Impacts of generative AI usage on the expression of humanity in university teaching

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ABSTRACT,
The integration of generative AI into higher education has rapidly altered pedagogical practices, while also providing new means to automate, personalize and facilitate a quicker and more efficient delivery of instructions. While these technologies are made to improve various areas of the educational process (including content creation, assessment, and feedback delivery), they simultaneously trigger important questions about the humanistic quality of teaching. This thesis will examine the role of generative AI in influencing humanity levels in university teaching, specifically the dimensions of care and empathy, authenticity, relational presence, and ethical responsibility. Focused on qualitative research design and using the Gioia approach, this research is based on data collected from semi-structured interviews with university educators who are currently implementing AI into their teaching practices. It investigates how AI is shaping teacher-student engagement and examines how the use of multiple AI tools can be detrimental or beneficial to academic instruction. By understanding both the possibilities and challenges presented by generative AI, this research aims at identifying key pedagogical and institutional considerations that enable universities to maintain human-centered teaching. The findings are intended to add to the academic conversation on AI in education, developing a conceptual framework for understanding humanity in technology-mediated teaching.

AI disclaimer: Parts of this thesis were developed with the assistance of generative AI tools (e.g., ChatGPT), which helped with idea and paragraph structuring and with organizing the findings coherently and academically, keeping the author the final decision-maker in terms of content and accuracy.

Graduation Committee members: Dr. Johannes Dahlke, Dr. Vincent Göttel

Keywords: humanity, expression of humanity, university teaching, generative AI in university teaching, multiple AI tools, AI policy.

1. INTRODUCTION

It is becoming increasingly difficult to ignore the fast and remarkable integration of generative AI systems, especially when referring to university teaching. AI-powered systems such as ChatGPT are rapidly reshaping and restructuring the landscape of higher education, as they have been designed to assist in all kinds of teaching-related activities: from curriculum design and content creation to grading and providing personalized feedback (Duarte et al., 2023). Recent studies and observations show that these advancements promise greater efficiency when it comes to time-consuming and administrative tasks and are indeed more objective when it comes to providing efficient feedback. (Celik et al., 2022; Terzopoulos & Satratzemi, 2019). Additionally, the integration of AI tools contributes to a more personalized learning experience, while providing students with personalized learning support (O Donell et al., 2024). However, while the functional benefits of generative AI usage have received considerable attention, much less has been written about the impact that all these artificial intelligence integrations have on the core human dimensions of teaching. This includes points of attention towards the ways teachers express empathy, authenticity, and presence care. Even though multiple existing studies explored the opportunities that come with the usage of AI and concluded that there is going to be an increase in efficiency and effectiveness when referring to task-automation (Duarte et al., 2023; Celik et al., 2022; Terzopoulos & Satratzemi, 2019), fewer have explored how generative AI affects the expression of humanity and what strategies to adopt to not reach depersonalized education and lack of authenticity of human engagement. Therefore, this paper will focus on whether the usage of generative AI enhances or erodes the human interaction between students and teachers, its ethical and educational implications at the extent to which it reshapes the traditional ways of teaching. The study will imply defining the humanity dimensions in university settings, the relationships between students and teachers as well as their ways of basic interaction and communication, and the effects of generative AI usage in teaching.

1.1 Research question

Considering the need for translating what does humanity mean in the context of university teaching and how it is affected by the usage of multiple AI tools, this research will focus on answering the following research question:

"How does generative AI usage affect the expression of humanity in university teaching?"

To systematically attain the needed information and background for answering this question, this research has been divided into the three main sections that can be found in the Literature Review: *"Expression of humanity", "Generative AI and university teaching" and "Generative AI influence on the expression of humanity in university teaching".*

The answers will be provided by conducting and analysing interviews with university teachers, mainly from University of Twente, in relation with already existing literature support.

1.2 Contributions

This research is set to deepen the knowledge of how AI tools affect academic teaching overall, while focusing on the humanistic side of the whole integration. While most of the current literature on generative AI in teaching focuses on the benefits of AI assistance in learning, efficiency, or even ethical concerns when it comes to data privacy (Akgun & Greenhow, 2021), this research offers a distinct angle by putting emphasis on the concept of humanity in teaching, while dealing with AI tools implementation. The dimensions of humanity are explained and considered, and such is the impact that the AI usage has towards them. Additionally, this study provides insights about teacher identity while offering theoretical consolidation.

The practical relevance of this study is about informing teachers in universities about the importance of balancing the functional benefits of AI usage with the preservation of their moral dimensions in their practices. By highlighting the potential risks of depersonalization and relational distance, as well as opportunities for enhancing personalized attention and more time allocated for deeper student engagement, this research can serve as a guiding framework for professional development initiatives and institutional strategies around ethical AI integration within universities.

2. LITERATURE REVIEW/ THEORETICAL FRAMEWORK

2.1 Expression of humanity

To understand how the combined usage of AI tools influences the expression of humanity in the context of university teaching, we must define what is meant by "humanity" in an educational context, explore its core dimensions and implications and finally, how to measure it correctly. In higher education, humanity is not only a philosophical concept, associated with the moral principles, ethical behaviors and treated as an end itself, never as a means, as Kant's theory suggests (Hoskins, 2008). It is also not only about the biological concept that refers to the collective existence of humans as a species that was shaped by evolutionary and social processes (Coupland, 2003). In reality, when referring to humanity as part of the university teaching process, it can be concluded that humanity describes the application of humanistic values and principles in the educational process. It focuses on fostering students' moral, emotional and social growth in addition to their academic development. Among several key principles are empathy, respect, authenticity and fostering a supportive learning environment (Wang, 2012) (Liang & Han, 2013). These humanistic practices are particularly vital in higher education, where autonomy, critical thinking, and moral development are emphasized. According to Noddings (2005), caring and empathy are the core of the ethical relationships in educational relationships. Palmer (2007) also raised the same point regarding authentic teaching. He noted that authentic teaching requires a level of parallelism between who a teacher is and what a teacher does. This match allows the educator to create meaningful relationships with students.

Building upon the work of Cornelius-White (2007), Wang, (2012), Noddings (2005) and Palmer (2007) this research identifies four interrelated dimensions of humanity in university teaching:

1. Care and Empathy: refers to the teachers' ability to recognize, understand, and react to the emotional and affective experiences of students. Care is not defined entirely as a feeling, but also as an action-oriented stance that wishes to see the well-being of others (Noddings, 2005). Empathy goes one step further, allowing teachers to interpret students' experiences from their own perspective, which is crucial in building relationships based on trust. A teacher who is aligned with this dimension does not simply transfer knowledge but takes an active role in cultivating the students' potential.

2. Authenticity: refers to the relationship between a teacher's personal values, principles, emotions, and methods of teaching. Authenticity occurs when teachers transparently present themselves to their students, as it leads to credibility and bring openness in the classroom culture (Palmer, 2007). In a nutshell, authenticity works as the moral and emotional foundation of the student-teacher experience.
3. Relational presence: includes teacher's availability, attention, and responsiveness when engaged with their students. It illustrates the teacher's intention to be fully engaged in real-time educational activities. In blended and online learning situations, this dimension is particularly important, when emotional distance could be an obstacle. A teacher's active presence through real-time discussions, general and personalized feedback, sends a message to the students that they are seen, heard and valued as individuals, contributing to nurturing their sense of belonging (Lim et al, 2022).
4. Ethical Responsibility: refers to the teacher's commitment to fairness, inclusivity, transparency, and the broader consequences of their teaching. It requires remaining morally correct in situations such as grading, providing feedback and when it comes to accessibility, academic integrity, and use of technology (Shapiro & Stefkovich, 2016).

Though conceptually separate, the dimensions previously mentioned are profoundly connected and mutually supportive.

2.2 Generative AI and university teaching

Generative AI integration in university education processes has shifted the tides of student-teacher relationship dynamic. As universities continue to embrace AI usage, from automated grading systems through content generation for the lectures, researchers started to explore how these technology-oriented solutions are changing ways of interaction and the humanistic nature of teaching. Current research is exploring both the advantages and disadvantages associated with AI tools integration.

