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«Ménage à trois » : Comment l'IA générative transforme la relation enseignant-étudiant dans l'enseignement supérieur ? Une comparaison France-Japon

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Résumé

Cet article présente l'impact transformateur de l'IA générative, ici ChatGPT, sur les relations enseignant-étudiant dans l'enseignement supérieur. Nous proposons d'adopter une recherche critique pour remettre en question les hypothèses dominantes, en mettant l'accent sur la centralité de l'humain et les considérations éthiques. L'essor rapide de ChatGPT a suscité des inquiétudes quant à la possibilité que la technologie éclipse les considérations pédagogiques, soulignant la nécessité d'une enquête détaillée. Notre recherche prévoit d'intégrer des études de cas d'universités en France et au Japon, représentant des contextes culturels variés. Dans un contexte de transformation de l'enseignement par les IA génératives, notre étude vise à comprendre les effets sur les relations des enseignants et des étudiants dans le processus d'apprentissage. Cette communication présente les différentes approches de l'IA en systèmes d'information, ses impacts, et identifie le rôle des parties prenantes à travers une approche éthique de l'IA centrée sur l'humain.

Mots clés

Recherche centrée sur l'humain ; éthique de l'IA ; éthique interculturelle de l'IA ; IA dans l'éducation ; Recherche critique

“Ménage à trois”: How does generative AI transform the teacher-student relation in higher education? Perspectives in France and Japan

Abstract

This paper studies the transformative impact of generative AI, here ChatGPT, on teacher-student relations in higher education. We suggest adopting critical research to challenge prevailing assumptions, emphasizing human-centricity and ethical considerations. The swift rise of ChatGPT has sparked

worries about technology potentially eclipsing pedagogical considerations, underscoring the need for a detailed investigation. Our research plans to incorporate case studies from universities in France and Japan, representing different cultural backdrops. Amidst the ongoing AI-induced transformation in education, our study aims to understand the extensive implications on the relations of teachers and students in the learning process. This work-in-progress communication emphasizes AI perspectives, and its impacts, and identifies the roles of stakeholders through an AI ethics, human-centric approach.

Keywords

Human-Centered Research; AI ethics; Intercultural AI ethics; AI in education; Critical research

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1. Introduction

Artificial Intelligence (AI) stands at the forefront of rapid evolution, casting a profound impact on diverse realms of human activity, notably in the field of education. Having rapidly gained popularity with over 100 million monthly users within two months of its launch, ChatGPT, a chatbot powered by generative AI, has spurred debates on the transformative impacts of this technology on education and the workforce (Porter, 2023; Van Slyke et al., 2023). The surge in natural language processing, exemplified by ChatGPT, opens new avenues for widespread AI accessibility. However, a looming concern is the potential risk of uncritically establishing technology (e.g., AI) as the benchmark for educational success, potentially overshadowing essential pedagogical considerations (Guilherme, 2019). Moreover, the proliferation of AI introduces ethical challenges demanding nuanced exploration across diverse perspectives and contextual settings.

This paper takes a human-centric, cultural perspective to research the transformation of teacher-student relations as generative AI becomes involved. This research deals with the question: "How does the introduction of generative AI transform the teacher-student relations?" To answer the question, we suggest adopting a critical research perspective, which seeks to challenge the dominant assumptions and ideologies that underpin AI development and use and to promote emancipation and social change (Myers & Klein, 2011; Stahl, 2008). When examining the teacher-student relationship in AI implementation, we adopt Martin Buber's philosophical framework, focusing on his distinction between "I-It" and "I-Thou" relations. This perspective is fundamental in educational research (Morgan & Guilherme, 2012) and the integration of technology in education including its societal implications (Guilherme, 2019; Wegerif & Major, 2019). This study proposes to dive into two case studies, in a French and a Japanese university, selected to represent contrasting cultural and institutional contexts regarding AI. We argue that comprehending the role of AI beyond borders is critically important and urgent in the education sector, currently experiencing a revolutionary period with the integration of AI tools and systems. Our view is that the education sector is unique in that the influence of AI may have significant and far-reaching consequences, not just on instructional practices but also on influencing the intellectual perspectives of future generations.

This work-in-progress paper initiates with an exploration of various perspectives on AI, followed by a discussion on the effects of AI. It proceeds to emphasize the cultivation of AI ethics and the role of AI in teacher-student relations. Lastly, we outline our planned methodology.

2. Literature review: Perspectives on AI

2.1. A cultural lens on AI

Sociomateriality, rooted in Orlikowski and Scott's (2008) work and Actor-Network Theory (ANT), challenges traditional assumptions in Information Systems (IS) research. It emphasizes the inseparability of social and material realms, viewing entities as existing solely through relations and interactions. This perspective offers a fresh framework for exploring the interconnections of people, technologies, and organizations in IS research (Cecez-Kecmanovic et al., 2014). IS research has applied sociomaterial thinking to address challenges like "hybrid intelligence" (Dellermann et al., 2019) and "technostress" (Tarafdar et al., 2019), and to study AI's ethical implications, such as algorithmic bias (Kordzadeh & Ghasemaghaei, 2022).

