The Role of Disruptive Technologies in Shaping Reflective Practice-Based Learning: Insights from AI and Ethical Considerations

Camilla Gyldendahl Jensen, Susanne Dau & Dan Eggert Møller
University College of Northern Denmark
DOI: https://doi.org/10.54337/ecrpl25-10929

Abstract

The release of OpenAI's ChatGPT in 2022 marked a new era in AI-supported education, bringing to light both the potential benefits and challenges of using AI-driven tools like chatbots in learning environments. Concerns surrounding shallow learning and potential misuse of AI have made educators cautious about integrating such tools in their teaching. This article examines how AI, particularly in academic work, can foster deeper exploration and engagement, drawing on Hannah Arendt's theories on "the human condition" to frame these insights. Using a case study that includes screenshots and transcribed dialogues from students' interactions with ChatGPT in written assignments, this study analyzes data from approximately 100 third-year students. In response to a rapidly evolving digital landscape, the study considers the role of disruptive technologies like AI in reflective practice-based learning (RPL) and the importance of technological literacy for both education and professional practice. By situating AI within Arendt's vita activa and vita contemplativa frameworks, we explore how AI can enhance exploration and thus support RPL. Further, the article addresses ethical concerns around AI, investigating the balance between enhancing academic integrity and fostering exploration in an AI-influenced environment. Ultimately, this study contributes to discussions about the future of RPL, considering the implications of AI and other emerging technologies for educational practices. The findings aim to inform the development of pedagogical frameworks that integrate technological literacy and reflective practices,

providing a foundation for understanding the ethical and practical considerations essential for future research and implementation.

Keywords
Generativ AI, Reflective Practice-based Learning (RPL), exploration, Inquiry, Higher education

Introduction

When ChatGPT was released by OpenAI in 2022, it didn't just introduce a new tool, it cracked open an entirely new chapter in the story of education. Within weeks, classrooms and lecture halls around the world were grappling with a profound question: is this the future of learning, or its undoing? The promises and threats of generative AI (GenAI) were no longer abstract, they were present, practical, and pressing (Haleem et al., 2022; Sharma & Yadav, 2022). As the dust settled, a deep divide emerged among educators and institutions: should GenAI be embraced as a powerful ally for educational innovation, or approached with caution as a potential disruptor of reflection, exploration, and authentic learning? (Sharma & Yadav, 2022; Kasneci et al., 2023; Tlili et al., 2023). As GenAI gains ground in teaching and changes the way knowledge is produced and processed, new demands thus arise for both educators and students. These demands are not limited to technological competencies, but also include judgment, reflection, and ethical awareness (Upadhyaya & Vrinda, 2021; Rosa, 2021). Students increasingly need to evaluate the reliability and relevance of information and understand their own role in the interplay between human and machine thinking.

In higher education these developments and dilemmas of GenAI challenges some of the fundamental pedagogical principles that have traditionally underpinned teaching and learning. Here, education is often rooted in a pedagogical practice where the goal is not only the acquisition of knowledge but also the development of professional judgment, critical reflection, and the capacity to act in complex, practice-based situations (Dewey, 1938, Horn, Pedersen & Georgsen, 2021). In this context, *reflective practice-based learning* (RPL) has gained ground as a central pedagogical understanding. A key element in this approach is the concept of *exploration*. Exploration involves giving students the opportunity to investigate, experiment, and create knowledge through a process

characterized by curiosity and openness. It presupposes a learning environment that supports uncertainty and complexity, in which the student actively participates in creating meaning through personal inquiry and learning trajectories (Jensen, 2021).

When teaching is designed with exploration as a central principle, students are invited to adopt an investigative stance, where they do not merely receive knowledge but co-construct it through an open and inquisitive process. This is especially critical as GenAI now threatens to bypass inquiry-driven processes with pre-formulated answers (Sharma & Yadav, 2022; Kasneci et al., 2023; Tlili et al., 2023). When AI tools offer easy and quick solutions that resemble complete answers, the student risk shortening the exploratory process and give the illusion of understanding without actual insight. Instead of engaging actively in the learning process, students may be tempted to accept AI-generated responses as authoritative, which can lead to superficial learning and reduce their opportunity to develop independent judgment.