Firstly, it must be clear what are the activities and tasks that university teachers use generative AI for. There are three main areas where generative AI has become an innovative factor for enhancing educational practices:

Course design and preparation (Pettersson et al., 2024)

There is a noticeable trend towards a growing number of university educators using generative AI as a part of their course planning and design, seeing that generative AI can save time, improve existing content, and provide personalized learning opportunities. Educators are using generative AI applications, including ChatGPT for many purposes, such as summarizing content for workshops or lectures, providing images and graphics, and improving teaching materials and clarity in language. Educators who have embraced generative AI note how efficient and impactful the use of the AI application has been in preparing their courses (Pettersson et al., 2024). Educators state they have used AI to generate high-quality images for presentations, assist with translations, and even draft entire sections of course materials. Many educators reported time was a significant factor, contributing to improved student-centric and topic-focused pedagogy. In fact, one educator claimed that they saved at least 90% of the time it used to take them to create a unit of study when using AI (Cacho, 2024). When referring to course design, generative AI does take care of many of the time expensive tasks and makes room for working on the higher order of tasks, such as improving the pedagogy and providing contextualized learning opportunities and content relevant to students and their learning needs. In addition, AI is used to find both relevant and context-sensitive learning resources for properly aligning with contemporary issues and learning preferences of students (Chan, & Hu, 2023). Educators are also using AI to build personal learning paths for students, morphing content based on student learning, progressions, and interests, creating a more inclusive and engaging learning space (Bozkurt, 2023). Personalization can help with some of the challenges associated with diverse students, having different experiences, knowledge, and types of learning in a classroom. Customizing content enables educators to provide equitable materials to all students that are equally challenging and accessible.

Examination (Chow, 2024)

More and more teachers are using AI technologies to make grading and examinations more efficient, accurate, and fair. AI tools, such as automated grading systems and intelligent tutoring systems, are being used to facilitate the grading of student assignments, quizzes, and papers. These systems use AI algorithms to evaluate student answers, give instantaneous feedback, and lighten teachers' workloads (Vallis et al., 2024). For instance, generative AI can automatically grade multiple-choice, short-answer questions, and essay submissions. Additionally, AI can reduce the potential for human bias in grading and improve grading consistency (Holmes et al., 2019). Intelligent tutoring systems using AI can generate student exam questions based on the students' learning and areas of shortcomings, giving them a more customized examination experience. These systems are also able to alter the level of difficulty in real-time for exam options to ensure that students are challenged, and that the examination experience accurately measures their understanding of the intended curriculum. The usage of generative AI in the grading and assessment processes also includes collecting rich analytics of student engagement and performance. AI systems can scan very large sets of data containing student responses to discover trends and patterns, as well as factors that trouble students frequently. This data can guide instructors in their teaching methods and allow them to identify student misconceptions and adjust their methods accordingly (Vallis et al., 2024). Moreover, AI can provide students with personalized feedback that contains specifics, justifications, and recommendations to improve on assessments (Cacho, 2024).

Finally, teachers have increasingly adopted the usage of generative AI-based fraud detection systems in their academic processes to protect assessment integrity and elevate the definition of scholarly outputs. These systems, which combine both pattern recognition and machine-learning algorithms, can assist in identifying anomalies in students' submissions and instances of potential plagiarism or collusion (Howard, 2019). For instance, a study made by Cholakov & Stoyanova-Doycheva (2024) shows how universities improve the outcomes of fraud detection of higher education assessments by integrating AI, especially ChaptGPT, into the Fraud Detector software agent, where, therefore, the accuracy of detecting cheating, plagiarism and collusion in online assessments is being improved.

Student Engagement (Honig, 2024)

In a study by Chan et al. (2024), students receiving feedback generated by AI showed statistically significant gains in their writing quality and reported increased motivation and engagement compared to students receiving conventional feedback. The thematic analysis of student interviews further indicated that while student emotional responses to AI feedback were mixed, some participants identified AI as a benefit because

it provided focused, actionable feedback, which contributed to a more engaging and effective learning experience. Ferreira (2024) suggests that the integration of generative AI and active methodologies enables teachers to create engaged teaching approaches that address the needs of their students, provide real-time feedback, and fully engage learners in the learning processes. This enhances student learning and engagement by inviting students to engage with content, at their own pace, in ways that reflect their unique desire and interaction with the course.

2.3 Generative AI influence on the expression of humanity in university teaching

Research is showing that the usage of Artificial Intelligence significantly impacts university teaching in both positive and negative ways (Kallunki et al., 2024). While generative AI is contributing to students' innovative behavior and well-being through personalized learning and new teaching methods that could improve engagement (Ma et al., 2024), there are still potential drawbacks to using AI in learning, such as laziness, privacy concerns, as well as the ethical implications and loss of human connection (Gomathi Meena et al., 2024).

On one hand, papers suggest that the usage of AI can foster a beneficial learning environment for students, suggesting that AI can enhance emotional engagement in learning (Ma et al., 2024). It has also been indicated that AI tools can enhance students' creativity and overall mental health. Furthermore, it has been found that as AI tools are automating elementary administrative functions such as grading and scheduling, they are allowing teachers to spend more time and primarily focus on meaningful and nuanced teacher-student interactions (Holmes, Bialik, & Fadel, 2021). As teachers can free their time for these interactions, they are able to impact their teaching with authenticity and emotional presence, a major aspect of human-centered education. AI systems also give teachers detailed analytics that show student performance and trends in student learning, which allows them to personalize their pedagogical practices to meet specific learning needs of students. This supports empathetic and nuanced responses to how students actually learn (Luckin, 2017).

On the other hand, researchers state that while AI technology enhances communication and feedback efficiency, it may also reduce direct interactions and may lead to isolation (Puteri et al., 2024). Moreover, it can foster a dependency on technology and students could start relying only on the AI tools provided, not taking into consideration the input and guidance provided by their teachers (Puteri et al., 2024). This fast and growing reliance on technology could diminish teacher's authority in time, researchers say (Cao, 2024). Additionally, research states that AI can introduce potential risks for discrimination and rely only on historical data that may contain biases (Giang & Cu, 2024).

2.3.1 Relevant factors for increasing the expression of humanity

Given how generative AI is affecting the dynamics in the process of teaching in higher education and given the dimensions that reflect the expression of humanity, which factors could be relevant in retaining this human expression in the context of students and teachers' relationships? Current literature indicates that multiple contextual and pedagogical factors may not allow the expression of humanity in student-teacher relationships to diminish or deteriorate, even when technology is involved. A very important contextual factor that can support the connection between student and teacher is the intentional use of AI as a complement and support, and not a substitution for human interaction (Wills, 2024). This is a critical distinction to make, particularly given that generative AI can enhance or subvert the human elements of teaching depending on the purpose and place of technology in the educator's practice. To this end, if educators use AI technologies solely to automate administrative tasks in education, such as feedback on assignments, grading, and scheduling tasks, to assign cognitive, emotional, or logistical energy to student interactions, then they will have opportunities to be less present (and be more available) to engage in deeper conversations with students and to provide timely support that addresses the unique challenges, aspirations, and emotional needs of students in relation to the class (Ismail et al., 2023). Instead of taking away the educator's role, when AI is used intentionally and purposefully, teachers may be able to include the wanted human presence in pedagogical relationships by removing the burden of repetitive tasks for educators and replacing them with presence, empathy, engagement, and pedagogical responsiveness (Kayyali, 2025).

Another factor that could help with retaining the human expression in teaching could be the implementation of AI policies and frameworks, research states (Chan, 2023.). Thoughtfully constructed AI governance policies can help offset these risks by shaping the normative and operational boundaries for the ethical and responsible use of AI technologies in institutions of higher learning. An AI policy can reaffirm the norm that AI technology is to be thought of as tools and means that enhance the relationships and ethical responsibilities of educators (Chan, 2023). These policies prescribe that instructors must continue to oversee the essential instructional tasks of providing feedback, grading, and engaging with students. Reviewing AI policy prepares instructors for their accountabilities in pedagogically relational and emotional presence, while providing institutional AI policy is to build reflective and ethically intentional teaching practices through transparency, equity, and inclusion (Chacot, 2023; Chan, 2023). However, the literature highlights the fact that there are some research gaps within these policies, as limitations related to privacy concerns and lack of involvement from students exist (Chan, 2023).

Finally, literature emphasizes on the advantages of integrating multiple AI tools in higher education teaching. Researchers say that by integrating generative tools like ChatGPT for formative feedback together with learner analytics platforms that track student progress, educators have more ways to identify students who need emotional support or learners who need academic help, improving the chances of empathetic intervention and pedagogical presence (Zawacki-Richter et al., 2019). This synergy increases student engagement through tailored resources and interactive learning experiences (Jantanukul, 2024). Similarly, such AI-enabled learning analytics platforms, for instance, an LMS (Learning Management System) dashboard with prediction capabilities, provide instructors with the information to early on identify struggling students, leading to opportunities for timely human interventions built on care and empathy (Ifenthaler & Yau, 2020). As Lang et al. (2022) observe, layered integration such as this can assist the educator in being a relational agent, and not merely a provider of content. Therefore, when the integration of diverse AI applications is carefully implemented, layered integration does not serve as a replacement of human interaction, but rather as an extension of the moral and emotional context of the educator as the digital learning environment becomes more complicated.

