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Teachers' Negotiations of Trust When Integrating Generative AI into a Teaching Practice

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Abstract: This study investigates teachers' reasoning around implementing generative AI (GenAI) in education. It aims to increase understanding of the importance of collective negotiation of trust that arises when teachers collectively explore generative AI as a pedagogical tool for teaching and learning. Data collected through a longitudinal focus group study comprising four workshops and two SWOT analyses conducted over nine months were analyzed using inductive thematic analysis. Trust was used as a theoretical lens to interpret the results. The results indicate that teachers negotiate trust in generative AI at three levels. At the instrumental level, negotiations concern the usability of the tool in terms of quality and efficiency, the reliability of different tools, and regulatory limitations on their use. At the pedagogical level, negotiations emerge overtrust in human–AI communication and interaction, focusing on linguistic precision and the importance of human presence in learning, alongside discussions about future teacher proficiency. At the systemic level, negotiations about trust occur in relation to beliefs about a future educational context and the teacher's role within it, where reasoning about the socializing function of education becomes evident. The study emphasizes the importance of continuous professional dialogue and critical reflection to build collective trust in generative AI as an educational tool and ensure a responsible integration into the teaching practice. The research highlights the need for balanced, well-founded approaches to this integration, involving negotiations of trust across multiple levels and perspectives.

Keywords: generative AI (GenAI), trust, collective negotiations, teaching practice, K-12 education

1. Introduction

Artificial intelligence (AI) technologies are evolving rapidly, permeating various aspects of society, including education. As generative AI (GenAI) tools become increasingly sophisticated and accessible, their integration into teaching practices accelerates. This development requires teachers to adjust their pedagogical approaches and professional responsibilities [1]. The integration of GenAI represents an emerging form of pedagogical change, with most existing studies conducted in higher education [2]. This indicates that its application in K–12 education remains comparatively underexplored. However, research shows that AI-based learning tools are more common in upper secondary education than at lower stages [3, 4].

GenAI has the potential to enhance student-centered education at multiple levels, from basic understanding to advanced cognitive skills, while strengthening motivation and participation [1, 2]. It can also relieve teachers of routine tasks and support the creation of more personalized and engaging learning environments [1, 5]. Nevertheless, its use presents challenges, including overreliance, reduced critical thinking, and lower motivation for complex tasks. There is also a need to adapt assessment practices to discourage cheating and ensure authentic learning [1, 5]. Furthermore, GenAI can generate misleading information and false citations, posing risks to academic integrity and originality.

Teachers anticipate that GenAI will reinforce core values and critical thinking while requiring new roles as collaborators with AI tools and mentors for students [6]. The teacher–student relationship is reshaped into a triadic interaction between teacher, student, and AI, necessitating redefined competencies and teachers' roles [7]. At the same time, many teachers report limited knowledge of the technology, its pedagogical relevance and guidelines for us [4]. Although GenAI offers efficiency gains, its implementation raises issues of trust, discrimination, and democratic integrity. Realizing its benefits requires the development of AI competencies through professional learning, innovation, and pilot initiatives, ensuring ethical, transparent, and sustainable use [8]. This constitutes a long-term, interdisciplinary and transformative endeavor involving policy, governance, and institutional strategies that promote equity, inclusion, and sustainability in GenAI-supported education. As OECD [9] notes, "ethical guidelines on the use of AI and data in teaching and learning are an incremental process of continuous deliberation and learning." Hence, it becomes crucial for teachers to engage in ongoing professional dialogue to collectively negotiate a shared sense of trust in its pedagogical value and responsible integration into teaching and learning practices.

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1.1. Aim and RQ

The study aims to increase understanding of how Swedish upper secondary teachers are reasoning about the use of GenAI in their teaching practices and to further explore collective negotiations about trust in GenAI as an educational tool for teaching and learning. Therefore, the following research question is posed: What forms of collective trust in generative AI emerge from teachers' reasoning related to their teaching practices and professional roles?

2. Literature Review

The integration of AI into education has attracted scholarly interest, particularly in its application to intelligent tutoring, automated assessment, and adaptive learning environments [10], which may enhance teaching efficiency and provide data-driven insights into student progress [11]. While earlier AI operated in the background, advances in GenAI enable direct and dialogic interactions and can be embedded across the teaching and learning phases [12, 13], shifting AI's role from a support tool to a collaborative agent.

The European Commission [14] emphasizes the importance of understanding basic AI concepts, the societal impact of AI, and developing skills in data use, analysis and tool application. Curiosity, critical thinking and ethical awareness are essential for responsible AI engagement. Teachers are considered AI-ready when they progress from limited awareness to a functional, nontechnical understanding that supports informed pedagogical choices [15]. However, teachers often acquire AI knowledge through informal exposure, which can foster misconceptions that, combined with fears about the future of AI, can hinder its use and teachers' ability to address ethical issues [16].

2.1. Impact on teachers' workload and the quality of teaching

Research shows that integrating GenAI into education has a dual impact on teachers' work, marking a pedagogical and ethical shift that requires them to adapt their practices while navigating tensions among quality, efficiency, and creativity [17]. Using GenAI can streamline planning, automate routine tasks, and support the creation of educational materials such as lesson plans, summaries, assignments, and assessments [4, 5]. By assisting in task design, adaptation, and feedback, GenAI may enhance both efficiency and instructional quality [18, 19]. It also enables personalized learning [20, 21] and can foster creativity and language development by supporting vocabulary, grammar, and communicative competence [22, 23]. Furthermore, GenAI can be utilized to support the writing process [5]. From this perspective, GenAI allows teachers to reallocate time to higher-order pedagogical work and the relational aspects of teaching. However, these potential efficiency gains coexist with inherent challenges. Teachers report spending substantial time crafting prompts, reviewing AI-generated content, and adapting it to their classroom contexts [5, 24]. Thus, GenAI may shift rather than reduce workload, creating new cognitive and ethical demands. Efficiency can also come at the expense of relational and creative dimensions of teaching [25]. This reflects a broader tension between automation and professional agency: while GenAI promises efficiency, it also requires teachers to exercise reflective judgment to maintain quality.