Moreover, AI challenges our understanding of what it means to truly learn something. If the tool provides the text, structure, and argumentation, it becomes unclear what cognitive and epistemic processes the student has engaged in. This makes it difficult to assess the learning outcome and to maintain a learning approach grounded in personal experience, inquiry, and reflection (Jensen, 2021). Therefore, pedagogy must not only focus on learning as a result but as a process in which curiosity, critical thinking, and judgment are cultivated in interplay with new technologies (Dewey, 1938). This requires carefully designed pedagogical frameworks and a deliberate pedagogical practice, where AI is used as a *tool within* the inquiry process, not as a shortcut *around* it. For these reasons, it becomes essential to investigate how teaching and supervision can be structured so that AI is integrated in ways that support, rather than undermine, exploration, reflection, and professional judgment.

This article examines the role of GenAI in education through the lens of Hannah Arendt's distinction between *vita activa* and *vita contemplativa* (Arendt, 1958; 1963; 2005). Arendt's perspectives enable a deeper analysis of the student's position in an accelerated, technological reality where judgment, responsibility, and meaning making become central learning goals. At the same time, Arendt's concepts are related to Dewey's understanding of inquiry as the driving force of learning, thereby highlighting how AI can potentially both support and undermine ex-

ploratory practices. By examining how technological assistance influences students' opportunities for independent inquiry, the article aims to contribute to the development of pedagogical frameworks that both integrate AI and preserve exploration as a core value in professional education. This article thus seeks to address the following research question

> *How does the integration of AI within teacher-designed activities influence the depth of inquiry-based exploration in reflective practice-based learning contexts?*

To better understand how AI influences inquiry-driven learning processes and the development of professional judgment, it is necessary to frame exploration not only as a pedagogical strategy but also as a human activity grounded in broader philosophical and educational traditions. In the following section, we turn to Hannah Arendt's concepts of vita activa and vita contemplativa to explore how thinking (contemplation) and acting (engagement) can be understood in relation to students' exploratory practices. These concepts provide a lens through which to examine how GenAI intervenes in the balance between reflection and action, and what is at stake when learning risks being reduced to automated outputs. Arendt's thinking will thus serve as a theoretical foundation for analysing how AI shapes the conditions for inquiry-based exploration in current-day education.

Theoretical Framework

To understand how GenAI interacts with inquiry-based learning, it is essential to approach *exploration* not merely as a method, but as a dynamic learning orientation characterized by a willingness to follow unexpected lines of thought and action through iterative processes. This dual orientation makes Hannah Arendt's distinction between vita activa and vita contemplativa a compelling framework for examining how exploration unfolds in educational settings shaped by digital technologies such as AI. Thus, exploration lives between these two modes as being simultaneously active and contemplative, requiring both doing and thinking in the learning process. It thus involves navigating uncertainty, working with ambiguity, and constructing knowledge through movement between experience and reflection.

Exploration between acting and thinking

Exploration can be seen as a movement between two fundamental human capacities: the capacity to act and the capacity to think. These are not opposing modes, but mutually dependent elements of how learners engage with the world. Arendt conceptualizes them as *vita active* (the active life) and *vita contemplative* (the contemplative life) (Arendt, 1958). While these have often been treated as separate spheres in philosophical traditions, Arendt argues for their interrelation, particularly in the context of education.

Vita activa, in Arendt's thinking, refers broadly to the human capacity to act in the world (Arendt, 1958; Arendt, 2005). It is through action that individuals reveal themselves, form relationships, and participate in shaping a shared reality. In educational settings, exploration often takes place through this kind of action, when students collaborate, experiment with ideas, or express emerging understandings through dialogue with peers and teachers (Arendt, 2005; Yarbrough & Stern, 1981). Exploration, in this sense, is not a solitary process but one grounded in interaction, participation, and the unfolding of thought through engagement. *Vita activa*, with its emphasis on human action and engagement in the world, corresponds closely with RPL's focus on practice and real-world activity (. RPL stresses the importance of incorporating students' own experiences and of designing learning activities rooted in authentic professional contexts. This reflects Arendt's view that action is a way in which individuals participate in and shape their shared world. In an educational setting, vita activa aligns with exploratory learning activities that involve collaboration, discussion, experimentation, and dialogue that require students to articulate and defend their thinking. These are forms of action that invite students to test ideas, co-construct knowledge, and respond to real-world complexity (Biesta, 2010; Biesta 2012; Arendt, 2005)

Such activities position students as active participants rather than passive recipients of information. AI tools may support this mode by assisting in generating ideas or organizing content. However, if overused, they risk weakening the active dimension of learning, especially when students begin to rely on automation rather than their own contributions.

