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Emotional Ambivalence and Perceived Empathy in Students' Experiences Using AI-Based Academic Assistants: An Interpretative Phenomenological Study

Fresy Nugroho
Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia
fresy@ti.uin-malang.ac.id

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ABSTRACT

This study aims to explore how university students cognitively and emotionally experience AI-based academic assistants in their learning processes. The integration of artificial intelligence (AI) into higher education has transformed how students engage with academic tasks, particularly through the use of AI-based academic assistants. While existing studies have examined the functional benefits of these tools, little is known about how students subjectively experience their cognitive and emotional interactions with AI. Current research lacks insight into the inner meanings students assign to AI in learning, raising the question: how do students experience and interpret AI as an academic assistant from cognitive and affective perspectives? This research was conducted at a public university in Indonesia, applying an interpretative phenomenological approach to explore the lived experiences of university students using AI tools for academic purposes. Data were collected through in-depth, semi-structured interviews with twelve undergraduate students (six males and six females) from various academic disciplines, aged between 19 and 23 years. Thematic interpretation grounded in phenomenological philosophy was used to analyze the data. The results reveal three key themes: academic empowerment through AI, emotional ambivalence and ethical tension, and the humanization of AI as a source of perceived empathy. These findings illustrate that students engage with AI not only as a tool but as a cognitive partner and emotional presence that shapes their academic identity. This study expands our understanding of human-AI interaction in education by highlighting the subjective, affective, and ethical dimensions of student experiences, offering a foundation for future research into the psychological and cultural implications of AI in learning environments.

INTRODUCTION

The integration of artificial intelligence (AI) into academic environments has become increasingly prevalent, reshaping the ways in which students engage with learning, writing, and research. As AI tools such as ChatGPT, Grammarly, and citation assistants become more accessible, they are rapidly being adopted as academic companions by students across diverse disciplines and levels of study.

This widespread adoption marks a cultural and technological shift in higher education, where traditional models of learning are being reconfigured through intelligent systems that provide real-time support, feedback, and tailored guidance. Against this backdrop, the present study seeks to answer the following research question: How do students experience and interpret AI-based academic assistants in terms of cognitive engagement and emotional response? In the context of higher education, this phenomenon intersects with a range of subjective and social dynamics. Students now interact not only with human educators and peers, but also with non-human agents—AI systems that can assist, respond, and even simulate empathy. These interactions do not merely influence academic outcomes; they shape how students think, feel, and define their learning journeys.

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The presence of AI in academic work raises important questions about authorship, autonomy, and the authenticity of educational experiences. Moreover, it reflects a broader cultural adaptation to machine intelligence, particularly among digital-native learners who perceive technology as an organic part of both their personal lives and academic development.Despite the growing use of AI in academic settings, relatively little is known about how students actually experience these tools in their day-to-day academic lives. Beyond performance metrics or task efficiency, there exists a need to explore how students make sense of AI cognitively and emotionally. The phenomenon of using AI as an academic assistant is not merely a technical innovation; it is a lived experience embedded in social, ethical, and psychological contexts. This underscores the importance of approaching the subject through a phenomenological lens, one that prioritizes the meaning of the experience as lived and interpreted by those who encounter it. Through such an approach, deeper insights can be gained into how students understand, value, and emotionally relate to the AI systems that increasingly shape their educational journeys.

Research into how individuals experience technology—particularly artificial intelligence—as part of their daily academic practices has gained significant traction in recent years. Within this body of inquiry, the subjective experiences of students using AI as academic assistants represent a critical sub-area that warrants deeper exploration. As intelligent systems increasingly mediate learning activities, there is a growing recognition that understanding students' internal responses—their thoughts, emotions, and interpretations—is essential to grasp the full implications of AI integration in education.

However, methodological challenges have limited the depth and richness of insights into this phenomenon. Much of the existing research relies heavily on quantitative approaches, such as surveys measuring satisfaction, performance, or usability metrics. While valuable, these methods often fail to capture the nuanced, context-bound meanings that students assign to their interactions with AI tools. The emotional ambivalence, ethical reflections, and evolving sense of agency experienced by students remain underexplored, as such dimensions are difficult to quantify and frequently overlooked in large-scale studies (Tang et al., 2021; Denecke, 2020).