Although GenAI can efficiently generate practice-and-drill learning activities, it still requires teachers' time and pedagogical oversight to ensure meaningful engagement and conceptual depth [26]. Teachers are likewise expected not only to use GenAI but to help students understand, evaluate, and ethically engage with AI systems [14]. Nevertheless, studies show that teachers often have a limited understanding of AI and its educational potential [27], underscoring the need for ongoing professional development, which requires both time and effort. Furthermore, research shows that the quality of teachers' AI-generated teaching materials depends on their digital competence, the prompting strategies they use, and their ability to integrate GenAI into coherent pedagogical aims [5].

2.2. Redefining teachers' pedagogy and assessment practice

GenAI is reshaping pedagogy, learning, and assessment. It enables more student-centered, adaptive, and practice-oriented instruction [5, 21] and supports individualized learning, self-regulation, and higher-order thinking through student–AI collaboration [18, 28–30]. When guided by critical thinking, GenAI can act as a pedagogical assistant that enhances personalized learning, creativity, and motivation [5, 31]. In language education, Creely [26] shows that GenAI can enrich authentic communication when used to complement rather than replace human interaction. Its capacity for process-oriented, real-time assessment [5, 24] further broadens opportunities for authentic and personalized evaluation.

Nevertheless, this transformation generates tension. GenAI requires rethinking what counts as knowledge and how it is measured [24], as it often privileges procedural, quantifiable outcomes while overlooking complex, creative dimensions such as metacognition and ethical reasoning. Selwyn [25] warns that a growing reliance on GenAI risks marginalizing the relational and cultural aspects of pedagogy, reducing learning to measurable transactions. Similarly, Creely [26] cautions that overuse can erode authenticity and weaken human engagement [24, 27]. These contradictions are evident in assessment: while GenAI offers immediacy and efficiency, its feedback often lacks nuance and may misrepresent student understanding [19, 24]. Students themselves report greater confidence in human feedback for its critical and empathetic qualities [18].

Uncritical student use of GenAI can also reduce engagement and hinder critical thinking and problem-solving [24]. Hellström [32] highlights socio-cognitive risks and a potential devaluation of human writing skills, while Mei et al. [23] note that writing may become more mechanical and less meaningful. Bastani et al. [33] stress the need for pedagogical guardrails to protect long-term skill development, and Fan et al. [34] warn of "metacognitive laziness" despite short-term performance gains.

Consequently, integrating GenAI into teaching and assessment challenges traditional pedagogical paradigms and long-standing assumptions about learning as a human, interpretive, and relational process. Although AI-generated feedback accelerates assessment, it can reduce its pedagogical value [19, 24]. As Nikolopoulou [31] and Creely [26] emphasize, the educational value of technology depends on teachers' ability to design, monitor, and critically frame its use. Hence, GenAI introduces a persistent paradox: it offers the potential for efficiency and innovation while simultaneously requiring sustained teacher engagement to preserve interaction and professional integrity. Teachers, as Bergmark et al. [35] note, respond diversely; some embrace its transformative potential, while others question its implications for knowledge and identity, revealing enduring tensions between innovation, control, and the humanistic purposes of education.

Educational technologies like GenAI cannot be meaningfully implemented without a clear pedagogical purpose [36]. Humble

and Mozelius [37] further stress that while GenAI can support educational tasks, it cannot replace the essential relational and pedagogical functions of teachers, whose role remains central to meaningful, contextualized, and creative learning.

2.3. Evolving ethical and equity considerations in education

GenAI introduces complex ethical and equity-related challenges that reshape the roles of teachers and schools. It is seen as having the potential to enhance equity by offering individualized support to students regardless of background and by functioning as a digital assistant that can reduce disparities in learning opportunities [35]. At a systemic level, GenAI is portrayed as a catalyst for adaptive and inclusive pedagogies [5, 20, 31]. Nevertheless, these optimistic visions coexist with significant ethical and social tensions.

Concerns arise regarding fairness, transparency, accountability, and privacy in GenAI-supported education [20, 38]. Teachers express anxiety over cheating, plagiarism, and data protection [4], warning that without clear ethical frameworks, GenAI may undermine students' autonomy. Creely [26] emphasizes issues of authenticity, authorship, and intellectual ownership in AI-supported language learning, calling for critical and ethical engagement. At the same time, GenAI challenges the moral and relational foundations of teaching: it cannot replace the empathy and human connection central to teacher–student relationships [27, 35, 37].

These developments generate persistent tensions between innovation, equity, and professionalism. The focus on individualized learning risks diminishing human agency and widening structural inequities. Teachers are positioned at the crossroads of competing expectations to promote ethical and equitable use of GenAI while navigating shifting professional identities [14, 26, 35]. Selwyn [25] warns that algorithmic systems, grounded in biased and incomplete data, may reinforce rather than reduce inequalities while privileging measurable outcomes over creativity and ethical judgment. While GenAI may alleviate administrative tasks, it demands new professional competencies, critical judgment, and ethical awareness [21, 27].

Ethical integration of GenAI requires not only technological proficiency but also a reaffirmation of education's moral and social purposes, with teachers playing a central role in safeguarding humanity, authenticity, and fairness in increasingly automated learning environments. Variations in GenAI implementation raise further concerns about equity [39], and within Sweden's decentralized school system, GenAI use may exacerbate segregation and unequal conditions if efficiency is prioritized over social justice [40]. Finally, Bergmark et al. [35] identify five teacher roles in response to GenAI integration: control and academic integrity, curiosity, equity concerns, reflection, and questioning of professional identity. This illustrates how GenAI reshapes the teacher's role.

2.4. Trust in AI

In an interdisciplinary review of empirical research on human trust in AI, Glikson and Woolley [41] argue that trust in AI is crucial for its effectiveness in organizational contexts. This trust is influenced by factors such as AI's physical or virtual representation, perceived machine intelligence, transparency, reliability, and social behaviors (immediacy).

Benefits related to higher trust in AI include AI systems' ability to reduce human errors, increase decision accuracy and efficiency, process large amounts of information effectively, and potentially lead to fairer outcomes by eliminating human biases and automating everyday tasks [42, 43]. Regarding the impact on individuals, the results show that AI usage can improve productivity and quality of knowledge workers, as well as increase their creativity [43]. Furthermore, trust is influenced by whether the individual feels ownership of the tool, whether it is easy to use, and whether there is support for its use [44].