In contrast, v*ita contemplativa* refers to the thoughtful life of the mind, encompassing reflection, understanding, and meaning making. This contemplative mode is equally essential for exploration, as it allows

learners to pause, reconsider, reframe, and make sense of their experiences (Biesta, 2010; Biesta 2012; Arendt, 2005). Thinking, for Arendt, is not aimed at producing immediate results; rather, it is a condition for judgment and the formation of perspective. In learning, it is what enables students to hold space for complexity and resist premature closure. Likewise, *vita contemplativa*, which centers on reflection and thought, resonates with RPL's emphasis on reflection as a vital part of the learning process. RPL highlights the need for students not only to act, but also to reflect on their actions to develop professional judgment. This reflective process is essential in connecting theory to practice, which is a core aim of RPL (Horn, Pedersen & Georgsen, 2021). This corresponds to Arendt's perspective on *vita contemplativa* which refers to the process of thought, where individuals step back from immediate activity to reflect, make sense of experiences, and seek understanding. In educational contexts, this mode is present in learning activities that support deeper reflection, conceptual exploration, and the development of perspective. These activities could include reflective writing, where students examine their assumptions and choices, or individual reading and inquiry tasks that require focused engagement with complex ideas. It can also involve journaling, concept mapping, or analytical assignments that ask students to synthesize viewpoints or evaluate ideas critically (Biesta, 2010; Biesta 2012; Arendt, 2005). These contemplative practices are essential for exploration because they allow students to remain with uncertainty, explore nuance, and gradually form their own understandings (Arendt, 2005; Yarbrough, & Stern, 1981; Dau & Nielsby, 2021). AI can support this dimension by providing feedback, analytical assistance, or access to diverse perspectives. However, when students rely uncritically on AI-generated content, there is a risk that the depth of learning is compromised, as the essential processes of interpretation and reflection may be overlooked.

AI can support exploratory engagement by prompting new questions, suggesting alternative perspectives, or offering immediate responses that encourage additional learning trajectories. Yet it also carries the risk of interrupting both the student's active involvement in the learning process and the reflective moments that allow understanding to deepen and consolidate. When AI-generated responses are treated as complete or unquestionable, exploration may collapse into a mechanical exchange between prompt and output, leaving limited space for uncertainty, inter-

pretation, or the construction of meaning (Arendt, 2005; Yarbrough, & Stern, 1981). Thus, the introduction of AI in education has implications for how students learn and participate. When exploration is compressed by the polished surface of AI-generated content, the possibilities for ongoing inquiry and thoughtful engagement are reduced. The dynamic movement between acting and thinking, central to Arendt's understanding of human learning and agency, might be disrupted. As a result, students may find it more difficult to maintain an investigative position in their work and risk becoming passive recipients rather than active participants in knowledge creation.

Exploration in education is not a single type of activity, but a learning orientation that unfolds through a variety of practices, some rooted in action and others in reflection (Dewey 1938, Jensen, 2021). Arendt's distinction between *vita activa* and *vita contemplativa* provides a valuable lens for understanding the different kinds of learning activities that can support exploratory engagement. The distinction between *vita activa* and *vita contemplativa* clarifies that learning is not only about acquiring knowledge but about becoming someone who can act in the world and think about it. By framing exploration through Arendt, the pedagogical question is not simply whether students use AI, but how their use of AI can coexist with meaningful opportunities for inquiry. Are they given the opportunities and incitement to act, to reflect, and to make sense? Or is it possible for the student to choose shortcuts that bypass the slow, uncertain work of learning through their use of AI?

Arendt's framework thus provides a way of asking what kinds of human engagement are sustained or displaced when AI enters the learning process. In the following analysis, we examine how students engage in exploratory processes when working with AI tools. Drawing on student reflection data and examples of teacher-designed activities, we investigate how the conditions for exploration are shaped by the interplay between human inquiry and technological assistance.

Research design

The study addresses the research question through a case study conducted within the Bachelor of Architectural Technology and Construction Management program at UCN. The case focuses on students in the third semester, who have used GenAI (ChatGPT, Co-pilot, Primo Research

Assistant) as part of their work on an academic assignment. The case study specifically centres on a teaching sequence where the students work with a profession-related topic of their own choice, allowing them to deepen their expertise within that domain. Students were given the freedom to use Ai in their assignments, with the requirement that they submit a reflective report describing how they integrated AI into their academic work. In addition, teachers maintained an ongoing dialogue with students about how to work with AI in a constructive and appropriate manner. The overall aim was for students to take independent responsibility for their professional and methodological development by engaging with research-based knowledge in one or more relevant subject areas.