3. METHODOLOGY/ RESEARCH DESIGN

3.1 Research Design

Due to the exploratory nature of the study, along with the still in developing understanding of how generative AI impacts the manifesting of being a human in university teaching, a qualitative research design was chosen. Given that concepts such as humanity, authenticity, and relational presence are context-specific, a qualitative research design was the most appropriate to provide rich and detailed understandings of the actual experiences of teachers (Creswell & Poth, 2018). This approach followed an exploration that went further and emerged into educators' experiences and perspectives in terms of adopting and integrating AI technologies into their pedagogical practices. An inductive research strategy was employed, and the study was based on the Gioia methodology (Gioia et al., 2013). Drawing on grounded theory, this approach facilitates methodological rigor in qualitative studies through the development of a systematic and integrated data structure (Gioia et al., 2013; Gioia, 2021). Therefore, this methodology provided a multi-stage approach to data analysis with rigor for methodological transparency for an interpretive qualitative research framework. The methodology also supported a systematic engagement with empirical data, while still being iterative, open, and flexible, in order to create a dynamic model for understanding humanity while using AI within enacted pedagogical practices.

3.2 Interviews

3.2.1 Sampling approach

This study started by selecting participants purposefully, based on their fit within the research context. This selection ensured that the interviews were conducted with active participants of teaching practices in higher education who are currently using AI tools in their current teaching-related activities and have a holistic understanding of AI integration in academic settings (Campbell et al., 2020). Therefore, ten participants were interviewed, namely PhD candidates and assistant professors associated with the University of Twente and other institutions. Their corresponding details can be observed in Table 1, listed below. Before the interviews, each participant received a consent form outlining the purpose and process of the study, voluntary participation, the use of audio recording and transcription, and that data would be anonymized and only accessible to the researchers. This helped in maintaining ethical adherence and transparency in the research process, as well as minimizing possible biases from respondents (Bergelson et al., 2022).

Nr.	Respondent university	Respondent role
1	University of Twente	PHD candidate
2	University of Twente	Assistant professor
3	University of Twente	Assistant professor
4	University of Twente	Professor
5	University of Twente and University of Münster	PHD candidate and Research associate
6	University of Twente	Assistant professor
7	University of Twente	Assistant professor
8	University of Twente	Assistant professor
9	University of Twente	PHD candidate
10	University of Munich	PHD candidate and Research associate

Table 1. Respondents

3.2.2 Data Collection

As the aim of this research is to provide further theoretical and practical implications for the university teachers, a series of semi-structured interviews was conducted for this section. They constituted the predominant method of data collection as they can balance structure and flexibility, making them particularly appropriate to pursue the complex and emergent phenomenon of generative AI's impact on human-centered teaching (Wilson, 2014). Semi-structured interviews provided the researcher the opportunity to consider themes of interest, such as course design, student engagement, and the teacher's role, while also allowing participants to articulate their personal experiences, values, and concerns in an unrestricted manner. Pursuing semi-structured interviews as a method was the best option, considering the nature of the concepts of empathy, authenticity, and relational presence, which are ultimately subjective experiences. A fully structured outline would only limit the richness and complexity of participant responses (Orvaschel, 2006). Additionally, the semi-structured interviews produced opportunities for the researcher to address open-ended questions, ask further clarification, and even change the order of the questions, based on the behavior of the respondent (Hammer & Wildavsky, 2018). Based on the questions asked, such as "When you think about what makes teaching distinctly human, what comes to your mind?", "How has generative AI changed the way you design your courses?" or "What kinds of institutional support do you believe are necessary to foster this exact human-centered teaching in the whole AI era?", the format of the interview was a relaxed one, simulating a typical conversation, which allowed participants to reflect on their own experiences and perspectives. The full interview guide can be found in Appendix A.

The interviews were conducted either online, on Microsoft Teams, or in person, at the University of Twente, between the 26th of May and the 5th of June. 2025 The sessions ranged between 30 and 60 minutes, with an average time of about 46–47 minutes. Each interview was audio-recorded and transcribed with permission from the respondents, to enable an in-depth data analysis.

3.2.3 Data analysis

The study adopts a naturalist perspective, employing inductive reasoning using semi-structured interviews to develop grounded knowledge aligned with principles outlined by the Gioia methodology (Gioia et al., 2013; Gioia, 2021). This technique is defined as an inductive approach to qualitative research that highlights expanding on existing theory from data, by systematically moving from participant's own words (first-order codes) to defined themes (second-order codes) and finally to abstract theoretical dimensions (Gioia et al., 2013; Gioia, 2021). The Gioia methodology provides transparency in the study by establishing clear links between raw data and emerging theory (Gioia et al., 2013).

The first-order codes originated from the first step, by reviewing every interview transcript using a process of open coding to capture concepts from the own words of the participants (Miles & Huberman, 1994). At first over 100 quotes were extracted from the interviews, for further analysis. However, based on the researcher's aim, fewer quotes were selected because of repetition and translated into first-order codes, to capture the most relevant insights. These codes presented the richness and nuance of respondents' own words and were compared across transcripts, refining them into representative sets.

Then, these were grouped into higher-order clusters, namely the second-order concepts, which captured relevant patterns from the first-order codes. Initially, the first-order codes were translated individually into specific second-order concepts such as this

quote “If you don’t use the right prompts, the nuances of the feedback could diminish.” being interpreted into the first-order code of “AI lacks nuance in feedback” and later into a specific second-order theme called “Avoidance of AI usage in feedback”. Another example could be this quote “I believe the teacher should do it… I don’t use AI for grading” being translated into the first-order code of “Teacher believes grading is a teacher’s responsibility”, and later associated with the second-order theme of “Avoidance of AI usage in grading”. After careful analysis, patterns were discovered and the initial second-order themes (like “Avoidance of AI usage in feedback” and “Avoidance of AI usage in grading”) were grouped into broader concepts such as “Boundary setting”. The second-order concepts managed to interpret what the first-order codes meant, translating them into a broader theoretical context.

Lastly, the second-order themes were combined into aggregate dimensions, which represented the core categories of the theoretical model. These formed the foundation of the dynamic model, which created a visualization of how teachers interpret and navigate human expression in relation to AI integration. Consistent with the method of constant comparison the researcher continually returned to the transcripts, refining analyses, and comparing what patterns emerged to determine the stability of the analysis across interviews. The resulting dynamic model is illustrated in Figure 1, highlighting the transition described in the previous steps. The full representation of the Gioia analysis can be found in Appendix B.

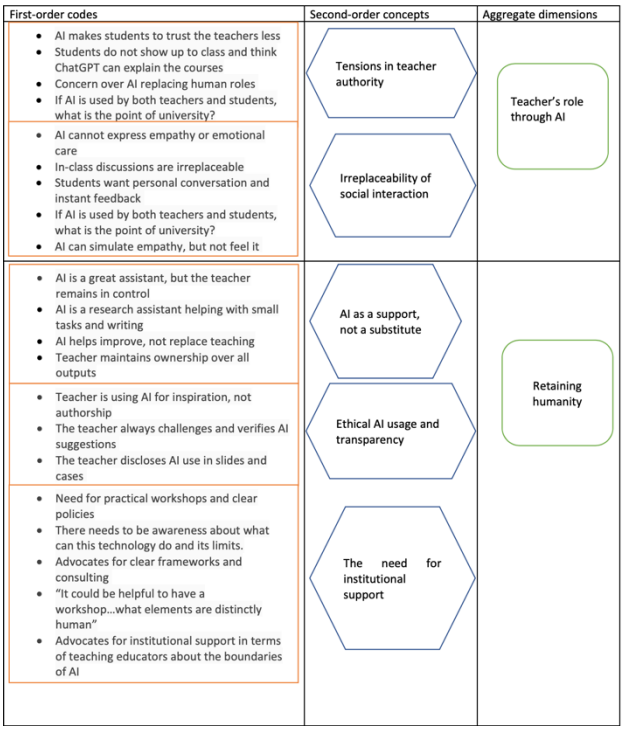
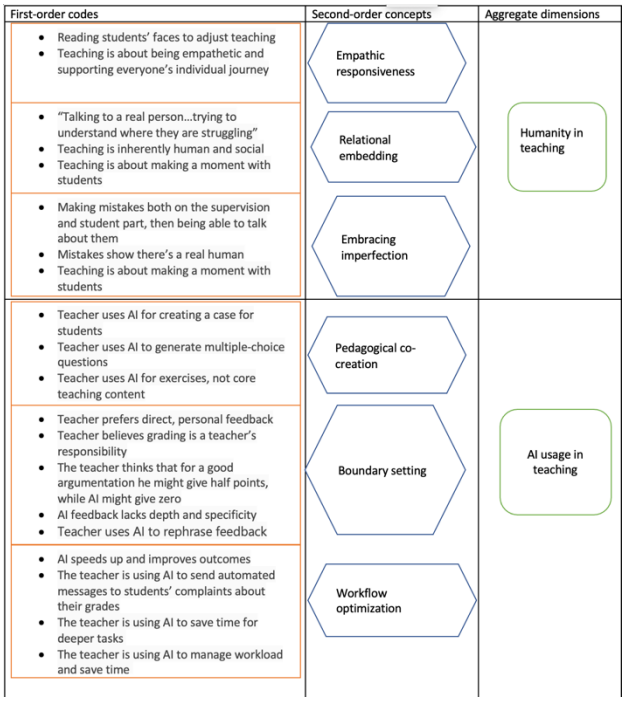


Figure 1. First and second-order codes grouped in dimensions

4. RESULTS

4.1 Data structure

The content analysis provided a good understanding of the AI usage and its integration into the teachers’ practices, as well as its impacts on humanity in their academic practices. The findings were coded following the Gioia methodology (Gioia, 2013) and allowed the informants ‘own words to be grouped into conceptually driven second-order themes, and further clustered into four different dimensions. These summarize the study’s findings and address the main important aspects related to GenAI usage in university teaching.