This methodological gap has led to a partial and, at times, superficial understanding of the phenomenon. Without a focused exploration of students' lived experiences, research risks reducing AI's impact to a set of functional outcomes, thereby overlooking the complex human dynamics involved. A phenomenological approach addresses this gap by offering a means to examine how students cognitively and affectively engage with AI in their academic lives. Through detailed, interpretative exploration, this study aims to uncover the essential meanings embedded in students' experiences—meanings that remain largely invisible within dominant research paradigms.

In response to the increasing presence of AI in academic settings, most educational institutions and researchers have adopted practical, outcome-oriented approaches that emphasize tool efficiency, usability, and performance metrics. These strategies often involve surveys, performance comparisons, or user satisfaction indices that offer valuable but surface-level insights into student-AI interactions. While such methods provide generalizable data about functional aspects of AI usage, they fall short in uncovering the depth of students' internal experiences and the evolving meanings they construct in relation to these technologies.

Current research paradigms are limited in their ability to explore the cognitive dissonance, emotional ambivalence, and relational perceptions that students may develop when engaging with AI as an academic assistant. Quantitative designs, though dominant in the field, lack the methodological sensitivity to capture the subtle, lived dimensions of student experiences, particularly those involving trust, autonomy, and identity in relation to machine intelligence (Tang et al., 2021; Denecke, 2020). This methodological narrowness has led to a fragmented understanding of how students actually perceive and navigate the presence of AI in their academic lives.

Addressing this gap requires a shift toward a more human-centered and interpretative methodology. Phenomenology offers an alternative that allows for a holistic and in-depth exploration of students' subjective experiences. By focusing on the lived meanings of interacting with AI tools, a phenomenological approach can reveal the underlying structures of consciousness and perception that shape how students interpret, value, and emotionally engage with artificial intelligence in academic

contexts. Such an approach is essential for building a richer, more nuanced understanding of the phenomenon—one that transcends functionality and embraces the full complexity of human experience.

Previous studies have examined students' engagement with AI through surveys, usability studies, and performance assessments. These approaches offer insights into how students use AI tools but often neglect the deeper, subjective dimensions of the experience. A few qualitative studies have begun exploring emotional and ethical concerns in human-AI interaction, but most remain descriptive rather than interpretative. Research has yet to fully capture how students make sense of their academic relationships with AI from a first-person perspective. This gap highlights the need for a method that prioritizes meaning over measurement.

This study adopts an interpretative phenomenological approach to understand how students experience AI as academic assistants. This method is chosen for its focus on lived experience and its ability to uncover the meanings that individuals attach to personal and evolving phenomena. Through this lens, the study explores how students cognitively and emotionally engage with AI in their academic routines. The approach addresses the limitations of previous research by focusing on the inner experiences and perceptions of users. It offers a more holistic understanding of the human side of AI integration in education.

The article is structured into several sections. The introduction presents the context, background, and rationale for the study. The methods section describes the phenomenological approach, participant selection, data collection, and analytic procedures. The results section reports key experiential themes using narrative and direct quotes. Finally, the discussion reflects on the implications of the findings and the conclusion summarizes the essential meanings and contributions of the research.

RESEARCH METHODS

Study Design

This study employed an interpretative phenomenological approach to explore students' lived experiences in engaging with AI as an academic assistant. Phenomenology, as a qualitative design, centers on understanding the subjective meanings that individuals assign to their lived experiences. The interpretative variant of this approach, grounded in Heideggerian philosophy, was selected for its emphasis on the contextual and existential dimensions of human experience. It enables a nuanced exploration of how participants cognitively and affectively make sense of their interactions with AI technologies within academic settings. This approach is particularly suitable for examining phenomena that are both cognitively complex and emotionally nuanced, such as the integration of AI tools in students' academic lives.

