure, it's useful for them. It helps them become more aware of the learning process over 4 years. [The BT] condenses the learning journey into a more concise format." 8407–8626

> E9 "Well, for the master's final project, yes, but not really for work." 18161–18244

3.2. Developed competencies

3.2.1. Identifying transversal competencies and practical value

During the development and completion of the BT, tutors and students agree that the BT fosters the development of competencies such as learning ability, organizational skills, time management, autonomous work capabilities, information management, and critical thinking. These competencies foster a rigorous and systematic approach. Participants highlight the importance of accurate information gathering, refined search techniques, discernment, and questioning, all of which help students achieve their objectives. Tutors and nurses highlight that these skills are transferable across personal and professional contexts.

> T7 "This process is a more individualized learning process, where students are encouraged to see that things can be done differently or that they should look deeper, and they also learn to manage information better." 954–1177

> S6 "It's more practical in the sense that you learn once and for all how to organize and search for information effectively; you can use it for addressing problems that may arise in caregiving." 7676–8059

3.2.2. Research capability

Tutors note that the BT process equips students with essential research skills, such as formulating research questions and critically evaluating information sources, which are crucial for approaching future research with rigor. Some students agree, recognizing the value of these skills for their future endeavors.

Graduate nurses emphasize that, beyond methodological skills, the BT cultivates a research mindset and attitude, potentially motivating further academic pursuits such as master's degree and final thesis.

T6 "I agree. This approach encourages many to open their minds, ask questions, question assumptions, propose projects, and move forward from there." 9263–9563

S7 "Undertaking the BT can help you question things. However, I am not sure how to apply the specific suggestions from the BT in real-world practice... maybe I could try doing an RCT, a survey or something else to test these ideas..." 6796–7013

G9 "I see it like personal growth, a challenge. When you're asked to do something, you must deliver. It's about being responsible and making an effort." 80105–80399

3.3. The tutor's role

3.3.1. Functions and perceived value of the tutor

This section outlines the tutor's role based on their self-perception and contrasts it with the experiences of students and graduate nurses. Fig. 2 presents keywords extracted from participant quotations, illustrating differences in how each group perceives the characteristics of an effective tutor. Tutors emphasize their role as guides, focusing on emotional management and fostering self-responsibility. Graduate nurses highlight the importance of tutors in providing motivation and reducing emotional barriers during the BT process. Students stressed the value of tutoring experience, practical communicative skills, and approachability, although their insights were less detailed compared to those of tutors.

T3 "The tutor should listen to the students and guide them, right? The tutor's task is to accompany them and share their anxiety and uncertainty about the next steps." 19633–19853

G3 "It depends a lot on the tutor's experience and disposition because, in the end, they become your partner." 19633 – 19853

S3 "It's important to have someone guide you, right? … It's the last big step to finishing the degree…"13162–13307

3.4. Proposals for improvement

3.4.1. Gradual and continuous integration of the BT into the curriculum

Although the BT is currently treated as a standalone final project, participants advocate for its gradual integration throughout the training program. Tutors emphasize the importance of incorporating systematic feedback, planning, and competency assessment at every stage of the BT process. Similarly, students and nurses suggest embedding BT-related tasks progressively into the curriculum during the program's final years.

T7 "We need to rethink this and say, 'This is the result we want to achieve, so how do we prepare the students for it.'" 35892–36301

G11 "For such an extensive project with so many credits, it should have been more gradual." 43200–43524

S8 "For example, learning how to do the theoretical framework in your first year. Then in the second year, methodology and objectives… each year focusing on a specific part of what'll end up being the final project, so by the time you get to your last year, you can actually apply it.." 37009–37517

Graduate nurses propose starting research methodology training earlier in the program or training seminars in the final year to provide a solid foundation for the BT.

G16 "Before starting the Final Project, we need refresher seminars, and I think that was very useful." 17953–18327

G12 "I'd set up some basic training for qualitative and quantitative studies, which would help a lot when it comes to tackling the BT." 12963–13181

3.5. Tutor selection and training

Nurses and students stress the importance of selecting tutors with strong tutorial skills, particularly motivational ones. They recommend implementing specific and continuous training to enhance the effectiveness of tutors, especially those new to the role.

S5 "You need a tutor with a teaching spirit, who is eager to supervise you, who works alongside you, and who isn't too strict or too lenient."82925–83130