At the same time, the rapid advancement of AI has made it increasingly difficult to distinguish between human and artificial interactions, with demonstrable effects on human-to-human communication [45]. Ivarsson and Lindwall [45] argue that conversations with artificial agents can have serious consequences for trust. When it becomes unclear whether one is speaking to a human or a machine, suspicion arises, disrupting mutual understanding and undermining the cooperative foundation of conversation. Such suspicions may also spill over into interpersonal relations, leading to the misclassification of humans as untrustworthy or nonhuman. Therefore, Ivarsson and Lindwall [45] emphasize the importance of AI systems identifying themselves as artificial; otherwise, we risk creating a society in which trust is no longer taken for granted. Furthermore, trust may diminish toward actors who disclose their use of AI, resulting in a loss of legitimacy. This is explained by the deviation from the established norm that tasks should be handled independently, a phenomenon the authors describe as trust erosion [43]. There is an expectation that human expertise, judgment, and reasoning underpin decisions and outcomes.

Additionally, Klingbeil et al. [42] highlight the problem of overreliance (overtrust), whereby users tend to place excessive trust in AI-generated advice, even when it contradicts available contextual information or their judgment. Such overreliance can lead to suboptimal decisions and negative consequences for both users and third parties. Merely knowing that advice originates from an AI increases the likelihood of accepting it, thereby undermining critical scrutiny and shifting responsibility from human to machine [42]. Glikson and Woolley [41] emphasize the importance of calibrated trust, in which the user's trust aligns with the AI's actual capabilities, to avoid both over- and undertrust. They demonstrate that transparency and understanding are necessary for users to reflect on the role of AI. Furthermore, they argue that calibration of trust is an expression of practical and critical reflection and that a lack of such reflection risks undermining both trust and safe usage.

3. Trust as a Theoretical Lens

This study examines teachers' reasoning about the use of GenAI in their teaching practices and professional roles. The concept of trust serves as a theoretical lens for exploring these aspects, particularly the adoption and integration of AI-based educational technology (AI-EdTech) by teachers and specifically the collective negotiations about trust in GenAI as an educational tool.

Trust in this study is understood as the willingness to accept vulnerability to another entity [46], such as new technology. Trust in AI-based educational technology is multifaceted, encompassing perceived benefits, transparency, reliability, and ethical considerations. According to Nazaretsky et al. [47], trust in AI is essential for its adoption in educational settings. When teachers adopt new technologies, such as generative AI tools, they expose themselves to potential risks. AI technology may not function as anticipated or may create issues that require resolution, impacting its performance and relationships with students [48]. This willingness to embrace vulnerability is an act of trust in AI-EdTech [48].

Furthermore, trust is influenced by teachers' self-efficacy, understanding of AI, cultural values, geographic location, and perceptions of AI-EdTech's benefits and concerns. Research indicates that higher self-efficacy and understanding are associated with greater trust [47, 48]. It is a psychological mechanism that reduces uncertainty and increases the likelihood of successful interactions, making it a prerequisite for engagement [49]. Ultimately, trust is an attitude and a predictor of reliance on technology, making it crucial for effective human–technology interactions. Hence, trust is essential for integrating and collaborating with GenAI in education. Trust depends on two key constructs that shape beliefs about the technology's performance and ability to support the user: benefits (the technology's functionality and usability) and concerns (its reliability). If the benefits (functionality and usability) exceed the concerns (reliability), this will increase trust [48].

Trust is also considered a necessary condition for any cooperative behavior [47]. In this study, collective negotiations regarding trust in GenAI are of particular interest, as they involve stakeholders such as teachers, administrators, policymakers, and students. Lukyanenko et al. [49] emphasize the importance of transparency and explainability in building trust in AI systems. They argue that trust is a dynamic process shaped not only by the stability and predictability of individual systems, such as predictive models, recommendation engines, and learning platforms, but also by their interactions. Trust in AI thus emerges through ongoing interactions between humans and interconnected technologies, where transparency, consistency, and coordination across both human–AI and system–system relationships are essential.

4. Methodology

The study's design is characterized by the research project being carried out as a qualitative longitudinal focus group study [50] with Swedish teachers at the upper secondary level. The teachers asked the questions, but the authors designed and facilitated the content, accordingly, resulting in four workshops conducted over nine months.

4.1. Data collection and participants

Teachers at the upper secondary level from four different school units were informed about the project and 25 volunteered and provided written consent. Data on teachers' reasoning about using GenAI in their teaching practice were collected primarily through audio recordings from 90-minute workshops. Still, initial and final SWOT analyses were also conducted. The teachers participated in different group compositions across the four sessions. The workshops revealed that the participating teachers represented a range of teaching subjects, including mathematics, science, language, social studies, psychology, vocational courses, and special education. Furthermore, it emerged that the teachers generally considered themselves to have solid subject knowledge and extensive teaching experience, even though this information was not explicitly requested.

The data material was anonymized and processed in accordance with the Swedish Research Council's [51] guidelines. It is stored in accordance with the university's archival practices, in compliance with the Swedish Data Protection Authority and the General Data Protection Regulation (GDPR) (Law 2018:218).

4.2. Workshops

In April 2024, 24 teachers participated in the first workshop (WS1), which began with an introduction to the project.

Participants then completed an individual SWOT analysis (S1) to identify strengths, weaknesses, opportunities, and threats related to AI in their teaching and formulated personal research questions. In small groups, they discussed their analyses and agreed on a joint research question.

In June 2024, 21 teachers participated in the second workshop (WS2), focusing on AI in lesson preparation and planning. Participants were offered voluntary pre-reading materials, including both scientific and popular science content. In small groups, they engaged in a "station rotation" activity, problematizing their use of GenAI through three thematic lenses: A) engagement, motivation, and creativity; B) efficiency, quality, and laziness; and C) fairness, good judgment, and responsibility.

The third workshop (WS3), held in October 2024, involved six teachers and focused on integrating AI into learning activities. As in previous sessions, participants received preparatory readings and, in small groups, discussed the mandate they assigned to GenAI and aspects of its use that they found surprising or provocative. In the final activity, they identified learning activities where GenAI had either facilitated or hindered student learning.

The final workshop in January 2025, which involved six teachers, focused on GenAI tools, assessment, and the teacher's professional role. It began with an ICT educator presenting four previously unmentioned GenAI tools, followed by discussions on their strengths, weaknesses, and impact on teaching and learning. In the second activity, participants discussed four provocative statements about GenAI in assessment. The third activity involved evaluating which current teaching practices should be preserved and which GenAI-related practices require caution or avoidance, alongside reflections on professional responsibilities for sustainability. The workshop concluded with a final SWOT (S2) analysis, mirroring the project's first session.