Insider position

A recurring concern in educational research relates to the researcher's positionality, specifically the dynamics between being an insider or outsider in the field (Herr & Anderson, 2015). An insider researcher brings direct experience and familiarity with the context under investigation, which can provide unique access to tacit knowledge and complex dynamics that may otherwise remain hidden. This situated knowledge can be especially valuable in practice-oriented studies, as it enables the researcher to identify tensions and contradictions within the field (Brinkmann & Tanggaard, 2010). Rather than viewing objectivity as detachment or neutrality, scholars such as Skjervheim argue that such ideals can risk freezing the complexity of lived realities (Nielsen & Nielsen, 2006). Similarly, Dewey rejects the notion that knowledge emerges from passive observation. Instead, knowledge is formed through participation and transformation of situations (Tashakkori & Teddlie, 2010). While many studies emphasize the researcher's individual position, it may be even more productive to explore how the interplay between insider and outsider perspectives contributes to knowledge generation. Milligan (2014) highlights the potential of a flexible and responsive research position, in which power relations and roles between researchers and participants are acknowledged as part of the knowledge construction process. By purposefully combining multiple positions within a research design, the study can benefit from varied perspectives and foster richer insights (Brinkmann & Tanggaard, 2010; Milligan, 2014). Nonetheless, insider research is not without criticism. Given the traditional emphasis on ob-

jectivity in research, this critique is important to acknowledge. However, when addressed with transparency and humility, issues of bias can be constructively managed through reflexivity and critical self-awareness (Herr & Anderson, 2015).

This study employs a collaborative research approach that incorporates both insider and outsider perspectives. Two researchers have also acted as teachers within the context being studied, contributing in-depth understanding of the professional field. This perspective allowed for identification of subtle patterns and dynamics in the teaching practice. The third researcher maintained a more external position, offering analytical distance and a critical lens that helped challenge assumptions and deepen the analysis. The interplay between these positions created a productive tension, enabling the research team to reflect critically on their roles and the relational dynamics between researchers and participants. The integration of insider knowledge and outsider distance has not only enhanced the credibility of the findings but also contributed to a more layered and nuanced understanding of the teaching practices under investigation.

Datacollection

The selected case can be considered paradigmatic in the sense that it illustrates a learning environment in which students engage with GenAI as a support tool in their academic writing process (Flyvbjerg, 2006). The choice to focus on students from the Architectural Technology and Construction Management program is based on their familiarity with digital tools and their ability to articulate and reflect on their technological experiences. This has contributed to a more nuanced insight into how GenAI is used in practice.

The case study draws on multiple sources of data (triangulation), which strengthens its analytical depth and credibility. Data collection focused on capturing students' reflective experiences, thoughts, and impressions while working with GenAI in the context of an academic assignment. Data were collected in the form of Initial observations conducted during classroom sessions and Reflective exams report. Furthermore, screenshots documenting students' actual interactions (prompts and responses) with GenAI were included in the students' final exam submissions as part of their process descriptions in the final Reflective exams report. In total, 25 groups of 4–5 students' Reflective exams report were included

in the study. To ensure transparency, all students were informed from the outset that their teacher would also act as a researcher and that the integration of AI in the course would be observed as part of a research project. This clarification was intended to ensure openness about the research process and to help students understand the framework for their participation.

To further protect voluntary participation, written informed consent was collected after the completion of the final exams, specifically regarding the use of screenshots and other submitted data. This timing was chosen to avoid any influence on the students' approach to their work that might arise from knowing it could be used for research purposes. The goal was to ensure that the students' work reflected an authentic learning process. Throughout the research process, anonymity and confidentiality were maintained. All data, including AI interaction screenshots, were treated confidentially, and identifying information was removed during analysis and reporting. After the exam, students were given the opportunity to ask questions and provide consent for their participation in the study.

The analysis aimed to identify and categorize patterns, themes, and concepts that shed light on the role of student's use of GenAI in an academic writing process (Boyatzis, 1998; Saldaña, 2016).The coding process drew on written student reflections, and accompanying screenshots from their documented work processes. The initial coding was conducted by one of the researchers who had the insider knowledge of the educational context. These categories were then further developed through reflective dialogue between both researchers. While the potential for bias due to the insider's dual role was acknowledged, efforts were made to mitigate this through continuous critical engagement with the data from both insider and outsider perspectives.