T2 "The professor plays a key role in supporting young. To provide good guidance, there's got to be rigor and a sound method." 26577–26594
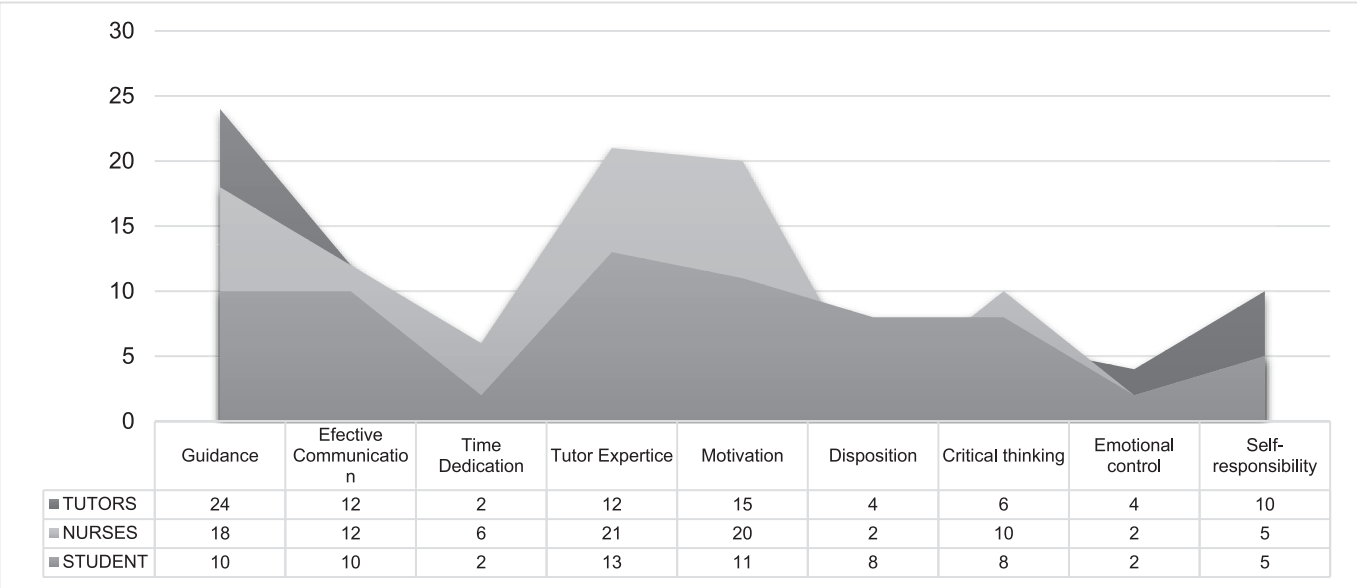

	Guidance	Efective Communication	Time Dedication	Tutor Expertice	Motivation	Disposition	Critical thinking	Emotional control	Self-responsibility
TUTORS	24	12	2	12	15	4	6	4	10
NURSES	18	12	6	21	20	2	10	2	5
STUDENT	10	10	2	13	11	8	8	2	5

Fig. 2. The tutor's role.

3.5.1. Proposals for innovative teaching practices

All participants provide insights into the format of the BTs. Students and nurses support a paired or interdisciplinary BT mode. They also express interest in a B T linked to clinical practice, as it would enhance the integration and complementarity of their education.

S5 "Imagine two people have the same approach to a topic. Why do two similar projects? They could collaborate on a single, more comprehensive project, with twice the literature, expanded research, and greater depth." 20265–20720

S7 "We could even collaborate with students from other fields like physiotherapy or nutrition. These combinations could provide far more comprehensive results." 21720–21923

4. Discussion

This study presents a multifaceted perspective, incorporating insights from students, tutors, and nurses regarding the teaching and learning experience involved in the BT in nursing education. This approach allows for a more comprehensive reflection on the pedagogical and practical organization of the BT in nursing education, identifying opportunities for enhancement. Consistent with previous research (Karlsholm et al., 2024; Grønning et al., 2022; Gros-Navés et al., 2022; Lin et al., 2024; Toraman et al., 2017), the BT emerges as a cornerstone in student learning.

As the capstone project of the nursing degree, the BT represents the most significant and extensive endeavor students undertake in the degree program. It allows them to assume full ownership of their projects during their final year. Promoting awareness and responsibility for self-directed learning is critical for lifelong learning success. Thus, the Pt provides an essential platform to foster intentional learning practices that nurture autonomy, responsibility, self-regulation, and motivation (Mollman and Bondmass, 2020).

Aligned with Henttonen et al. (2021), the BT often presents significant challenges for many students, evoking ambivalence regarding its development and associated supervisory activities. Findings from this study reveal that while students generally perceive the BT as an opportunity, their experiences vary widely. Perceptions are influenced not only by extrinsic factors, such as training sessions and institutional support, but also by intrinsic factors, such as cognitive traits, emotional states, and motivation (Karlsholm et al., 2024). Furthermore, students' perceptions of facilitators and barriers to learning highlight aspects of the educational environments that educators may overlook (Watts and Hodges, 2021). Addressing these factors is essential to improving the BT process and ensuring its educational value.

Research (Toufan et al., 2023) suggests that emotions play a crucial role in cognition by enhancing self-regulation and clinical reasoning. Self-regulation is essential for improving academic performance (Urrizola et al., 2023; Ballouk et al., 2022) and reducing stress (Ragusa et al., 2023), thus ensuring the successful development of the BT (Jaensson et al., 2024). Consequently, fostering strategies for self-regulation, emotional management, and overcoming challenges, such as completing the BT, is essential (Medaille et al., 2022). Among the most important regulated learning strategies nursing students used during the BT were help-seeking, goal-setting, time management, and effective study techniques (Karlsholm et al., 2024).