Focus groups offer valuable insights through participant interaction, but they also present limitations, such as peer influence and groupthink, which may suppress divergent views [50]. The significant variation in participant numbers across the workshops was undesirable, but it was mainly due to external factors. Despite fewer participating teachers, variation in teaching subjects and school unit affiliation was maintained both within and between the workshops.

4.3. Analysis

After compiling the SWOT analyses and transcribing workshop conversations, an inductive thematic analysis of teachers' reasoning about using GenAI was conducted, inspired by the approach outlined by Clarke and Braun [52]. The teachers' reasoning was analyzed at the group level to examine how collective trust in GenAI develops within professional teaching communities, and findings are presented accordingly. To ensure validity, we engaged in reflexive analysis to critically examine our interpretations. Transparency in coding and theme development further supports the credibility of our findings.

The analysis process began with the authors jointly crystallizing two overarching themes on teachers' reasoning based on participation in workshops, namely, teachers' use of GenAI tools and the impact of GenAI on education. Both authors then independently reviewed all collected data and identified several themes. These turned out to be very similar between both researchers, indicating a substantial degree of agreement in the coding process. Through continuous comparison and review of the researchers' thematization of teachers' reasoning, in which similarities, differences, and contrasts between each researcher's coding were explored, the final themes were further refined and defined, with subthemes that identified opportunities and concerns. This resulted

in eight different themes on trust negotiations, which were later grouped into three levels of abstraction.

5. Findings

The collective negotiations are structured in three levels: instrumental, pedagogical, and systematic, as outlined in the sections that follow.

5.1. Instrumental level

At the instrumental level, negotiations of trust concern teachers' everyday engagement with the tool GenAI, particularly in relation to planning and evaluating teaching practices.

5.1.1. Trust in quality

The teachers continuously negotiate trust in the use of GenAI regarding its impact on the quality of teaching and learning. They discuss how GenAI can support the creation and assessment of assignments, as well as the development of teaching materials, *"The quality will be different because I can do things I have not done before"* (WS1). On the one hand, GenAI has the potential to increase efficiency and precision, allowing it to personalize and tailor content and tasks to different learning levels and needs, such as addressing misunderstandings, presenting complex concepts more easily, or providing language adaptations. This adaptability enhances the overall quality of teaching and learning, offering more inclusive and personalized support for all students. However, concerns are raised about the quality of AI-generated teaching materials, such as textbooks, since no external review is conducted: *"It could lead to lower quality if it is not reviewed"* (WS2). Reasonings arise about whether the content produced by GenAI meets the expected pedagogical standards and truly supports learning outcomes.

Using GenAI helps catch abstract elements and nuances in teaching. The teachers express concerns about relying too strongly on GenAI, and some question whether using it might be perceived as laziness or a shortcut rather than a professional tool. They note, *"Complacency may arise, resulting in lower quality"* (WS2). There are reflections on what the tool genuinely contributes, does it merely help articulate thoughts more clearly, or does it inherently improve the quality of teaching?

When it comes to assessment, some of the teachers believe that GenAI can provide more objective evaluations, which they view as a positive shift toward fairer and more accurate grading. However, there are also concerns that students might not perceive AI-generated feedback as equally valuable: *"Do they think it is okay that I do not read?"* (WS4). The relational aspect of assessment, the human connection, and trust between teacher and student may still be crucial for the feedback to be considered meaningful and of high quality.

Ultimately, integrating GenAI into education offers opportunities to enhance quality. Still, it also requires careful consideration of how we define and uphold that quality, both in content and in the human interactions that shape learning.

5.1.2. Trust in efficiency

GenAI supports both teachers and students in extracting the most central content from large amounts of text. When using GenAI, the teachers negotiate trust while discussing efficiency, revealing significant advantages and notable concerns. From a planning perspective, the teachers recognize that GenAI has the potential to streamline their workload by generating lesson plans, ideas, or materials quickly. In assessment, the tool could help manage a larger volume of work or deliver feedback more promptly: *"AI can provide students with immediate, objective feedback"* (WS4). These aspects are viewed as ways to enhance overall efficiency in daily teaching tasks *"Because when you start using it for something, I felt like: What is it that takes up the most of my time? What is the most boring thing?"* (WS2).

However, trust in the tool's efficiency does not come automatically. The teachers are reasoning about what truly makes something "efficient." For instance, is an assessment efficient because it is done faster, or must it also meet pedagogical and relational standards? Another concern lifted is that *"if you become too efficient, the quality will deteriorate, and you will just pick without reflecting"* (WS3), which captures a common concern: that speed might compromise thoughtful, reflective teaching and ultimately lead to a decline in educational quality. Further, *"You can also lose efficiency if you let it do too much correction for too many things because then I lose my sure instinct"* (WS2). This concern highlights the delicate balance between automation and professional judgment. When too much is handed over to GenAI, teachers may lose the nuanced insights gained from close interaction with students' work.

Thus, the belief that GenAI can improve efficiency is closely tied to how well it performs the intended tasks and how quickly users become confident in its capabilities. A recurring concern is the learning curve associated with using the tool. To fully benefit from GenAI, teachers need time to explore, evaluate, and adapt it to their specific needs. This learning process can be time-consuming, and paradoxically, it may initially feel inefficient. They are also reasoning about the uncertainty inherent in selecting an appropriate tool, first determining which to adopt and then integrating it meaningfully into their workflow, a process that may consume valuable time. If not made carefully, these decisions may undermine the efficiency the tool is meant to support. Additionally, a teacher noted, *"There are so many new tools that you do not have time to look at them all"* (WS3). This raises concerns about how the overwhelming pace of innovation can exacerbate existing knowledge gaps, particularly among those who lack the time or resources to stay current.

In summary, efficiency through GenAI is not just about speed but it is about meaningful time savings that support high-quality teaching. For teachers to trust in that efficiency, they need assurance that the tool aligns with their goals and enhances, rather than complicates, their professional practice.

5.1.3. Trust in GenAI-tools

Trust in GenAI is closely linked to how the tool is perceived and understood. The teachers' negotiations of trust are closely tied to both input and output reliability and to a deeper understanding of how the tool functions, what it demands from the user, and what consequences its use may entail.

> *"All the material that I create as a teacher. . . how do I store it? And how much can I rely on an assessment made on material I have created myself? . . . When I start from material which I have created myself, how do I know it is not biased?"* (WS3)

When teachers lack insight into the "black box," i.e., how GenAI functions, its limitations, and how its outputs are produced, it becomes difficult to rely on the results. Due to this lack of epistemic transparency, it is challenging to assess the reliability and educational relevance of the generated content.