4.1.1 Humanity in teaching

4.1.1.1 Empathic responsiveness

When discussing the increasing technological mediation in university teaching, educators consistently indicated their human ability to respond with empathy to students in real-time is a strong attribute of human teaching and learning. Empathic responsiveness was defined not as a mechanical behavior, but instead as an intuitive process that empowered teachers to shift their tone, delivery, and even course because of perceived cues from students during face-to-face interaction. The participants consistently referred to the ability to read the emotional climate of the classroom as central to their effectiveness as teachers. Features like students' faces, tone of voice and body language indicated how to pace their lecture (e.g., whether to speed up or slow down, or when to have a break or change their tone). Additionally, when asked about what humanity means to them in their teaching activities, the teachers also claimed that the face-to-face uncomplicated feedback loops create space for adjustment and responsiveness, especially needed for personal and appropriate interaction with their students. They suggested that their empathetic, real-time reactions foster a favorable environment for students’ individual learning journey and growth: “There’s so much going on… in the tone, in the mimics… that is distinctly human" (I05). This capacity to read situations interpersonally is seen not only as having practical relevance but also as providing care and attention to the students in a way that forms an environment for the students to feel noticed and supported.

4.1.1.2 Relational embedding

It has been confirmed that teaching is about obtaining an emotional presence and engagement. The responses demonstrated how the meaningful interactions with students shaped teachers’ understanding of pedagogy and that the human contact is inherent in teaching as opposed to teaching being the recycling of information. One respondent stated that "teaching is interaction…it’s inherently human…a social situation" (I08) and

another mentioned the importance of "talking to a real person…trying to see where they are struggling" (I07). In fact, many of the participants pointed out how relational presence allowed them to develop trust and belonging. They described moments before or after class where they could make students feel seen and supported through a joke or a simple conversation. One educator described this relational depth as "making a moment with students" (I01), suggesting that these moments stay with the students and often define the teaching experience more than the content. Moreover, creativity, conversations, and openness were often referenced as the best way to foster personal connection. The importance of personal connection to the reflections of key aspects also appeared in their inputs as "creativity… personal engagement with students" (I06), and "you see people grow… I can help with tips and tricks" (I06).

4.1.1.3 Embracing imperfection

One key takeaway was the notion of teachers accepting imperfection in their teaching by making mistakes or showing vulnerability. This imperfection is not viewed as a shortcoming, but instead as a version of authenticity that strengthens credibility and connection. One teacher said, "Sometimes those little mistakes are good...you know there's a real teacher" (I01). These moments humanize the educator and create a relaxed context for students to also admit confusion or failure, encouraging them to talk about it.

4.1.2 AI usage in teaching

4.1.2.1 Pedagogical co-creation

The majority described using AI as a creative assistant to help them in planning and preparing course material. They did not outsource content generation to AI, but instead had the tool offering them suggestions, generating fictional cases, creating visualizations or even ideas for multiple-choice exam questions. AI was appreciated for its speed and flexibility to offer new perspectives or to reframe previously available material. All participants who employed AI in this way reported that any output from the AI applications was always evaluated, edited, and individualized prior to being used in their teaching. As one teacher stated, "I used ChatGPT to create a case… I created my own case in collaboration with ChatGPT" (I10), the use of AI seemed to have a pragmatic flavor in the sense that the technology was appreciated as a tool to help in course design, while being kept under human control.

4.1.2.2 Boundary setting

Although previously the teachers were open about using AI in course preparation, they collectively suggested a solid division when it came to the use of AI for feedback and grading exams or assignments. Participants suggested that feedback is fundamentally relational: an act that requires empathy, interpretation, and an individualized lens. Some participants noted that AI entries lacked contextual knowledge, emotion, and nuance: "If I see an answer that's really good in argumentation… I would give it half points. AI might say no points" (I03). Another participant mentioned that "For feedback, no, I always do by myself… what's the point of restricting AI for students and then I use AI to give feedback?" (I01), which confirms the expressed concern about the possible danger of compromising students 'trust and fairness in their academic experience. Educators felt strongly that grading is part of their role as a professional - something that requires judgment rather than just application of a procedural rule: "Those models do not have official examination rights… I wouldn't rely on that" (I10). Finally, there was one respondent who used AI for feedback, but only for generating phrases such as "Thank you for submitting your work on time!".

4.1.2.3 Workflow optimization

A common reason provided by the respondents for leveraging AI in their teaching practices was the potential for time savings and streamlining repetitive tasks. Participants articulated that they would use AI to decrease planning time for lectures, generate visuals for their slides, improve their writing, or even send automated messages to students. Some simply articulated that AI tools enabled them to " have more time to find the right paper or idea" (I09) or "getting me quicker to my end goal" (I05) when pressed for time or creative energy. This efficiency is especially helpful for educators who have limited time and resources to develop content. However, despite the time savings that were clearly valued, interviewees still articulated that the AI outputs required review and adaptation. As one teacher articulated, "I would say it's really a catalyst that makes things just so much quicker" (I10). AI seems to be boosting productivity and supporting pedagogy without determining the critical human decision-making necessary for quality teaching.

4.1.3 Teacher's role through AI

4.1.3.1 Tensions in teacher authority

On one hand, some respondents spoke out about their concern in how generative AI tools are taking away their authority and validity in the classroom. As students start to rely on tools such as ChatGPT as a source of explanation, clarification, information, and text creation, the educators noticed this gradual shift in the power of their expertise in the classroom. As one of them stated, "Students start to believe ChatGPT more than they believe me" (I04), and that expressed slight concerns over trust in the human voice. This power shift also captures the broader concern over not just validity or credibility, but also the erosion of the pedagogical role of the teacher. Educators wonder about what is left of their professional identity when students already outsource their understanding to AI tools, especially if the educator is also using those same tools to develop or respond to needs. Additionally, this concern became even more evident in discussions surrounding feedback and assessment. One participant asked, "If students use AI to produce written content and I use AI to give feedback… what's the point of the whole university?" (I01). The rhetorical aspect of this question led to a larger, looming anxiety: that the interplay between AI use in the academic sphere could undermine the human-centered transaction that occurs in higher education. Teachers are worried about being passive mediators of AI-constructed input as opposed to active facilitators of knowledge, discussion, and critical thinking. For many, the preservation of this role meant intentionally setting limits on the use of AI and reaffirming their identity as human beings, not merely as deliverers of content but rather mentors, guides, and human partners in the act of learning.

4.1.3.2 Irreplaceability of social interaction

Finally, the respondents stated that AI tools and techniques will never replicate the depth of human connection that is at the core of effective teaching. Regardless of the available AI tools, the socially interactive experience, distinguished by spontaneity, emotional connection, and co-presence, was cited as an indispensable element of the learning experience. Participants indicated that the dialogue in real time fosters trust, connection, and a much richer intellectual engagement. One participant highlighted that "The in-classroom experience… that's something I don't think you can replace" (I10). Teachers valued the human presence. Additionally, a few interviewees acknowledged that some aspects of AI may simulate, promote, or be perceived as empathy or care through emotionally intelligent phrasing or personalized outputs. However, they also noted that these were all still artificial, rejecting claims stating that AI has emotions or can have and express care or empathy:

"It can emulate empathy in written form… but it can't hug or smile" (I05). They connected grading and teaching as personal, rather than logical or rational, acts that require judgment, relational sensitivity, and trust: "…the teaching part… that's also still the personal thing" (I06). Finally, students want more than dialogues that are neat and tidy: they seek immediate responses and genuine engagement, as one participant suggested "Students want this personal conversation, instant feedback… that's part of my job" (I07). AI may provide access and generate helpful insights towards progress, but that AI cannot make listeners feel welcome, listened to and participate in dialogue in the same way as human interaction.