The inclusion of screenshots from the students' reflective reports in the analysis below, is not intended to allow the reader to access or interpret the specific written content of, for example, individual post-it notes or annotations. Rather, the screenshots serve an illustrative and documentary purpose. They offer a visual indication of the scope, volume, and complexity of the students' work—providing a concrete sign of the time, effort, and iterative engagement they have invested in their academic process. The images function as representations of the exploratory journey, showing how students used tools such as Miro boards or

physical clustering to externalize, organize, and refine their thinking. As such, they reflect not only the structure and dynamics of their inquiry process but also the pedagogical design that supports reflective practice and academic exploration.

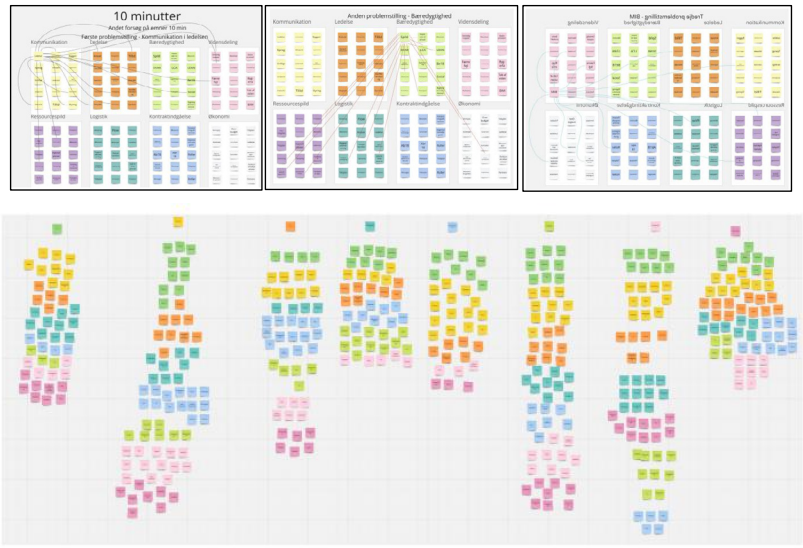
Analysis

This study set out to explore how the integration of GenAI interacts with inquiry-driven and explorative learning in reflective practice-based learning environments. The findings indicate that AI can serve as a powerful resource in student learning processes, but only when embedded in pedagogically intentional designs that scaffold exploration, dialogue, and reflection.

AI as a companion in the Inquiry Process

Many students describe the initial stages of their work as disorienting, marked by uncertainty about how to define the problem or connect ideas into a coherent whole. This lack of structure becomes a catalyst for action-oriented methods such as brainstorming, mind maps, brainstorming, and digital platforms such as Miro. As one group noted: " By combining the creative and open process of brainstorming with the visual and structured approach of mindmaps, we have ensured that our problem delimitation is precise and well-considered." Here, tools act as mediators between exploratory action and reflective insight. They enable a transition from the openness of idea generation to the clarity of problem formulation (see fig. 1).

Figure 1: Student brainstorm illustrating the collaborative generation of ideas. The image serves as a visual sign of process, scope, and effort rather than detailed content



The tools scaffold both the *acting* and the *thinking and* are most powerful when embedded in pedagogical designs that promote iteration, discussion, and critical engagement. In several cases, students describe how AI helped them explore new perspectives or refine their problem focus. Used strategically during brainstorming, AI tools became a partner in their processes of inquiry**,** offering suggestions, clarifying definitions, and even proposing keywords or search terms. The student reflections show how GenAI tools, had a multifaceted role in shaping their academic work. While students used AI to support various tasks, from brainstorming and structuring to editing and research, the reflections also reveal a growing awareness of the need for critical distance, collaborative verification, and personal accountability. AI was not used passively. Instead, students navigated its potential and limitations as part of an emerging digital literacy and inquiry-based learning practice. This type of use reflects Arendt's *vita active where* AI is not just a tool for individual cognition, but a participant in an exploratory dialogue that fuels collective learning. The learning is not delivered, but co-constructed through interaction, prompting, and contextualization.

AI as a Bridge Between Data, Language, and Learning

In line with the theoretical framework of academic exploration and Dewey's principle of inquiry, the students' reflections reveal that the literature search process was not merely a mechanical task but an exploratory, iterative, and sometimes frustrating journey that contributed meaningfully to the formation of knowledge. A recurring strategy employed by the students involved initial broad searches followed by gradual refinement, mirroring Dewey's model of hypothesis testing and revision. As one student noted, *"In the initial phase, we searched broadly on the topic of sustainability, each of us individually, to uncover relevant literature and identify potential problem areas."* This openness in the initial phase reflects an experimental mindset and a readiness to allow the material itself to shape emerging questions. Several groups used structured frameworks such as search protocols (see fig 2) and Mindmaps with grouped keywords into thematic search categories (see fig 3) to document their strategies and track progress. One group stated, "*The search results were then compiled into a shared search protocol to ensure a systematic approach to our search process.*" The use of search protocols represents a form of reflective practice that allowed for meta-cognitive awareness of the inquiry process, knowing what has been tried and what to try next.