Awareness of ethical, legal, and economic aspects appears to influence the negotiation of trust. Reasoning arises around what it means for an individual to use such a tool, particularly regarding age restrictions, data privacy, and licensing costs. Access to different versions or types of GenAI tools, each with its diverse characteristics and features, varies and can create inequalities. A recurring concern is that these differences might lead to unfairness, especially

if some students or teachers have access to more advanced or premium tools while others do not. Here, solutions such as *"develop or use local AI solutions that comply with GDPR"* (S1) are proposed, which could enhance trust.

Ownership and copyright are other key concerns for the teachers who want to maintain control over their work and data. One example is retaining one's data across job changes: *"When I change jobs, I want to take my data with me"* (WS2). This desire reflects a growing awareness of data as personal capital, something that should remain with the individual rather than being held by an institution. At the same time, concerns around data misuse and privacy breaches are ever present. It is not always clear how data is stored, who has access to it, or how securely it is protected, which becomes a factor when the teachers negotiate trust in GenAI.

Furthermore, understanding GenAI, whether as a tool or a new literacy, shapes trust negotiation. The focus remains on practical use if it is seen merely as a functional tool for generating text, images, or other content. However, when it is recognized as a form of literacy, it seems to take on a broader role as a skill set and a new kind of knowledge essential for navigating and making sense of the digital world. The challenge of integrating GenAI into existing educational systems is therefore not only technical but also cultural. One teacher reflects on the blurred boundaries of creation and sharing related to using the tool: *"You must share [the teaching materials], you stole it all"* (WS3).

Motivation is another aspect that emerges during reasoning regarding the tool. Some teachers witness that students (and even teachers) find GenAI tools inspiring and engaging, which can boost participation and creativity. However, this initial enthusiasm may fade if tools are not used meaningfully. There is a risk that poorly implemented GenAI tools might reduce motivation or engagement over time. Additionally, the language and personality of GenAI systems can influence how users perceive and interact with them. A teacher commented, *"Chat-GPT has boring language, at least in Swedish. But if you go to Claude, for example, it has a different flow in its language"* (WS3), highlighting how design variations can affect trust and preference.

Finally, trust in GenAI as an educational tool is not only about how well it performs but also about how it is integrated into educational contexts and the part it plays in the ecosystem, with attention to equity, understanding, ethics, and long-term skill development.

5.2. Pedagogical level

At the pedagogical level, trust in GenAI is negotiated in relation to teachers' knowledge and skills, as well as their beliefs about how this technology shapes interaction and learning.

5.2.1. Trust in communication

Communication between humans and GenAI involves prompting, conversations, and interactions with a nonhuman actor. The teachers do not seem to have complete confidence that either they or their students can communicate productively with GenAI.

First, the teachers negotiate trust in the ability to effectively prompt GenAI, making it a tool that supports both teaching and learning practices. The teachers expressed concerns that neither they nor the students have sufficient linguistic precision to formulate prompts that effectively elicit desirable responses from GenAI: *"It is not just trust in AI but trust in my ability. . . and this linguistic trust"* (WS3). Moreover, the teachers doubt their competence to express themselves in English, which they believe is necessary for a high-quality response; *"AI is a powerful [tool]. . . if you are good at English"* (WS1). Hence, the teachers believe that prompting can assist students, especially those with special needs, to become more independent: *"The tool [GenAI] will allow students [with special needs] to express themselves in a way that they normally cannot"* (WS2). In addition, teachers believe that with increased prompting ability, the likelihood of GenAI generating irrelevant content is reduced.

The teachers also negotiate trust in engaging with GenAI as a conversational partner or colleague, often viewing it as a scaffold for learning, with opportunities often outweighing concerns. They express generally positive attitudes toward GenAI in this role, emphasizing its accessibility and its potential to enhance the quality of both teaching and learning; *"I always have an expert colleague with me when planning teaching", "collaboration with AI makes me better"* (S2) or *"students who 'get stuck' [. . .] can use AI to help them get forward"* (S1). However, they also hesitate and distance themselves from having GenAI as a colleague; *"I do not want it [GenAI] as a partner"* (WS2). The teachers fear various negative impacts, including the disappearance of their way of expressing themselves: "*When you write. . . the voice disappears and becomes flat. Will we all sound like Chat-GPT when we write?"* (WS3).

Finally, it is also a negotiation of trust in human–GenAI interaction and of how to relate to GenAI and the human characteristics it exhibits. The teachers sometimes view GenAI as a technology and problematize the lack of human interaction; *"You still need a hug, and you cannot get that from AI yet"* (WS2). At other times, the teachers anthropomorphize the technology, saying, "I do not find it [GenAI] to be unempathetic" (WS4). However, they also question why they do so, asking, "*Why am I writing to an AI to be kind?"* (WS2). Hence, human–GenAI collaboration can be fruitful. Still, the unclear boundaries between people and GenAI also raise ethical concerns.

In summary, the teachers' reasoning concerns what distinguishes a prompting conversation with a statistical language model [GenAI] from a relational conversation between two humans in an educational context and what builds trust; *"If I say something, I can expect a certain response from . . . [the conversation partner]. Trust in the conversation and trust in a statistical model, that I [. . .] expect this response"* (WS3).

5.2.2. Trust in teacher proficiency

The teachers express confidence in their teaching practice, believing they have solid content and pedagogical knowledge. However, there is a lack of confidence in a sufficient understanding of AI technology. It appears that knowledge of GenAI varies, meaning their understanding of the technology and the use of various GenAI tools is discussed from different perspectives. *"I have a curiosity and a desire to use AI, but I have a limited understanding of the tool"* (WS1). This illustrates a negotiation of trust in the adequacy of GenAI knowledge for a meaningful teaching practice. The teachers believe that a fundamental prerequisite for success is a solid understanding of the subject, which they think is necessary to review the generated output and prepare, conduct, or evaluate teaching: *"It might be an untrained teacher who chooses to use AI, then it might not know. . . If I were to prepare a Swedish lesson, it would be a disaster"* (WS2) and *"you have to know a lot yourself to be able to evaluate what AI comes up with"* (WS4).