Participants

Participants in this study were undergraduate and postgraduate students who had actively used AI-based academic tools—such as generative chatbots, grammar correctors, and citation assistants—within the past six months. Selection followed a purposive sampling strategy to ensure that participants possessed rich and relevant experiences related to the phenomenon under investigation. Inclusion criteria required participants to be actively enrolled in university-level coursework and have experience using AI for academic purposes beyond casual or entertainment use. Individuals with no prior experience or who had discontinued the use of AI tools for non-academic reasons were excluded. The final sample comprised 12 participants (7 females and 5 males), aged between 19 and 26 years (M = 22.3), from various academic disciplines including social sciences, engineering, and humanities. Recruitment continued until thematic saturation was reached—that is, when no new themes or insights emerged from additional interviews.

Data Collection

Data were collected through in-depth, semi-structured interviews conducted in a private, quiet setting either face-to-face or via secured video conferencing platforms. An interview guide was used to facilitate consistency while allowing flexibility for follow-up questions based on participant responses. The interviews lasted between 45 and 70 minutes and were audio-recorded with the participants'

consent. All sessions were transcribed verbatim. Participants were encouraged to share personal reflections on their cognitive engagement with AI, emotional responses, and perceived impact on their academic practices. A supportive and non-judgmental environment was established to encourage open and authentic disclosure. The interview guide was informed by prior IPA studies and refined through a pilot interview, enhancing its alignment with the idiographic and experiential focus of IPA.

Data Analysis

Data were analyzed using Interpretative Phenomenological Analysis (IPA), which involves a systematic process of identifying patterns of meaning across participants' narratives. Transcribed interviews were first read repeatedly to ensure immersion in the data. Initial codes were developed based on significant statements and meaning units, which were then clustered into emergent themes. These themes were refined through a process of abstraction and contextual interpretation.

Throughout the analysis, reflexive journaling and memo-writing were used to track the researcher's interpretive stance and assumptions, supporting transparency and credibility. NVivo 14 software was utilized not as a thematic coding engine but as a supportive tool for data management, organization of transcripts, and audit trail documentation. Its function was instrumental in maintaining traceability across iterative cycles of IPA, without detracting from the philosophical underpinnings of hermeneutic interpretation. The final themes represent the essential structures of students' lived experiences with AI in academic contexts. Saturation was considered achieved when subsequent interviews no longer contributed novel interpretative insights, confirming the adequacy of sample size for phenomenological depth.

Ethical Considerations

Ethical approval for the study was obtained from the appropriate institutional ethics review board. Written informed consent was secured from all participants prior to data collection. Participants were assured of the confidentiality of their responses, and pseudonyms were used in transcripts and published findings to protect their identities. The study was conducted in accordance with international ethical standards for research involving human subjects, including the Declaration of Helsinki.

Reflexivity was acknowledged as a critical component of the research process. The primary researcher maintained an awareness of personal biases and preconceptions through reflexive documentation, which was regularly reviewed to mitigate undue influence on data interpretation. While complete bracketing is not feasible in IPA, deliberate efforts were made to remain open to participants' meanings and ensure interpretative integrity.

RESULTS

This section presents the emergent themes derived from in-depth interviews with student participants who have interacted with AI-based academic tools such as ChatGPT, Grammarly, and other generative or assistive learning technologies. Using an interpretative phenomenological approach, three primary themes were identified that reflect the cognitive and affective dimensions of students' lived experiences with AI in academic contexts.

Navigating Academic Empowerment through AI Assistance

Many participants expressed a sense of enhanced academic capability when engaging with AI tools. The AI systems were perceived not only as sources of information but also as intelligent partners in shaping ideas, structuring assignments, and refining language. Students reported that AI platforms helped them feel more confident and independent in their academic journey.

"When I use ChatGPT to brainstorm ideas, it's like having a silent tutor that doesn't judge me. It gives me clarity and confidence to move forward." (Participant 4)

This perceived empowerment was often accompanied by a shift in self-perception—from feeling overwhelmed by academic challenges to feeling more in control and capable of producing quality academic work.