Figure 2: Excerpt from students' search protocol illustrating their use of Boolean operators (AND, OR, NOT) to structure and refine their literature search strategy across multiple databases

Google scholar	(**Sustainable in construction* OR** Processes* OR Respect* OR Circular* OR "Competence development" OR Methods* OR Prerequisites* OR "Meeting management" OR Urbanization* OR Lifetime* OR Reuse* OR DGNB*) AND (**Technology in Danish construction*** OR innovation* OR AI OR Patience* OR Health* OR Processes* OR Interest* OR "Efficiency improvement") AND **(Globalization*** OR Consequences* OR Strengths* OR Weaknesses* OR Investment* OR Communication*)	I alt: 18.800 Refleksion: Her er søgt på 3 blokke. For at præcisere "sustainable" er der indsat construction.	**05-02-2025**
Google scholar	**(Conflict management*** OR Transition OR Perspectives OR Communication plan/Pyramid OR Reflection OR Feedback OR Responsibility OR Culture OR Solution-oriented OR Conflict escalation model OR Guidelines OR Motivation OR Collaboration) AND **(Organization*** OR Welfare* OR Coordination* OR Hierarchy* OR "Decision-making group" OR Facilitation* OR Co-creation OR "Growth plan" OR "Internal role distribution")	I alt: 19.300 Refleksion: efter nye ord kommer der flere hits. 2 blokke	**05-02-2025**
Proquest	**(Conflict management*** OR Transition OR Perspectives OR Communication plan/Pyramid OR Reflection OR Feedback OR Responsibility OR Culture OR Solution-oriented OR Conflict escalation model OR Guidelines OR Motivation OR Collaboration) **(Organization*** OR Welfare* OR Coordination* OR Hierarchy* OR "Decision-making group" OR Facilitation* OR Co-creation OR "Growth plan" OR "Internal role distribution")	I alt: 1.252 Refleksion: fravalgt Scholary journals og i perioden 2020-2029	**05-02-2025**

Figure 3: Organized brainstorm showing how students grouped keywords into thematic search categories to guide their literature search

The role of AI in supporting these processes was multifaceted. Students reported using ChatGPT and other AI tools to suggest search terms, translate keywords, generate synonyms, and summarize abstracts. Other students highlighted the value of AI in validating and contextualizing sources. For instance, "*We asked AI to suggest synonyms for 'time' during our brainstorming. This has been a great help when searching for concepts and theories.*" Here, AI becomes integrated into the inquiry cycle, providing both clarification and conceptual expansion. Despite technological assistance, students remained aware of the need for human judgment. Peer review status, author credentials, and publication context were commonly used criteria for source selection. As one student group explained, "*We evaluated the search results based on titles, abstracts, and keywords, and we compared different sources to ensure that the information was consistent and supported by other credible sources.*" This emphasis on source critique reinforces the critical dimension of academic exploration.

This aligns closely with Hannah Arendt's conception of Vita activa. Arendt emphasizes that human action is fundamentally dialogical and situated in a web of relations. In the students' collaborative efforts to construct mindmaps, revising search terms based on shared experiences, and discussing the meaning and implications of their findings, we see a clear enactment of this plurality. As one group described, "*We took our keywords from the brainstorm and Mindmap and combined them, and we discussed why and what made the different sources relevant...*" While these collaborative and action-oriented activities reflect the dialogical nature of *vita activa*, the students' literature search processes equally engaged them in moments of *vita contemplativa*. In Arendt's terms, *vita contemplativa* refers to the inward, reflective activity of thought which is

the mode where students withdraw from action to pause, question, and make meaning. This contemplative dimension was evident in how students evaluated the relevance and credibility of their sources, compared differing perspectives, and adjusted their focus based on new insights. One group described how they "We read abstracts and conclusions to ensure that the articles were relevant to our research question" a practice that illustrates the movement from information gathering to thoughtful deliberation. Similarly, when students used AI to clarify complex terminology or rephrase search terms, they were not just optimizing efficiency but deepening their conceptual understanding. In this way, the interplay between *vita activa* and *vita contemplativa* underpinned the students' engagement with literature, allowing both collaborative experimentation and solitary reflection to inform their academic exploration.