Further, the teachers negotiate trust in the future skills that both teachers and students will need to develop, and they disagree on this point. It is not clear which skills students need to build for the future, and even basic skills, such as reading, writing, and arithmetic, are being questioned by teachers. In addition, trust negotiations also involve 21st-century skills such as problem-solving and creativity. The teachers' reasoning suggests that GenAI stimulates or provides an experience of increased creativity, which can enhance

both teaching and students' schoolwork: *"I think I have had more fun teaching"* (WS2). However, the teachers also express concern that if their development of creativity occurs too quickly, the teaching may be perceived as disorganized for students: *"It [the teaching] can be messy for the students... because you are so incredibly creative and always coming up with new things"* (WS2). Moreover, the teachers question whether it is possible to call it creativity when generating innovative ideas with AI: *"We think we get creative ideas from AI, but we do not know what material generative AI is based on. How varied is the result?"* (WS2). There is also a concern that the increased use of GenAI may reduce their creativity, and hence, the impact of GenAI on creativity is viewed as both promising and problematic:

> *"When I work with Chat-GPT, it is always: Okay, wait here. I cannot think for myself, so I hope he solves it. Now, my brain is so stubborn that it insists on suggesting something, and I hope it is good. So, I either listen to the AI or produce nothing. I can sometimes get mental blocks." (WS2)*

Regarding problem-solving, teachers' reasoning suggests that GenAI can support students' development of this skill. *"[The use of GenAI can] increase the student's understanding of using different strategies"* (S2). They also believe humans must develop a new skill to determine whether the material received is AI-generated, an expanded version of source or content criticism. However, the teachers negotiate trust in their ability to do it. Finally, the teachers negotiate trust in their professional judgment to determine when the use of GenAI in teaching practice serves its purpose, for example, when increased quality, efficiency, or learning outcomes are achieved: *"One way to look at good judgment in this context is to know when to use AI and when not to use it. When does AI add something, and when does AI detract?"* (WS2).

5.2.3. Trust in the (learning) process

The teachers negotiate trust in the GenAI-enhanced learning process, as they conceptualize it as an individual, gradual, rapid, and motivation-driven progression characterized by visible outcomes, increased student agency and a broadened understanding of learning objects through multiple perspectives, *"I think that students who have intrinsic motivation can benefit from that"* (WS3) and *"I think that if you want to learn, want to practice, it is a good pillar"* (WS4).

However, established learning theories are being challenged, leading to a reevaluation of assumptions about how learning occurs. The teachers express concerns that GenAI may disrupt learning, potentially reduce motivation, and encourage superficial engagement with the learning material. *"But how do you get students to use AI to increase their learning? So not just to get help answering tasks, not just this laziness, but learn more"* (WS1). Hence, they seek a deeper understanding of the learning process and the potential impact of reduced human interaction on learning outcomes. This negotiation of trust encompasses both student learning and professional development: *"We must train our brain to be able to stay focused throughout the learning process, but just to prompt and let someone else [AI] do it, then something happens to our ability"* (WS3).

Furthermore, the teachers' reasoning about the iterative learning process that emerges when GenAI is used. How it can shift the focus from product to process in teaching and assessment: *"If you iterate it [the learning object] enough times, you will probably learn it"* (WS1). They believe that students' use of GenAI can make assessing a process more challenging. Still, they also welcome the shift in focus in specific contexts, with report writing in science subjects being mentioned as an example: *"People have different perspectives. . . for natural scientists, the writing process is not as important"* (WS3).

As a result, the teachers are reasoning on the evolving nature of their teaching practices, envisioning a shift toward both an individualized, retrieval-based practice and a relationship-focused, dialogic teaching within physical classroom settings, where the learning process can be made more transparent. According to the teachers, it will be essential in the initial phases to demonstrate how GenAI can be effectively utilized to support learning while distinguishing this from uses that may undermine educational objectives: *"Think about how much time we need with students when they cannot do anything at home, when there is no learning happening at home"* (WS2). However, they also express reluctance to entirely exclude AI from their teaching practices and avoid approaches that prohibit students from using GenAI tools.

5.3. Systemic level

At the systemic level, the teachers negotiate trust in relation to societal change through reflections on professional identity, ethical responsibility, and the broader purpose of education, including the use of GenAI to shape a sustainable and equitable future.

5.3.1. Trust in the teaching profession

Trust is negotiated regarding the direction and scope of the ongoing development within the teaching profession: *"The natural role is to share knowledge and teach. . . And then you do not have that."* (WS1). When teaching practices evolve, the role of the teacher profession also transforms. On the one hand, a more inclusive and independent education is envisioned, in which the teacher assumes a technically informed coaching mentor role, serving as a human link in an individualized learning environment. Besides, they believe teachers will likely spend more time prompting and programming various GPTs. On the other hand, there is recognition of the increased importance of human relationships and socialization, not only for the benefit of students but also for teachers' professional well-being and beliefs about education:

> *"What happens in society when I, as an individual, always get what I need? When someone else always sees exactly what I need and can adapt tasks, treatments, etc., based on my needs. What happens to the democratic process, for example?" (WS3)*

Additionally, there are statements such as *"collaborating with AI makes me better."* (S2). Consequently, the potential of GenAI as a collaborator for professional development is being explored.

The teachers agree that they want to educate critical thinkers with solid subject knowledge, relevant skills, and AI literacy; it remains the teacher's responsibility to ensure these requirements are met. Here, they negotiate trust that their teaching meets the needs of a teaching practice that increasingly uses GenAI as tools, which continue to develop rapidly. Furthermore, they express concern that the knowledge gap between students will increase since *"successful students will develop their learning."* (WS4). In contrast, others are not offered the opportunity to be supported by GenAI, which negatively impacts their ability to perform the compensatory task. Simultaneously, the teachers exhibit concerns about successfully offering rewarding, GenAI-enhanced teaching for all students: *"I think my imagination is limited because I am so stuck in what I am doing now. I am trying to take this tool and force it on me."* (WS1).

5.3.2. Trust in development

The teachers' negotiations of trust in GenAI involve weighing technological promises against uncertainties about the future, governance, and fundamental values. GenAI is perceived as a potentially transformative force. Still, its implementation does not occur in a

vacuum; instead, it unfolds in a society marked by rapid change, asymmetrical power relations, and conflicting ideas about the mission of education. These negotiations around trust in GenAI in teaching also reflect on what its use means for society and schools as future knowledge institutions.