4.1.4 Retaining humanity

4.1.4.1 AI as a support, not a substitute

Interviewees highlighted the need to maintain their professional identity and academic authority in the age of AI. They acknowledged using generative AI as a form of idea generation, but they indicated that there was always a boundary when it came to generating core teaching materials. Participants characterized AI as being useful for overcoming creative blocks or suggesting ideas but did not characterize it as being useful for generating lecture slides or course outlines. One participant stated that "Most of the teaching materials I created… were created before AI became a thing" (I10), which suggests a feeling of legacy knowledge and ownership that continues to mediate their pedagogical identity. Several participants stated that AI-generated outputs would often require extensive revision and that they are always in control of the outputs. Another participant elaborated, "I always had the feeling I'm still in the driver's seat" (I10), indicating that as long as AI is used for small tasks, the human part is still at the center of both the content and the decision-making.

On the other hand, while many educators voiced valid concerns over generative AI leading to invasion into their profession, many also described their experiences with a cautious optimism and productive use of AI. For these teachers, AI was not threatening their identity as a professional, but rather, it was a tool that if used at the right times could support and enhance their teaching practice. For many, AI was perceived as useful in the support of their role through saving time on routine tasks such as crafting example questions, developing first drafts of assignment designs, and summarizing large volumes of text. However, the participants were quick to establish a line between supportive AI in their professional roles and the replacement of core teaching roles with AI. Basically, all respondents strongly remarked that they are keeping human judgment in the center of their teaching. As one participant said, "It's a great assistant…but I stay in control" (I05). This suggests that they manage to be the decision makers, and they reject the view of AI as a substitute for the human element of a teacher's practice, especially related to an educator's role in terms of interpretation, empathy, or human connection.

4.1.4.2 Ethical AI usage and transparency

The respondents showed a deep commitment to using AI ethically, stressing the importance of both transparency with students and critical interrogation of AI-generated outputs. Multiple participants stated that they clearly communicated to students when they had used AI in preparing the course (whether it was an image, a case, or an example) in order to maintain clear communication, trust and transparency: "I say this image was made by AI… or this case was co-created with ChatGPT" (I06). This demonstrates the intention to avoid ambiguity and the need for transparency, crucial in building a strong relationship with the students, leading to not losing the human component while teaching. Besides disclosure, the educators were strict on the fact that they do not copy-paste AI produced content. All of them indicated that they review, adopt, adapt or, if needed, ignore the suggestions made by AI. As one participant noted, "I always have a human loop… I never copy-paste anything" (I04). By continuously interrogating the quality of outputs, they manage to still retain academic integrity and pedagogical authority, which leads to keeping humanity as a central actor in their practices.

4.1.4.3 The need for institutional support

The respondents reported an urgent need for more institutional support on how to use generative AI in a responsible way in university settings. While the teachers appreciated the freedom to explore new tools and practices, many felt uncertain where the lines might be drawn. One participant stated "It could be something helpful to have a workshop.... what elements are distinctly human" (I08), which reinforces the idea of need not only in terms of technical training but also in the ways to have deeper dialogue regarding retaining humanity as part of the educational process. These participants felt that if universities provided workshops, employed some institutional shared frameworks, and engaged in collegiality across faculties, teachers could then use AI for practices that could enhance, rather than lessen, the human connection, empathy, and presence in the classroom: "…also to standardize it a bit across the faculty, so not everyone is doing completely their own thing" (I04).

4.2 Dynamic model

AI integration plays indeed a crucial role in universities' technological and social change, as it is pivotal in retaining and influencing the expression of humanity (Carver & Bah, 2025). Although there are a lot of discussions around the impacts of AI on universities, from the shift towards automated grading and optimizing teachers' tasks, the academic literature still has not fully wrestled with the details of how generative AI impacts the expression of humanity in university teaching. Therefore, by addressing this paper's research question ("How does generative AI usage affect the expression of humanity in university teaching?"), this research investigated the influence of generative AI tools on teachers' usual teaching tasks, as well as how technology changed their expression of humanity towards colleagues and students. The findings reveal four different dimensions regarding the use and impact of generative AI in higher education: 1) Humanity in teaching; 2) AI usage in teaching; 3) Teacher's role through AI; and 4) Retaining humanity. They are derived from the interviews conducted with individuals working in universities and ultimately reveal the changes and challenges teachers are experiencing as the integration of AI in higher education use increasingly continues. The Gioia methodology (Gioia et al., 2013) represented a foundation for creating a dynamic model that explained how humanity is influenced by AI digitalization and which actions could be taken to retain it. The resulting model is shown in Figure 2.

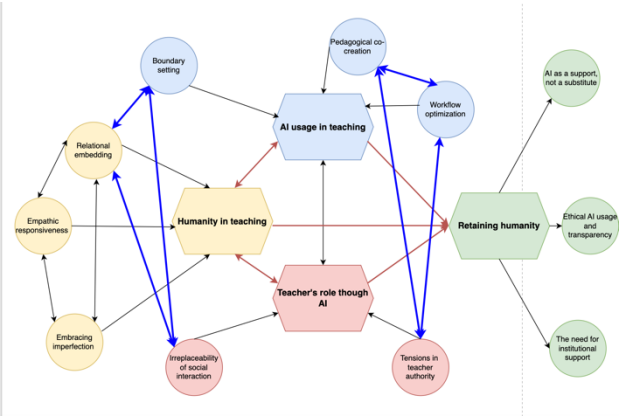


Figure 2. Dynamic model describing AI usage in teaching and its impacts on humanity

The model illustrates a dynamic system of tensions and relations between dimensions, rather than analyzing dimensions in isolation, which captures the developing dynamic of teachers and AI in teaching contexts. The researcher divided the model into three main phases: understanding what humanity means, understanding how AI is used in teaching and how it shapes the teacher's role, and finally, managing factors for retaining this humanity while navigating AI tools.

Firstly, in the initial phase of the model, the definitions of humanity are explored. The most common constructs used are empathic responsiveness, relational presence, and authenticity. Participants describe these aspects to be irreplaceably human and were at the ethical and emotional core of what they do as teachers: "…I guess, also being empathetic, having this understanding of what the other party wants" (I08). Research adds up to that, confirming that these describe what humanity means in teaching (Noddings, 2005) (Palmer, 2007). This phase serves as a conceptual anchor in the dynamic model, as it sets the foundation for understanding what the attributes of a teacher in relation to humanity are and how are these impacted by AI integration.

The second phase focuses on the pragmatic implementation of AI in teaching and its implications for the teacher's role. This second phase is operationalized through the second and third dimensions ("AI usage in teaching" and "Teacher's role through AI") and captures for what activities teachers use AI, how is it used and what are its effects on the teacher's role through university. Teachers adopt AI primarily as a practical aid, a support tool for brainstorming ideas, generating images for lectures, structuring content, and time-saving strategies, while maintaining autonomy for grading or feedback, viewed socially as personal. ("Grading is still something that I believe the teacher should do." (I06)). However, it also highlights a developing tension, as students tend to be over-reliant on AI for explanations, prompting the teacher's sense of authority to be undercut and growing concerns about their role and knowledge agency being depleted. The organizational embeddedness of AI entails the complementary benefits to their practice, but also acknowledges concerns about existential questions prompting teachers to think about their own professional identity in an uneasy and changing context.

In the final phase, the required actions for retaining humanity are explored. This phase serves both as a goal and an outcome of teachers' use of AI in relation to keeping the expression of humanity alive. It is not just a reactive stage, but also a proactive one. Teachers take purposeful action such as ethical use of AI through constant checks of the AI outputs and not using the "copy-paste" technique", visible and transparent disclosure of AI content creation, and using direct real-time communication with students, which leads to maintaining trust and honesty. In these conditions, AI is also seen as a support, rather than a substitute:" It's a great assistant… but I stay in control" (I05). According to previous studies, there is a need for integrating clear guidelines and policies in universities when adopting AI usage (Al-Zahrani, 2024). The educational institution has a role supporting the individual in this stage, the participants expressed that they are looking forward to university-provided workshops, clear policies, and ethical guidelines for integrating AI, aiming at not losing the human component. Retaining humanity is an active process driven by keeping the emotional presence alive, transparency and ethical lines, and seeing AI tools as collaborators.