The sociomaterial lens seeks to overcome the traditional dualisms inherited from Western philosophy such as idealism vs materialism, subjectivism vs objectivism, and social vs material (Cecez-Kecmanovic et al., 2014). Yet, it remains rooted in Aristotelian ethics which consider that even if technologies gain agency, humans remain responsible since technologies do not meet the traditional criteria for moral agency and moral responsibility (Coeckelbergh, 2020). Indeed, in *Nicomachean Ethics*, Aristotle argued that to be responsible for an action, two conditions must be met: to be the agent of the action one must know what one is doing and be aware of the consequences. Mary Shelley's *Frankenstein* is a good example of the Western fear of giving power to a creature one cannot control (Coeckelbergh, 2020).

Coeckelbergh (2020) posits that transcending Western cultural paradigms is imperative for a more comprehensive understanding and mitigation of modern fears associated with AI. Indeed, in East Asia, the perspective on AI is influenced by local cultures and religions (Gal, 2020). In China, the cultural narrative emphasizes a harmonious human-AI-robot partnership, rooted in the belief that "Everything has a soul" and aligns with Chinese Buddhism. This philosophy, traced back to ancient Indian Buddhist scriptures, is deeply embedded in Chinese tradition. Gal (2020) illustrates this fusion of Buddhism and modern Chinese culture through Xian'er, an intelligent robot monk introduced in 2015, whose machine learning enhancement in 2018 deepened its engagement with Buddhist scriptures and amassed over one million social media followers. In Japan, cultural perspectives on AI and robots are shaped by animism inherent in Shinto and Buddhism. Japanese Buddhism attributes Buddha-like qualities to both animate and inanimate entities, while Shinto blurs boundaries between the worldly and the otherworldly, introducing the concept of techno-animis. Doraemon, an intelligent cat robot introduced in 2008, exemplifies this cultural interplay. Created by Hiroshi Fujimoto and Motoo Abiko, Doraemon's adventures with a Japanese child named Nobi Nobita explore themes of personal development, resonating globally and earning the character the title of Japan's inaugural "anime ambassador" in 2008, underscoring the profound cultural impact of AI representations in Japan (Gal, 2020).

In general, AI introduces novel modes of collaboration that challenge established epistemic, organizational, and national limits. Simultaneously, geography gains heightened significance as local, civic, and financial entities endeavour to foster innovation clusters, leveraging regional strengths, emerging technologies, or a combination of both. In the backdrop of a world without boundaries,

facilitated by the internet and technological progress, it becomes imperative to surpass geographical constraints (Bailey et al., 2022; Cohendet & Simon, 2016).

2.2. Societal Implications of AI

AI-based technologies have transformed the dynamics of the symbiotic connection between humans and AI, as seen by the ability to perform cognitive activities normally associated with human brains (Heyder et al., 2023; Rai et al., 2019). Compared to previous technologies, AI augments human work performance (e.g., automation in human worker's tasks) with higher degrees of interaction and intelligence (Maedche et al., 2019). Although the automation of tasks performed by human workers can lead to the complete substitution of the human workforce, it frequently involves the partial automation of particular tasks. This partial automation results in a division of labour between humans and AI technology, giving rise to novel tasks and ensuring an ongoing requirement for human workers (Grønsund & Aanestad, 2020). As a result, we could consider AI as a partner in the lens of augmentation. The augmentation perspective, aligned with the concept of hybrid intelligence, is oriented towards the research and development of intelligent systems that enhance human intelligence rather than supplant it (Akata et al., 2020). At its core, hybrid intelligence entails integrating complementary and diverse bits of intelligence, encompassing both human and artificial agents, to form a sociotechnological ensemble capable of surmounting existing limitations in artificial intelligence. This synergy allows for the co-evolution of human and artificial agents, fostering learning and contributing to achieving superior outcomes at the system level. Consequently, hybrid intelligence is characterized by its capacity to attain intricate objectives through the amalgamation of human and artificial intelligence, resulting in outcomes surpassing what each could achieve independently. Moreover, this collaborative process promotes continuous improvement through mutual learning (Dellermann et al., 2019).