When negotiating trust around GenAI and its potential to shape societal development, the teachers express both fascination and caution. They view technology as an innovative and positive tool for tackling complex problems from new perspectives, such as facilitating the analysis of health data or environmental impacts. For example, GenAI is described as something that can help align individuals' lifestyles more effectively with sustainability goals: *"So it is thrilling that I can constantly live this perfect life, that my biology harmonizes with the environment when I constantly reach that proximal zone of development"* (WS3). At the same time, trust in these opportunities is shadowed by concerns and a sense of urgency to act now. A recurring theme in their reasoning is the perceived lack of control and sustainable governance, suggesting that it is primarily external actors, rather than the educational system or society itself, who set the agenda: *"Tech companies take over and control, not teachers"* (S2). This shift in power raises questions about value conflicts and ethical legitimacy. More concretely, the teachers reflect on their own use of GenAI in relation to environmental sustainability. However, they are uncertain whether energy consumption is utmost during training or the use of language models and how substantial this consumption is compared to other teaching-related energy consumption.

In a school context, the teachers are reasoning about GenAI both as an opportunity for pedagogical renewal and as a challenge to the traditional educational structure. They express concern that the school's inertia and misalignment with technological development create a gap between potential and practice: *"We do not know how good or bad or dangerous it will be, and it is hard to know. The school system is inherently somewhat sluggish."* (WS2). At the same time, there is awareness of the need to act for the present and the future, to create something new that is adapted from the beginning rather than just building old structures. Furthermore, the teachers are reasoning on the impact of GenAI on the mission of education and the question of centralization. Several teachers raise concerns about a shift toward increasing standardized teaching and assessment. This development may streamline and homogenize but also risk undermining the professional autonomy of teachers. *"AI will help centralize subject content. . . centralize assessments. . . There will be centrally developed materials, like national exams. It will be assessed at a central level. . . we will be more like support staff"* (WS3).

6. Discussion

As GenAI becomes increasingly embedded in educational practice, teachers are required to develop a professional judgment that goes beyond technical proficiency. This judgment must be grounded in reflective practice and can be shaped through collective and verbal negotiations of trust. This study contributes by employing trust as a theoretical lens to explore how teachers from different subject disciplines and teaching cultures engage in dialogue. The findings suggest that negotiations of trust co-occur across three interconnected levels: instrumental, pedagogical, and systemic, each fostering a reflective practice that supports thoughtful decision-making and the integration of diverse perspectives (see Figure 1). We argue that the friction or "slowness" that emerges from these negotiations is not a barrier but a productive force that allows for deliberate and well-considered actions.

Figure 1
The collective negotiations of trust in teachers' reasoning as an educational tool for teaching and learning
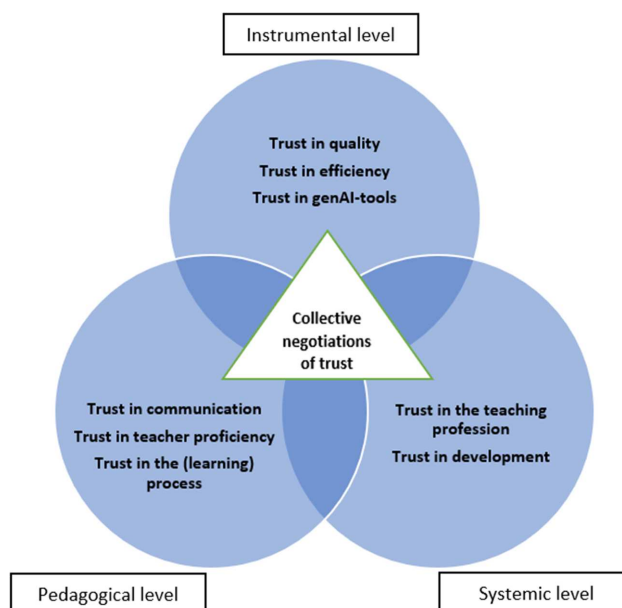
On an **instrumental level**, trust is negotiated in relation to perceived efficiency of GenAI and the quality of its outputs, revealing how these dimensions, along with the conditions the tool generates, are interconnected within the teaching practice. According to the teachers, AI-generated learning resources developed by individual teachers to address the specific needs of a student or group within a particular educational context have the potential to enhance teaching quality. However, there is also a risk of overtrust in the perceived accuracy and effectiveness of these resources [42], as their quality is often subjectively evaluated by the teachers who created them. This underscores the necessity of objective review processes. Such critical scrutiny aligns with the concerns raised by Adeshola and Adepoju [21], who likewise stress the importance of evaluating the quality of AI-generated educational materials. The teachers' concern that teachers' (over) use of GenAI may lead to a form of professional complacency, where the technology becomes a shortcut rather than a means for pedagogical development, resonates with the argument put forward by Fan et al. [34], who suggest that excessive reliance on such tools can induce metacognitive laziness. This tendency is equally undesirable within the teaching profession. Comparable concerns are raised regarding a range of cognitive and disciplinary capacities, including creativity, problem-solving, critical thinking, and academic writing. Several teachers report actively engaging in the exploration, evaluation, and adaptation of GenAI tools to suit their specific pedagogical needs, a process driven by limited knowledge and the rapidly expanding landscape of available GenAI tools. At the same time, they express uncertainty about the appropriateness of the tools they use for specific educational purposes. This reflects a degree of undertrust in GenAI as a pedagogical resource. As Glikson and Woolley [41] argue, trust in GenAI must be carefully calibrated through ongoing practical engagement and critical reflection within a professional community. The teachers report that, after exploring the use of GenAI for assessment and feedback, they perceived several advantages, including immediacy, iterative feedback cycles, timeliness, objectivity, fairness, relevance, and personalization in tone and content. These perceived benefits are consistent with findings from recent studies by

Mai et al. [5] and Nygren et al. [19]. However, teachers also express concerns that such feedback may be perceived as less valuable, an issue also raised by Jayawardena et al. [18]. They suggest that this lack of relational engagement may, over time, erode the quality of teacher–student relationships. This raises a critical question: while AI-generated feedback may offer objectivity and efficiency, does it risk fostering student disengagement or heightened stress [24] by displacing the interpersonal dimensions of formative assessment?