Finally, the red arrows in the model illustrate the cross-dimensional impact of AI usage: while these digital tools are promoting efficiency, they are inevitably also shaping teaching roles and the values and retention of human presence. For this reason, interconnections between different second-order themes were also identified and turned into two different mechanisms:

Mechanism 1: The first mechanism in the model reveals the ways that educators work with the human-centered nature of teaching in the light of AI. It occurs through the interrelated dynamics of the second-order themes of Boundary Setting, Relational Embedding, and the Irreplaceability of Social Interaction. Therefore, it can be seen that "Boundary setting" is an important enabling factor. When teachers intentionally draw lines around human tasks that require emotional intelligence and human judgment, they actively protect the space where human-centered connections can occur. By intentionally deciding to avoid using AI grading and giving feedback, teachers are enabling "Relational Embedding", as the teacher's presence remains visible and meaningful. When students receive real-time, personalized feedback combined with human attention, it is easier for them to feel seen and understood: "Students want this personal conversation, instant feedback… that's part of my job.". These choices are continually validated and reinforced by the underlying belief that social interaction is irreplaceable, covered by the second-order theme with the same name. This belief justifies the boundaries set by educators, supports their relational investment, and circulates around and within their practice in a self-reinforcing way: boundaries facilitate presence, presence affirms the teacher's role, and both exist because human interaction is pedagogically irreplaceable.

Mechanism 2: The second mechanism reveals the tensions in how teachers engage with AI, through the connection of the second-order themes of Pedagogical Co-creation, Workflow Optimization and Tensions in Teacher Authority. The capabilities of AI in pedagogical co-creation idea generation and structural support for lesson development, enable "Workflow optimization". When AI tools serve as an assistant for enhancing creativity and for the purpose of saving time or optimizing routine tasks, it leaves teachers more efficiently engaged in their work, therefore allowing them to reallocate their effort into relational or strategic tasks: "It does save my time… proofreading, online editing, and avoid some stupid mistakes.". Yet, these efficiencies also create a base for enabling new tensions in teacher authority. As AI is getting better and better at generating content and explanations, the boundaries of teacher expertise and algorithmic output start to blur, especially from the students' perspective, as they start to fully rely on AI for receiving academic support. Therefore, the more teachers also rely on AI for co-creation and optimization, the less authority in relation to their students they may feel. Thus, whereas

pedagogical co-creation and optimizing workflows provide concrete practical benefits, they simultaneously contribute to emerging authority tensions. This mechanism demonstrates a push and pull dimension: educators are happy to accept assistance from AI but must continue to negotiate their authority and identity within the context of rising automation in teaching.

5. DISCUSSION

Although previous research highlighted the benefits of active AI usage in grading and feedback (Vallis et al., 2024), this study presented an opposite view, as teachers emphasized the intentional avoidance of using AI for grading and feedback, as they believed it is still the teachers' duty: "Grading is still something that I believe the teacher should do" (I06). Therefore, while previous literature has focused on the positive pedagogical potential of AI in areas such as course design, examination, and student engagement (Pettersson et al., 2024; Chow, 2024; Honig, 2024), this study shifted the view to how educators can stay present, relational, ethical, and still human, within an environment that is supported by AI. Consequently, the three main factors for retaining humanity ("AI as a support, not a substitute", "Ethical usage and transparency" and "The need for institutional support") were born from the mechanisms described in the previous section and characterized by the interconnections of the themes.

The factor "AI as a support, not a substitute" is uniquely shaped by both mechanisms. The first mechanism illustrates how teachers draw clear boundaries in terms of AI usage, which enhances the relational presence within their interactions with the students. This only occurs when AI remains a subordinate, having the role of an assistant. In this way, this mechanism gives shape to the abstract idea of AI as a support. It turns the conceptual idea from a normative standpoint into a real-life pedagogical proposal, illustrating that maintaining humanity is not about rejecting AI, but limiting the entries of AI in ways that it leaves space for a genuine teacher-student relationship. In this sense, the first mechanism, does not just complement the factor "AI as a support, not a substitute", but it structures the conditions that will allow this factor to become a sustainable practice. Additionally, this factor is crucial for the second mechanism, as well, as it provides space for teachers to maintain their authority, credibility, and teaching role. As AI tools are becoming more sophisticated in creating content, learning experiences, and directing student inquiry, they will eventually produce knowledge that may be indistinguishable from the expertise of educators. However, these tools are not without mistakes or errors, and they still need constant checking, human sight, and domain knowledge. Therefore, if teachers act as knowledge brokers and combine their expertise with relational presence, AI will be strictly treated as an assistant. Since relational embedding and domain expertise have a reciprocal relationship, domain expertise cannot be effectively or transparently conveyed in the absence of relational trust and engagement. Likewise, without relational embedding, domain expertise is not actively pursued by students and may instead be offloaded to AI tools. This can create a false impression of teacher obsolescence, even if their roles as knowledge providers and relational guides are now more crucial than ever. By explicitly defining AI as a support, educators could still take responsibility for their own contributions to their teaching role: judgment, ethical reasoning, contextualization, and social and emotional connection. This boundary makes it easier for educators to articulate their role in a shifting pedagogical landscape. As a result, this is more than just a preference and it serves as a viable and preventative tactic to safeguard educators' self-concept, positionality, and epistemic legitimacy. It offers educators the opportunity to innovate their practice without losing ownership of their teaching.

Ethical AI usage and transparency also follow through both mechanisms. First, boundary-setting is not only a pedagogical, but an ethical act: teachers feel an obligation to preserve human interaction as the core of the educational process. By disclosing when AI is used and contextualizing its outputs, they keep relational authenticity and trust alive. On the other hand, in the second mechanism, the antagonism between AI-generated content and the legitimacy of the teacher makes transparency a high priority. Transparent discussion is the only way for educators to sustain their credibility and avoid a student perception that automation has fully replaced human insight.

Finally, the study supports the existing literature on the role of institutional support in helping educators navigate digital transformation (Chan, 2023). Ultimately, the need for institutional support is most explicitly connected to the first mechanism, but it is relevant to both. Relational embedding, recognized by real-time feedback and emotional presence, requires time, space, and freedom. Without institutional policies and structures that recognize and safeguard these human components, teachers would be left to manage ethical dilemmas and boundary decisions in isolation. Furthermore, the second mechanism indicates that institutional support must also help educators navigate identity change, providing necessary resources that would help them in affirming their role as relational and epistemic authorities, given the digitally networked environment in universities.

Altogether, the three factors identified for keeping humanity are not just recommendations, as they are already shaped by the internal tensions and protective strategies outlined by the two mechanisms. Understanding the three factors in this way grounds human-centered pedagogy not in opposition to AI, but as a strategic response to emphasize responsible innovation in higher education.

Therefore, the proposed model aims to extend prior studies and to capture in one place what humanity means, how is it affected by AI integration and how can it be retained during our digital ages. The model emphasizes maintaining teachers' humanity not as an act of resistance against technology, but it suggests that it also requires rigorous, transparent dialogues within the institutions and a clear understanding of the AI's capabilities and boundaries.

5.1 Theoretical contributions

By situating humanity in teaching at the center of its inquiry, this study offers several key theoretical contributions to the emergent topic of AI integration in higher education. While previous studies have explained the active usage of generative AI in course design, examination, student engagement (Pettersson et al., 2024; Chow, 2024; Honig, 2024) or intentional AI usage and institutional governance frameworks for ethical AI adoption (Wills, 2024; Chan, 2023), this study provides a new way of thinking about these AI-supported activities and tasks, conceptually in terms of how they might limit or augment the ability to express core human values. Based on the discussion of the results, the study's theoretical contributions can be summarized as follows:

The theoretical contribution of this research is the dynamic model generated by the Gioia methodology, which provides a clear description of the relationship between AI and humanity in the context of university education. The model does not present humanity and AI as simply oppositional but proposes two mechanisms and three factors by which teachers can use the

benefits of AI while protecting their pedagogical and human values. These mechanisms provide a new scheme for explaining how and why educators behave the way they do when implementing AI technologies but also why they intentionally embed aspects of relational presence, emotional authenticity, and pedagogical authority. The model conceptualizes preservation of humanity not as something to be aimed for, but rather as an active and ongoing practice. In this case, preservation of humanity reframes prior literature's insights of Wills (2024) and Lang et al. (2023), as this study addresses three interacting factors (AI as support, not a substitute, Ethical usage and transparency, and the need for institutional support) as products of the processes, rather than established principles. Therefore, the shift in perspective demonstrates that the preservation of humanity is not separate from AI implementation, but it exists within educators' relational and daily work. It reformulates the consideration from "Should we try to preserve humanity?" to "How do we preserve humanity in our day-to-day teaching practices, given the AI-enabled contexts?"