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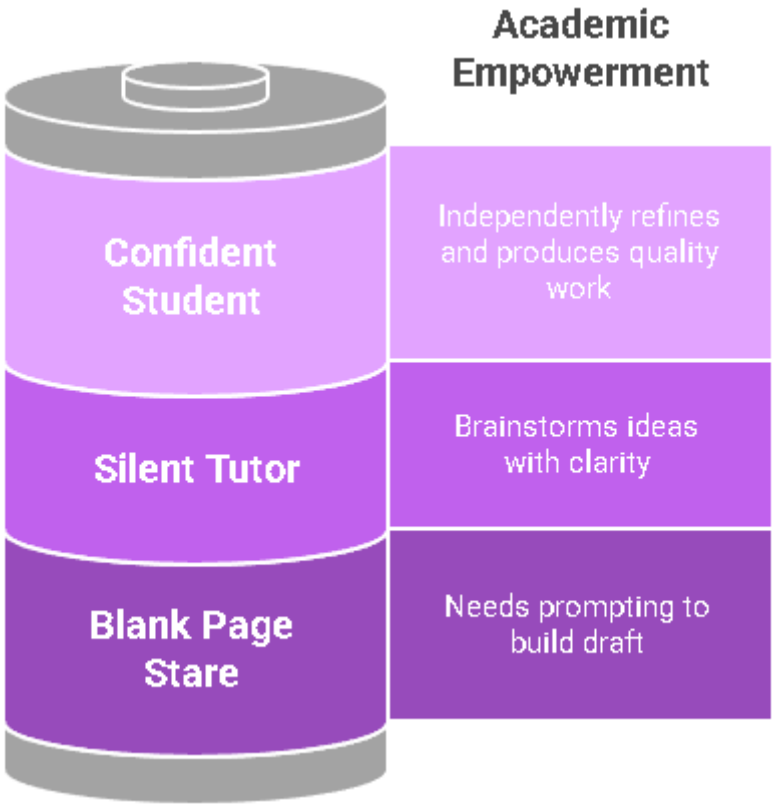
"Before I found AI tools, I used to stare at a blank page for hours. Now, with some prompts, I can build a draft and refine it. It feels like I'm not alone in the process." (Participant 7)

The empowerment experienced was not without limits; some participants acknowledged that the AI's value was conditional upon their own critical thinking and active engagement.

AI tools shift students from overwhelmed to academically empowered.



Emotional Ambivalence and Cognitive Dissonance

While students appreciated the functional support AI provided, many reported feelings of ambivalence. The initial excitement and relief often coexisted with unease, guilt, or concern about overreliance. Some participants voiced internal conflicts related to authenticity and academic integrity.

"There's a voice in my head that says: is this still my work? Or am I just curating what the AI says?" (Participant 2)

The emotional tension appeared to stem from the realization that the ease of using AI could potentially weaken their own analytical and writing skills if used excessively.

"I feel relieved when AI helps me, but sometimes I wonder if I'm cheating myself out of learning." (Participant 9)

This theme underscores a dual emotional experience—gratitude toward AI for assistance, but also discomfort about its implications for personal growth and academic ethics.

Humanizing the Machine – Perceived Empathy and Social Presence

Surprisingly, several participants described a perceived sense of understanding or even companionship from AI tools. Although intellectually aware that AI lacked consciousness or emotions, students reported emotional resonance with the responses they received.

"When I wrote something personal and the AI responded supportively, it felt like it cared—even though I know it's just an algorithm." (Participant 6)

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This human-like interaction seemed to offer a form of psychological comfort, particularly during late-night study sessions or periods of academic stress.

"At 2 a.m., when I'm stressed and tired, the AI feels more present than my friends or professors. It's always there." (Participant 11)

These experiences highlight how students anthropomorphize AI systems, projecting human traits onto them to fulfill emotional and academic support needs.

The analysis reveals that students' engagement with AI as academic assistants is marked by a blend of empowerment, emotional complexity, and relational perception. While AI enhances academic productivity and confidence, it also raises questions about authenticity, dependency, and the human-like presence of non-human agents. These findings point to a deeper meaning behind the student-AI relationship, one that transcends utility and touches upon identity, agency, and affect.

DISCUSSION

The findings of this study reveal that students experience AI as academic assistants in complex and layered ways, shaped by a dynamic interplay of cognitive empowerment, emotional ambivalence, and relational perception. These experiences reflect a deeper meaning behind students' engagement with AI—one that speaks to their evolving sense of agency, authenticity, and connection in the digital academic environment.