Students in this study highlighted the importance of discussing their understanding of their chosen topic and the various stages of the BT process with their tutors. Thus, tutoring and counselling are recognized as highly effective interventions for promoting adaptive coping mechanisms in the face of academic challenges (Tomas and Poroto, 2023). However, while tutors provide essential guidance, students must act autonomously (Munangatire and McInerney, 2022; Tuppal et al., 2017). Therefore, the teaching-learning process requires shared responsibility between instructors and students (Perry et al., 2018).

Facilitating factors for university learning include maturity, individual cognitive skills, student collaboration, and the use of diverse educational tools (Bjerkvik and Hilli, 2019). Similarly, active group learning strategies, such as collaborative approaches, improve nursing students' engagement during BT group supervision (Jaensson et al., 2024; Scholefield and Cox, 2016). Feedback is another essential component throughout the BT process, providing students with valuable insights they greatly appreciate. It serves as a foundation for reflection, preparation, and identification of areas for improvement. While students may initially feel apprehensive, feedback is indispensable for improving academic performance (Wong and Shorey, 2022). However, its impact depends on students' receptivity, which is shaped by their motivations, expectations, and openness to constructive input (van de Ridder et al., 2015; Yoong et al., 2023).

This study highlights the need to address issues such as inadequate preparation and student demotivation to optimize the BT process. Educational experiences (Morrell-Scott, 2023) suggest that students are motivated by subjects they perceive as important or relevant. In this context, emphasizing the integrative learning that the BT provides (León et al., 2014), its applicability to future professional practice (Sitzman et al., 2020), and its role in developing proficiency in evidence-based practice (Karlsholm et al., 2024) is essential. Nevertheless, reports indicate satisfaction with the knowledge and skills acquired through the BT (Fernández-Cano et al., 2021).

The completion of the BT necessitates the application of various competencies, particularly emphasizing generic and transversal skills. Studies (Llaurado-Serra et al., 2018; Roca et al., 2018; Henttonen et al., 2021; Abad et al., 2021) have identified critical competencies associated with the BT phase, such as written communication and the ability to work independently, which are considered highly effective and appropriate. Additionally, the BT provides an opportunity to cultivate evidence-based practice skills, shaping nursing students' attitudes and awareness of research. Various studies (Gros-Navés et al., 2022; Sánchez-Gómez et al., 2023) underscore the importance of autonomous work and information management as the most developed skills while highlighting the need to strengthen methodological research skills.

The importance of nurturing critical thinking skills is widely acknowledged and has been integrated into nursing degree programs as a formative strategy. To effectively foster these skills, it is essential to establish educational conditions and strategies that emphasize their importance (Nelson, 2017). While students are adept at accessing vast amounts of information online (Mohr and Mohr, 2017), they need guidance from educators to categorize, evaluate, and synthesize the information activities closely associated with critical thinking skills (Westerdahl et al., 2022).

Students, tutors and graduate nurses concur that the primary role of the tutor is to guide, support, and dedicate time to mentoring, with communication being fundamental. The tutor's experience and motivation are also emphasized. However, the supervision process must align with the expectations of both tutors and students. In agreement with the findings of Henricson et al. (2018), this study underscores the importance of the supervision process. Effective supervision encompasses the tutor's role as a coach, the student's progression toward self-sufficiency, the quality of tutor-student interactions, and the tutor's overall aptitude. A tutor's ability to understand each student individually, assess their specific needs, and support their learning process while fostering their self-efficacy is indispensable (Karlsholm et al., 2024). Among the modifiable factors associated with positive attitudes toward research, the tutor's role is particularly influential (Marendić et al., 2023).

Finally, regarding BT modalities, participation in interdisciplinary and active clinical research projects not only motivates students but also equips them with indispensable knowledge to deliver evidence-based care (Grønning et al., 2022).

4.1. Limitations

The main limitation of this study lies in the scarcity of literature on the BT, which complicates result comparison. Another constraint is the challenge of generalizing these findings to significantly different populations despite the transversal nature of learning barriers. Nevertheless, the outcomes of this study could be pertinent to similar contexts to those investigated, as the analyzed elements are common across BTs.

5. Conclusion

The experiences of students, tutors, and graduate nurses reflect the influence of individual and university-environment factors on competency development throughout the BP teaching-learning process, with tutor-student interaction being particularly pivotal. These factors impact motivation and shape perceptions of the BT as beneficial for professional practice. Universities should implement strategies that promote self-regulation and responsibility in learning, fostering a mindset aligned with lifelong learning. Integrating BT modalities that encourage student collaboration, interdisciplinarity, and connections to clinical practice is highly recommended. Moreover, providing tutors with robust training in both methodological and relational competencies is imperative to optimizing their pedagogical effectiveness.

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Declaration of competing interest

The authors declare that they have no competing interests.

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Data availability

Data can be shared upon responsible request to the corresponding author.

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