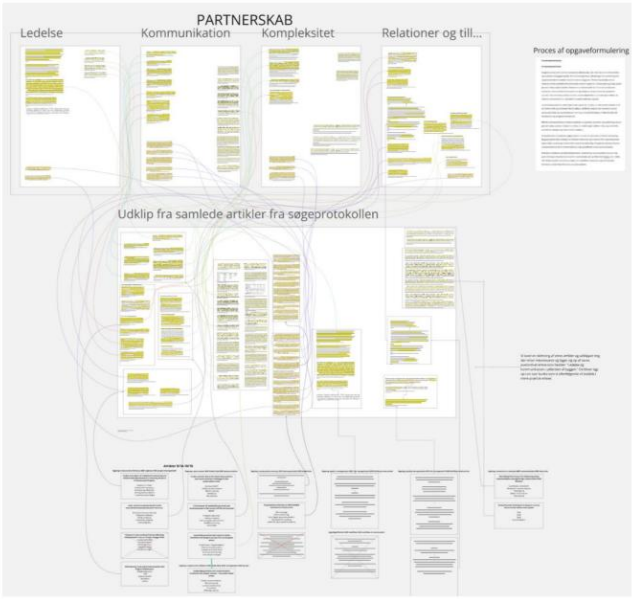
Coding as Structured Inquiry

Students described how they worked with coding strategies to navigate large amounts of data, particularly research articles. Through sorting, clustering, and categorizing (see fig 4), they developed analytical frameworks that allowed refinement of their understanding and clearer problem definitions. A Group described how they: "*We read through each individual quote and grouped them according to the topic of the quote, which made it possible to identify more specific themes to form the basis for our problem descriptions*." This process reflects the iterative character of exploratory learning, where students return to the data not just to extract meaning but to construct a meaningful framework through discussion, comparison, and judgment.

These are classic elements of inquiry-based learning but here grounded in collective action and academic practice. Here, the interplay of *vita activa* (negotiation, re-categorization) and *vita contemplativa* (assessing meaning, considering alternatives) is evident. These moments demonstrate that categorization is not merely about data organization, it is an epistemic practice where judgment is exercised and developed. AI was often used as a supplementary partner in the coding and structuring process. Students fed categorized quotes into AI tool to help them generate coherent sections of text or problem formulations. Thus, they were using the AI tool not as a decision-maker, but as a reflective sparring partner. As one group noted: "*We inserted them into ChatGPT and had it help us create a consolidated problem statement based on the text excerpts*

divided into categories." This use of AI suggests that students are learning to position the technology as a means of enhancing their academic action, rather than bypassing it.

Figure 4: Visual overview of students' coding process, illustrating the depth of their analytical work through clustering and categorizing literature, even if individual labels are not legible



Conclusion

This study has examined how students engage with GenAI tools within a pedagogical framework rooted in reflective practice-based learning. By integrating Hannah Arendt's concepts of *vita activa* and *vita contemplativa* with Dewey's notion of inquiry, the research illuminates how exploration unfolds as both a cognitive and social activity. This duality could be described as an interplay of action and reflection as seen in Reflective practice-based learning. The findings show that when AI is embedded in thoughtfully designed learning environments, it can enhance rather than diminish inquiry-driven learning. Students leveraged AI to brain-

storm, structure, search, code, and articulate their ideas, often treating it as a dialogical partner rather than a shortcut to ready-made answers.

By applying Hannah Arendt's distinction between *vita activa* and *vita contemplativa*, the study has shown that exploration unfolds as a dynamic movement between acting and thinking. The students' engagement with GenAI was not a replacement for this movement, but in many cases a catalyst within it. AI supported action-oriented processes when used in group-based brainstorming, iterative problem formulation, and collaborative coding strategies. These practices resonate with Arendt's understanding of *vita activa* as participation in a shared world. AI can support this mode when it is used to enhance action, for example by organizing ideas or facilitating new lines of inquiry. At the same time, students engaged with AI in ways that nurtured *vita contemplativa*, especially when they used group dialogue to interpret, and reflect critically on their sources and arguments. AI can assist here in synthesizing information or offering alternative perspectives, but only when students remain the ones doing the thinking.

These forms of engagement were not passive or linear but exploratory and open-ended. Students returned to their data, reformulated their questions, and allowed new perspectives to emerge. In doing so, they exercised judgment and cultivated the ability to act meaningfully in complex learning situations.