The study provides a nuanced response to the research question regarding how students perceive empathy and trust in their interactions with AI in academic contexts. The emergent themes demonstrate that students not only use AI as a functional tool but also experience it as a source of emotional support, reflective companionship, and even academic reassurance. This research contributes a unique interpretative perspective by illuminating how students assign personal meaning to their AI interactions, particularly in moments of academic vulnerability and stress. It moves beyond the traditional focus on usability and performance to foreground how students internalize AI's presence and its role in shaping their academic identity and confidence.

The themes resonate with and extend prior work in human-computer interaction and AI in education. For example, Seaborn and Fels (2021) discuss the psychological affordances of AI systems, highlighting how users form emotional and interpretive bonds with machine agents. Similarly, the findings support Bickmore et al. (2018), who noted that perceived empathy—even from non-human agents—can be psychologically meaningful. However, this study moves beyond previous literature by focusing explicitly on students' lived meanings, capturing a tension between empowerment and ethical uncertainty not fully articulated in earlier research. It aligns with interpretative phenomenological frameworks that emphasize the existential and affective dimensions of technological experience, demonstrating that even in the absence of sentience, AI can become deeply humanized in the minds of users.

The findings of this study carry important implications for educational institutions, instructors, and technology developers. From a sociocultural perspective, the humanization of AI tools by students reflects a shift in how learners relate to knowledge sources and support systems. This shift invites educators to reconsider the emotional and relational dimensions of learning, particularly as students begin to attribute trust, empathy, and cognitive partnership to non-human agents. For AI developers and policy makers, the results suggest the need for ethical design principles that consider the affective and interpretative experiences of users, especially in high-stress educational contexts. Practically, institutions may need to develop guidelines or support systems that help students navigate their use of AI in a way that fosters both critical thinking and emotional well-being.

This study is not without limitations. The sample was limited to a small group of students from a specific academic context, which may restrict the transferability of findings to other cultural or institutional settings. The reliance on self-reported narratives, while central to phenomenological inquiry, may also introduce subjective biases that cannot be externally validated. Additionally, the interpretation of meaning is inherently influenced by the researcher's perspective, a known

characteristic of interpretative phenomenological analysis that requires careful reflexivity. These limitations are not flaws but boundaries that define the depth and scope of this particular inquiry.

Future research may expand on these findings by exploring diverse educational environments, disciplines, and cultural contexts to examine how AI is perceived and experienced by different student populations. Longitudinal studies could also investigate how these experiences evolve over time, particularly as AI tools become more sophisticated and embedded in academic life. Further phenomenological research might explore related questions of identity, authorship, or human-machine relationships in learning. By continuing to center the lived experiences of students, future work can contribute to a more human-centered understanding of AI in education.

CONCLUSION

This study explored how students experience AI as academic assistants, focusing on the cognitive and affective dimensions of their engagement. The findings revealed that students feel both empowered and emotionally conflicted when using AI tools, highlighting a complex blend of trust, autonomy, and perceived companionship. These experiences provide new insight into how students construct meaning around AI, moving beyond previous research that prioritized technical performance. By applying an interpretative phenomenological approach, this study addressed the lack of understanding regarding the subjective dimensions of human-AI interaction in educational settings. The results contribute to the development of more ethically and emotionally responsive AI systems that align with students' academic and psychological needs.

In practical terms, educators and developers should consider integrating training and support systems that help students critically reflect on their reliance on AI, while also promoting ethical awareness and responsible use. Institutions might also incorporate guidelines into digital literacy curricula to address issues such as authorship, academic integrity, and emotional dependence on non-human agents. From a policy perspective, higher education frameworks should be updated to explicitly address the emotional and psychological implications of AI adoption, ensuring safeguards for student autonomy and mental well-being. Future research should investigate how these experiences evolve over time, particularly in longitudinal designs, and in different cultural or disciplinary contexts. Additionally, further inquiry is needed into how emotional responses to AI influence learning motivation and identity formation. Questions worth exploring include: How does long-term engagement with AI shape students' perception of self-agency? What are the unintended emotional consequences of increasingly human-like AI in education?

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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