5.2 Practical implications

From a practical point of view, the study provides a conceptual model to help teachers understand humanity and how to retain it in the context of AI usage. The findings of this study suggest that using AI as a tool for support rather than a replacement tool, maintaining ethical use and trustworthy usage, and seeking or advocating for institutional support can help teachers maintain presence, emotion, and care. For instance, the University of Twente could implement a set of clear guidelines on responsible AI usage, applied to every faculty and every teacher within the institution. These rules may include clear indications in terms of how, when, and how much AI tools should be mediated throughout their practice. The university may allow using AI for grading multiple-choice exams and assignments but forbid using it for open-ended questions and complex assignments, which require human observations. Additionally, the integration of frequent and mandatory AI workshops for all the teachers stands as a great suggestion for the University of Twente. By clearly explaining how AI tools work and how can they be used responsibly, teachers will have a clear overview in terms of humanity and how can it be preserved alongside digitalization. Nor these indicators are simply contextual observations, but rather intervention strategies educators can incorporate to manage how, when, and how much AI tools should be mediated throughout their practice. Through the awareness of AI's artificiality, they can choose to support their human endeavors and learning experiences instead of replacing them.

6. LIMITATIONS AND FURTHER RESEARCH

While the study provides interesting insights into the role of generative AI in the expression of humanity in a university teaching context, there are still several limitations that should be recognized.

First, the study is based on a small, qualitative sample of PhD candidates and assistant professors, mainly from the University of Twente. While this sample of ten participants was appropriate for constructing rich, grounded insights consistent with the Gioia methodology, it limits the generalizability of the findings. Perspectives may vary substantially across different academic ranks (e.g., full-time lecturers vs. PHD candidates), types of institutions (e.g., research-intensive universities or applied sciences universities), or even cultural contexts. Future work could increase the sample size and sample from more locations or academic ranks to assess how the institutional culture, academic teaching norms, or AI policies might influence how humanity is enacted in AI-assisted environments.

Secondly, the reliance on self-reported data through semi-structured interviews may introduce bias or the tendency for participants to adhere to social norms about ethicality or expectations around "good" teaching. Participants may have unintentionally framed their responses to be aligned with ethical expectations or normative beliefs about "good" teaching practices and therefore, may have not given their completely honest answers. Future work could strengthen validity by including triangulation methods (Noble & Heale, 2019), to see how human presence and AI usage manifest in practice, through methods such as classroom observations, digital trace data (e.g., AI usage logs), or peer review.

Then, this study occurred during an early stage of AI integration in higher education, characterized by experimentation, uncertainty, and technological change. As AI tools become more advanced, institutionalized, and normalized in educational systems, it is expected that the impacts on teacher identity, relational presence, and ethical boundaries to change as well. Future research should revisit the mechanisms outlined in this thesis, especially boundary setting and teacher's identity negotiation, to consider whether further changes and mixes in the light of AI.

Lastly, this research considered only educators' perspectives, which, although they were the central piece in any understanding of teaching, ultimately presented only one perspective of the pedagogical relationship. Students are also co-constructors of the learning space, and it is equally important to understand students' perceptions of humanity, trust, quality of feedback, and engagement in AI-enabled environments, as well. Including students' voices in future research would not only provide a fuller picture but would also clarify if those strategies designed to preserve humanity are viewed as effective or meaningful from the students' perspective.

In conclusion, while this research provides a strong dynamic model for understanding how humanity can be preserved in AI-integrated university teaching, much more empirical research is required so that the findings can be tested, developed, and finally, contextualized. This will offer institutions more defined, evidence-based guidance for ethically redesigning and fighting to keep humanity alive in higher education.

7. ACKNOWLEDGMENTS

A special thanks goes to all the people who made this research possible: from the interview participants and my colleague Liam van der Veen who helped me in conducting the interviews, to my supervisor Dr. Johannes Dahlke who carefully guided me in the whole process with generous feedback and insights.

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9. APPENDIX A

Interview guide:

General questions (addressed together with another researcher):

Question 1: Could you briefly describe your research area? As well as some typical day-to-day academic tasks?

Question 2: What AI tools do you typically use for these typical day to day academic tasks?

Question 3: For what kind of tasks do you use these tools?

Question 4: Which GenAI systems do you currently rely on most, and for what tasks?

Question 5: When and Why did you start using these gen AI tools?

Topic-oriented questions:

Question 6: How has generative AI influenced the way you design your courses?

Question 7: How do you ensure the course still reflects your disciplinary expertise when AI is involved in the preparation phase?

Question 8: How has AI affected the way you give feedback?

Additional question: Are there any reasons for not using AI for giving feedback?

Question 9: When you think about what makes teaching distinctly human, what comes to mind? Can you give me an example from your own practice?

Follow-up question: How do you perceive the impact of AI on your ability to express care and empathy toward students?

Question 10: Have you encountered ethical dilemmas in deciding when or how to use AI? How did you solve them?

Question 11: How transparent are you with students about the ways AI is used in your courses?

Question 12: What kinds of institutional support (e.g., training, policies, peer communities) do you believe are necessary to foster human-centered teaching in the AI era?

Question 13: Where in your teaching practice do you think your humanity is most at risk—and where is it most alive?

10. APPENDIX B

Gioia analysis

Interviewee number	Quotes	1st order codes	2nd order codes	Dimensions
I03	"When you're lecturing, you're looking into the class… if they don't get it, I repeat it in a different way	Reading students' faces to adjust teaching	Empathic Responsiveness	Humanity in teaching
I07	"So this is human perception that I'm using to interpret their behavior to change my lecture"	Using human perception to interpret student behavior in class	Empathic Responsiveness	Humanity in teaching

I04	"Teaching is also just to be able to dive into the moment… see what sort of emotions play a role."	Reading emotions and adapting in real time	Empathic Responsiveness	Humanity in teaching
I05	"There's so much going on… in the tone, in the mimics… that's distinctly human."	There is a lot about mimics and tone that is distinctly human	Empathic Responsiveness	Humanity in teaching
I04	"Teaching needs a certain amount of passion… to bring the message across."	Teaching requires passion and emotional presence	Empathic Responsiveness	Humanity in teaching
I08	"There's communication and so that makes it human, I guess, also being empathetic, having this understanding of what the other party wants. For example, we also try to have or to support everyone's individual learning journey, some people have more this or that"	Teaching is about being empathetic and supporting everyone's individual journey	Empathic Responsiveness	Humanity in teaching
I09	"As a teacher… how can you help them with your emotion, with your care?"	Teaching is about care and emotional support	Empathic Responsiveness	Humanity in teaching
I08	"This passion is also a very human element… that's still very much alive."	Passion is still an alive and human element	Relational embedding	Humanity in teaching
I04	"Caring is something which connects with us… you want to make sure students get the best out of their studies."	Wanting students to get the best out of their studies	Relational embedding	Humanity in teaching
I07	"Talking to a real person… trying to understand where they are struggling."	Trying to understand where a person is struggling	Relational embedding	Humanity in teaching
I06	"You see people grow… you can help them with tips and tricks."	Seeing students grow and helping them	Relational embedding	Humanity in teaching
I06	"Creativity, okay. So personal engagement with students. So having a discussion about topics getting this interaction. Yeah, it's all right, most important. Those are very nice attributes, I would say."	Creativity and personal engagement with students	Relational embedding	Humanity in teaching
I08	"Teaching is interaction… it's inherently human… a social situation."	Teaching is inherently human and social	Relational embedding	Humanity in teaching
I01	"If you are a good teacher, you have like 50–60 students… you should make a moment with students."	Teaching is about making a moment with students	Relational embedding	Humanity in teaching

I07	“Giving them specific feedback on a situation, making mistakes both on the on the supervision part but also on the on the student part, and talking about those mistakes, I think that's that's critical or not critical, but distinctly human things.”	Making mistakes both on the supervision and student part, then being able to talk about them	Embracing Imperfection	Humanity in teaching
I01	“Sometimes it’s good to have these little mistakes… you know there is a real teacher.”	Mistakes show there’s a real human	Embracing Imperfection	Humanity in teaching
I03	“I’m afraid they will start using AI for reviewing… that’s why I’m against it in teaching.”	Teacher is afraid of using AI for reviewing	Boundary setting	AI usage in teaching
I04	“If you don’t use the right prompts, the nuances of the feedback could diminish.”	AI lacks nuance in feedback	Boundary setting	AI usage in teaching
I05	“I don’t use AI to evaluate them… I know what I see and hear.”	Teacher prefers direct, personal feedback	Boundary setting	AI usage in teaching
I10	“It’s a trade-off… leveraging AI makes sense, but it also dehumanizes the interaction.”	Feedback is where humanity is most at risk	Boundary setting	AI usage in teaching
I01	“For feedback, no, I always do by myself… what’s the point of restricting AI for students and then I use AI to give feedback?”	Teacher prefers to give feedback manually, without using AI	Boundary setting	AI usage in teaching
I06	“Grading is still something that I believe the teacher should do.”	Teacher believes that grading is still their duty	Boundary setting	AI usage in teaching
I07	“I believe the teacher should do it… I don’t use AI for grading.”	Teacher believes grading is a teacher’s responsibility	Boundary setting	AI usage in teaching
I06	“The specific points… are more difficult… it takes time and effort to get something decent.”	AI feedback lacks depth and specificity	Boundary setting	AI usage in teaching
I08	“For exams or grading reports… it’s mostly just manual.”	Teacher does not use AI for grading or summative feedback	Boundary setting	AI usage in teaching
I10	“Those models do not have official examination rights… I wouldn’t rely on that.”	Legal and ethical concerns prevent AI grading	Boundary setting	AI usage in teaching
I03	“If I see an answer that’s really good in argumentation… I would give it half points. AI might say no points.”	The teacher thinks that for a good argumentation he/might give half	Boundary setting	AI usage in teaching