Further, a **pedagogical level** involves negotiations of trust concerning the nature of human–AI interaction and the epistemic transparency of GenAI. In their reflections, teachers express reservations about both their linguistic precision and the reliability of GenAI. Nevertheless, these concerns underscore the strength of their subject expertise and the confidence they have in their professional role, which shapes a cautious yet informed approach to integrating the tool into their practice. Rather than emphasizing AI as a conversational partner [45], the teachers focus on their ability to prompt effectively. The perceived value of GenAI is closely tied to the user's ability to formulate accurate and nuanced prompts, reflecting a shift from viewing the interaction as dialogue to seeing it as a skill-based engagement. However, this shift also raises more profound questions among teachers about what it means to engage in a "conversation" with an artificial agent rather than a physical person. The interaction prompts reflection on the nature of human–AI relations: what kinds of understanding or reciprocity are possible when the counterpart lacks consciousness, intention, or accountability? This epistemic opacity challenges teachers' trust and professional judgment, making it difficult to assess the credibility and pedagogical value of the output and forcing them to reconsider their role in facilitating understanding and critical thinking.

Finally, at a **systemic level**, the teachers demonstrate awareness of the ethical and legal considerations necessary to safeguard students' privacy and well-being, key issues that require a human-centered approach in the education sector [20]. At the same time, they articulate a critical stance toward institutional decisions regarding the selection and ownership of GenAI tools. On the one hand, the use of institutionally produced tools is considered crucial for ensuring equivalence, cost-effectiveness, and compliance with legal frameworks. On the other hand, teachers express a desire for greater autonomy and control over the tools they use, including ownership of their data, a desire not previously mentioned in the literature review. Negotiations of trust involve not only the capacity to act and react within current educational practices but also a broader engagement in shaping the future contours of education. Through the use and exploration of GenAI, teachers position themselves to navigate more thoughtfully in a shifting educational landscape, where questions of quality, efficiency, GenAI tools, and human–AI interaction are gaining prominence.

When addressing themes, such as teacher proficiency, the learning process, the teaching profession, and educational development, negotiations of trust become increasingly complex and less delineated. In these domains, teachers must navigate a highly dynamic and often uncertain terrain, requiring continuous reflection and adaptive professional judgment. This involves not only technical or pedagogical considerations but also a deeper engagement with their professional beliefs and ideals, which are closely tied to their sense of self-efficacy. Trust plays a central role in navigating and calibrating trust, functioning as a psychological mechanism that reduces uncertainty and fosters successful interactions [49]. When discussing the future development of teaching practice in relation to fundamental values such as equity and democracy, teachers express

both optimism and concern about integrating GenAI. Their reflections raise several critical questions. For instance, if the pedagogical benefits of GenAI prove substantial, a crucial question arises: will all students have equitable access to these advantages? This concern reflects broader issues of fairness and social justice, which have also been emphasized in recent research by Bergmark et al. [35], Lindell and Utterberg [39], and Utterberg Modén et al. [40]. Moreover, the increasing individualization of teaching through GenAI may conflict with the broader mission of education to foster democratic citizenship. Selwyn [25] argues that the growing reliance on AI, with its focus on automated and individualized interventions, risks overlooking the social, relational, and democratic dimensions that are fundamental to schooling. Furthermore, he highlights how such technologies can reinforce existing inequalities and centralize power in the hands of corporate or institutional actors, thereby undermining educational equity. Underpinning these concerns are more profound questions about the evolving role of the teaching profession, teacher identity and about who ultimately governs and shapes the direction of educational development in an AI-mediated landscape.

Teachers' decisions and pedagogical choices shape not only immediate instruction but also the design of future educational environments. In a rapidly evolving landscape, this raises questions about how teachers envision long-term teaching, the development of their professional roles, and the preservation of core values and autonomy. While this responsibility cannot rest solely on individuals, collective dialogue and critical reflection are essential for building mutual trust in the use of GenAI. Such collaboration strengthens professional communities and aligns diverse perspectives with education's broader mission. For this to be effective, critical reflection must be clearly directed at the concrete challenges and opportunities identified across the three levels of trust and their intersections, highlighting their interdependence and co-constructive nature. Without collective reflection, the teaching community may struggle to calibrate trust in GenAI as a meaningful and contextually appropriate educational tool. A practice-oriented approach is needed in which teachers actively experiment with, reassess, and jointly evaluate the integration of GenAI into teaching. Over time, these actions foster trust in certain aspects of GenAI, while others are discarded. Despite the complexities, teachers emphasize that human–AI collaboration is key to unlocking the full potential of GenAI, even as it reshapes the nature of human–AI interaction.

Although the themes identified in this study are not exclusive to GenAI, its integration into education is perceived as significantly more transformative than previous technological innovations. This perception likely stems from the broad applicability of GenAI across disciplines and educational levels, enabling more systemic and widespread shifts in pedagogical practice. The findings provide a strategic direction for advancing both educational practice and policy. For teachers, both in teacher education and in schools, there is a pressing need to strengthen their competence in AI, while also cultivating their current identity and competence, and capacity for collective critical reflection on its pedagogical and ethical implications. It is essential to foster environments that support teachers in re-evaluating their professional roles in relation to GenAI, ensuring a balance between technological proficiency and the preservation of human-centered values. Furthermore, to promote the sustainable and equitable integration of AI within the broader educational system, policy frameworks should recognize the dual role of teachers: as both users of emerging technologies and stewards of educational value.

6.1. Limitations and future work

A limitation of this study is the variation in participant numbers across workshops, which likely influenced trust negotiations by introducing differences in experience, expertise, and reflection. Another is the preassigned material provided before each session, which, to some extent, influenced the individuals' reflections.

The next step could be to examine these trust negotiations within other educational stages or contexts to gain a more nuanced understanding of how they manifest in situated pedagogical practice, or to explore how trust negotiations around GenAI vary depending on organizational and pedagogical conditions. It would also be valuable to examine how these negotiations unfold within different countries, subject disciplines, and teaching cultures, contributing to a more differentiated understanding of the role of GenAI in teaching practice.

Ethical Statement

This study with human participants was reviewed and approved by the Institutional Review Board at the Department of Social and Behavioural Studies. All participants provided written informed consent prior to participation.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

The data that support this work are available upon reasonable request to the corresponding author.

Author Contribution Statement

Sara Ekström: Conceptualization, methodology, resources, investigation, formal analysis, validation, writing – original draft, writing – review & editing, visualization, project administration and funding acquisition. **Anna Roumbanis Viberg:** Conceptualization, methodology, resources, investigation, formal analysis, validation, writing – original draft, writing – review & editing, visualization, project administration and funding acquisition.

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