Overall, this study demonstrates that GenAI neither guarantees nor prevents meaningful exploration. Its role is shaped by how it is used, and by whether pedagogical frameworks encourage students to engage both actively and reflectively. Arendt's distinction between *vita activa* and *vita contemplativa* helps clarify how education must offer students opportunities not only to act in the world of knowledge but also to think about it. When AI is embedded in teaching in ways that support this balance, it can become part of a richer, more meaningful learning process rather than a shortcut around it. Thus, the study suggests that GenAI can support exploratory learning when it is situated within pedagogical frameworks that preserve the balance between action and reflection.

However, this potential is not automatic. The study also highlights how uncritical or excessive reliance on AI may risk reducing the depth and authenticity of learning. The core of exploratory education lies in uncertainty, negotiation, and meaning making. These are not processes that can be outsourced to technology; they require human engagement,

relational dialogue, and reflective judgment. Ultimately, the integration of AI in higher education must be guided by a clear pedagogical purpose aiming at fostering student judgement trough reflective practices and collaborative actions . Educators must therefore continue to ask not just whether students use AI, but how they are invited to think and act with it.

References

Arendt, H. (1958). *The human condition*. University of Chicago Press.

Arendt, H. (1963). *On revolution*. Viking Press.

Arendt, H. (2005). *Responsibility and judgment* (J. Kohn, Ed.). Schocken Books.

Biesta, G. (2010). *Good education in an age of measurement: Ethics, politics, democracy*. Routledge.

Biesta, G. (2012). Giving teaching back to education: Responding to the disappearance of the teacher. *Phenomenology & Practice*, 6(2), 35–49.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. SAGE Publications.

Brinkmann, S., & Tanggaard, L. (2010). K*valitative metoder: En grundbog*. Hans Reitzels Forlag.

Dau, S., & Nielsby, U. (2021). Professionel dømmekraft og refleksiv praksislæring. I L. H. Horn, P. M. Pedersen & M. Georgsen (Red.), *Teori og praksis i professionsdidaktik: En bog om refleksiv praksislæring* (s. 63–75). Aalborg Universitetsforlag.

Dewey, J. (1938). *Experience and education*. Macmillan.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry, 12*(2), 219–245. https://doi.org/10.1177/1077800405284363

Herr, K., & Anderson, G. L. (2015). *The action research dissertation: A guide for students and faculty* (2nd ed.). SAGE Publications.

Horn, L. H., Pedersen, P. M., & Georgsen, M. (Red.). (2021). *Teori og praksis i professionsdidaktik: En bog om refleksiv praksislæring*. Aalborg Universitetsforlag

Jensen, C. G. (2021). Udforskning og læringsspil. I L. H. Horn, P. M. Pedersen & M. Georgsen (Red.), *Teori og praksis i professionsdidaktik: En bog om refleksiv praksislæring* (s. 217–230). Aalborg Universitetsforlag.

Kasneci, E., Sessler, K., Küchenhoff, H., Bannert, M., Dementieva, D., Fischer, F., ... & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences, 103*, 102274. https://doi.org/10.1016/j.lindif.2023.102274

Milligan, L. (2014). Insider-outsider-inbetweener? Researcher positioning, participative methods and cross-cultural educational research. *Compare: A Journal of Comparative and International Education, 46*(2), 235–250. https://doi.org/10.1080/03057925.2014.928510

Nielsen, K. A., & Nielsen, B. S. (2006). Action research and critical theory. In K. Aagaard Nielsen & L. Svensson (Eds.), *Action and interactive research: Beyond practice and theory* (pp. 63–82). Shaker Publishing.

Rosa, H. (2021). *Resonance: A sociology of our relationship to the world* (J. C. Wagner, Trans.). Polity Press. (Original work published 2016)

Sharma, K., & Yadav, D. (2022). Generative AI in education: A new era or the end of inquiry? *Journal of Educational Technology & Society, 25*(3), 34–45.

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE Publications.

Tashakkori, A., & Teddlie, C. (2010). *SAGE handbook of mixed methods in social & behavioral research* (2nd ed.). SAGE Publications.

Tlili, A., Huang, R., Chang, T.-W., Zhang, X., Burgos, D., Liu, D., ... & Jemni, M. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments, 10*, 15.

Yarbrough, D. B., & Stern, B. S. (1981). *Understanding research in education*. University Press of America.

Upadhyaya, P., & Vrinda, V. (2021). Artificial intelligence in education: Ethical implications and challenges. *AI & Society, 36*(3), 651–660.