		points, while AI might give zero		
I07	"Maybe 10–15% I can really outsource to AI… like 'thank you for submitting your work on time.'"	Teacher uses AI for generic feedback phrases	Boundary setting	AI usage in teaching
I07	"ChatGPT can help structuring those things… rewriting feedback."	Teacher uses AI to rephrase feedback	Boundary setting	AI usage in teaching
I04	"Before ChatGPT, people just Googled… now it does it much faster and more extensively."	AI helps with finding information faster	Workflow optimization	AI usage in teaching
I05	"It's both efficiency and effectiveness… getting me quicker to my end goal."	AI speeds up and improves outcomes	Workflow optimization	AI usage in teaching
I09	"It does save my time… proofreading, online editing, and avoid some stupid mistakes."	The teacher is using AI to avoid mistakes and improve clarity	Workflow optimization	AI usage in teaching
I10	"I used it in order to manage these complaints. So there's some automated messaging when it came to student complaints regarding grades. For just making clear look."	The teacher is using AI to send automated messages to students' complaints about their grades	Workflow optimization	AI usage in teaching
I10	"I would say it's really a catalyst that makes things just so much quicker, especially some of the busy work like coding"	AI accelerates work and expands capabilities	Workflow optimization	AI usage in teaching
I09	"It helps me save time… so I have more time to find the right paper or idea."	The teacher is using AI to save time for deeper tasks	Workflow optimization	AI usage in teaching
I02	"It can help me so I can manage more."	The teacher is using AI to manage workload and save time	Workflow optimization	AI usage in teaching
I10	"I used ChatGPT to create a case… I created my own case in collaboration with ChatGPT."	Teacher uses AI for creating a case for students	Pedagogical co-creation	AI usage in teaching
I07	"It helps with exams… generating questions… especially multiple choice."	Teacher uses AI to generate multiple-choice questions	Pedagogical co-creation	AI usage in teaching
I07	"I try to incorporate some kind of assignments with AI in my courses."	Students use AI tools for their assignments, provided by their teacher	Pedagogical co-creation	AI usage in teaching
I04	"I used it in class exercises… not for creating	Teacher uses AI for exercises, not	Pedagogical co-creation	AI usage in teaching

	the actual teaching content."	core teaching content		
I02	"I used it maybe just for giving structure… but not so much."	Teacher ocasionally uses AI for lecture structure ideas	AI as a support, not a substitute	Retaining humanity
I08	"I feel that I am very much in control… I take ownership of everything I create."	Teacher maintains ownership over all outputs	AI as a support, not a substitute	Retaining humanity
I10	"I always had the feeling I'm still in the driver's seat… I rejected a lot of outputs."	Teacher maintains ownership and decision-making	AI as a support, not a substitute	Retaining humanity
I10	"I used it in class exercises… not for creating the actual teaching content."	Teacher uses AI for exercises, not core teaching content	AI as a support, not a substitute	Retaining humanity
I10	"Most of the teaching materials I created… were created before AI became a thing."	Teacher prefers to create slides and materials from scratch	AI as a support, not a substitute	Retaining humanity
I01	"For my slides… I did not use AI… I needed to do my personal touch."	Teacher prefers to create slides and lectures manually	AI as a support, not a substitute	Retaining humanity
I05	"It's a great assistant… but I stay in control."	AI is a great assistant, but the teacher remains in control	AI as a support, not a substitute	Retaining humanity
I06	"It's kind of a research assistant… helps with small tasks and writing."	AI is a research assistant helping with small tasks and writing	AI as a support, not a substitute	Retaining humanity
I09	"You cannot rely on it completely… you still use your judgment."	The teacher uses AI, but is not relying on it completely	AI as a support, not a substitute	Retaining humanity
I10	"We cannot give everyone the attention they deserve… AI can be a good substitute."	AI can help when student numbers are high	AI as a support, not a substitute	Retaining humanity
I08	"I compare to the book or paper… and I always overrule it."	The teacher always verifies AI-generated content	Ethical AI usage and transparency	Retaining humanity
I04	"I always have a human loop… I never copy-paste anything."	The teacher is always checking and never copy-pasting	Ethical AI usage and transparency	Retaining humanity
I06	"I say this image was made by AI… or this case was co-created with ChatGPT."	The teacher discloses AI use in slides and cases	Ethical AI usage and transparency	Retaining humanity
I10	"I declared… this entire case was made up by AI… and showed hallucination examples too."	The teacher demonstrates both good and bad AI use	Ethical AI usage and transparency	Retaining humanity

I04	"There's a demand for more practical workshops… the university isn't focusing on that yet."	Need for practical workshops and clear policies	The need for institutional support	Retaining humanity
I08	"There needs to be some kind of awareness for the lectures from the institution (…)OK, what can this technology do? And what is it not capable of doing? Where can we use it?(…) And this needs to be institutionalized."	There needs to be awareness about what can this technology do and its limits.	The need for institutional support	Retaining humanity
I09	"It's better to have a strict framework… and a consultant to ask for advice."	Advocates for clear frameworks and consulting	The need for institutional support	Retaining humanity
I06	"We need training for teachers and students… and guidelines on how to use AI ethically."	Advocates for training bot the students and the teachers	The need for institutional support	Retaining humanity
I08	"It could be helpful to have a workshop… what elements are distinctly human."	Advocates for workshops on human-centered AI use	The need for institutional support	Retaining humanity
I04	"What could be useful boundaries to how much to use AI, how much not to use AI, I am also how to communicate about AI usage. I think their institutional support could be helpful, and then of course, also to standardize it a bit across the faculty, so not everyone is doing completely their own thing"	Advocates for institutional support in terms of teaching educators about the boundaries of AI	The need for institutional support	Retaining humanity
I10	"There must be resources… if you're not educated on AI, you won't understand how students use it."	Advocates for AI literacy training for lecturers	The need for institutional support	Retaining humanity
I07	"There is quite a lot of support… but in the end, it's your choice as a teacher."	Appreciates training but values teacher discretion	The need for institutional support	Retaining humanity
I03	"Students seem to trust the teachers less… we just don't communicate in the same way."	AI makes students to trust the teachers less	Tensions in teacher authority	Teachers' role through AI
I01	"So maybe in the written communication with students I would think that this will get more and more AI based and then it just if you don't take the time anymore to put in your	AI will cover the teacher-students communication and make it dehumanized to some extent	Tensions in teacher authority	Teachers' role through AI

	human touch to your own emails, then that would be dehumanized to some extent."			
I02	"If it can answer my emails… you're taking out a human component."	Concern over AI replacing human roles	Tensions in teacher authority	Teachers' role through AI
I05	"If students use AI to write and teachers use AI to assess… then everything is GenAI. What are we doing?"	If both teachers and students use AI, then everything is GenAI	Tensions in teacher authority	Teachers' role through AI
I01	"If students use AI to generate the text and I use AI to give feedback… what's the point of the entire university?"	If AI is used by both teachers and students, what is the point of university?	Tensions in teacher authority	Teachers' role through AI
I04	"Students start to believe ChatGPT more than they believe me."	Students trust AI more than teachers	Tensions in teacher authority	Teachers' role through AI
I06	"Students don't show up to class anymore… maybe they think ChatGPT can explain it too."	Students do not show up to class and think ChatGPT can explain the courses	Tensions in teacher authority	Teachers' role through AI
I06	"Technically, teachers are not needed anymore… content can just be generated online."	Concern over AI replacing content creation	Tensions in teacher authority	Teachers' role through AI
I09	"AI really helps with solving technical issues… but not with emotional care."	AI cannot express empathy or emotional care	Irreplaceability of social interaction	Teachers' role through AI
I10	"The in-classroom experience… that's something I don't think you can replace."	In-class discussions are irreplaceable	Irreplaceability of social interaction	Teachers' role through AI
I06	"Grading part and the teaching part… that's also still the personal thing."	Grading and teaching are still personal	Irreplaceability of social interaction	Teachers' role through AI
I07	"Students want this personal conversation, instant feedback… that's part of my job."	Students want personal conversation and instant feedback	Irreplaceability of social interaction	Teachers' role through AI
I05	"It can emulate empathy in written form… but it can't hug or smile."	AI can simulate empathy, but not feel it	Irreplaceability of social interaction	Teachers' role through AI