In recent years, the field of IS has increasingly directed its attention toward comprehending the intricate and often disconcerting ramifications of IT use on both organizational and societal dynamics—the so-called dark side of technology, for example, the dark side of AI, and its applications (Mikalef et al., 2022). In addressing the challenges inherent in the dark side of AI, Mikalef et al. (2022, p. 265) propose redefining the concept as follows: "The dark side is characterized by the abnormal, the deviant, the outlier [...] The dark side is known [...] The dark side is timeless." Despite conducting a comprehensive review, Mikalef et al. (2022) do not explicitly delineate a roadmap for mitigating the dark side of AI, acknowledging that it may, at times, remain elusive. Furthermore, while acknowledging the potential societal impact of AI on individuals, particularly end-users of services/products, the authors allocate limited attention to these specific challenges. This gap underscores the need for future research to delve into the intricate dynamics surrounding the societal implications of AI and its transformative effects on individuals and service/product end-users.

2.3. Towards a Human-Centered Perspective of AI Ethics

The absence of a unified definition of AI ethics has led to varied interpretations, urging a return to the foundational realm of computer science (CS). Understanding AI's ethical implications requires delving into its development's historical context and principles. Exploring Human-Computer Interaction (HCI) illuminates evolving human-technology dynamics, bridging AI's technical complexities with human experience. While AI development historically centered on technology, the collaboration between HCI and AI researchers, spurred by societal concerns, has emphasized Human-Centered AI (HCAI). This approach prioritizes human needs, addressing worries about exploitation and misinformation in AI design and implementation.

Capel and Brereton (2023) contribute significantly to the discourse on HCAI, addressing the evolving definitions influenced by technological advancements in AI and concurrent progress in HCI. Their research establishes a comprehensive foundation for the conceptualization, design, and evaluation of HCAI. Capel and Brereton (2023) introduce a new definition that integrates ethics, highlighting the role of ethical behaviours and consideration of all stakeholders, including other species. "Human-Centered Artificial Intelligence utilizes data to empower and enable its human users while revealing its underlying values, biases, limitations, and the ethics of its data gathering and algorithms to foster ethical, interactive, and contestable use" (Capel & Brereton, 2023, p. 13). According to their research, ethical AI, a distinct domain, focuses on the human experience in real-world AI contexts, emphasizing human values and contextualization. This definition of HCAI emphasizes interactivity and underscores the careful evaluation of actual usage circumstances.

AI, a leading example of cutting-edge information and communication technologies (Trittin & Martin, 2022), offers a "dual advantage" by enabling socially acceptable opportunities while averting costly mistakes and risks (Floridi, 2018). Trittin and Martin (2022) advocate for understanding ethics and corporate responsibilities regarding digital technologies like AI and facial recognition. They propose a human-centered approach, emphasizing benefits for individuals and ethical considerations. This aligns with European Commission guidelines and prestigious institutions' research policies promoting human-centered AI (Coeckelbergh, 2020; European Commission AI HELG, 2019). Such efforts underscore the importance of integrating ethics into AI development and governance (Capel & Brereton, 2023).

Following the aspect discussed above, our study proposes that a human-centric viewpoint is critical to approach AI ethics. This viewpoint asserts the importance of human development in the design, development, and use of AI.

3. AI in teacher-student relations

3.1. The importance of teacher-student relations

Within the realm of AI application, education presents a unique focus distinct from other fields where AI primarily serves task automation (Molenaar, 2022). The relationship between technology and education is multifaceted, involving political, economic, social, and pedagogical factors (Guilherme, 2019). In contemporary society, technology plays a crucial role in education, necessitating its incorporation into curricula. Prioritizing the development of technologies aligned with educational objectives is vital for overall educational improvement. Furthermore, leveraging technology in education can support students who face challenges in traditional learning environments by granting them access to computer resources and the Internet. Perspectives on the importance of technology in education differ, particularly concerning newer technologies like computers and the internet, which have become prevalent in educational institutions worldwide. Critiques suggest that there's a tendency to unquestionably celebrate technology's achievements without considering potential drawbacks. This uncritical acceptance may stem from technology being seen as the standard for measuring progress and problem-solving, including in pedagogical contexts (Guilherme, 2019; Laura & Chapman, 2009).

When AI is integrated into educational frameworks, it assumes three key roles: as a standalone subject, as an intermediary facilitating learning, and as an additional assistant, influencing interactions among instructors, students themselves, and student-student dynamics (Xu & Ouyang, 2022). The relationship between teachers and students plays a pivotal role in academic success, affecting various aspects of learning and motivation. Positive and supportive interactions between educators and students are

strongly linked to improved academic performance and motivation levels. Conversely, unfavourable teacher-student dynamics are associated with reduced student engagement and lower performance outcomes (Gehlbach et al., 2012). Generative AI like ChatGPT has the potential to revolutionize education, particularly in fields such as information systems education, higher education, and the enhancement of learners' critical thinking abilities. This transformation requires educators and learners to develop adept individual and collective responses (Dwivedi et al., 2023; Van Slyke et al., 2023). Since its surge in popularity in late 2022, ChatGPT has captured the interest of researchers in MIS, particularly concerning its educational implications such as potential opportunities, challenges, and ethical considerations (Stahl & Eke, 2024; Van Slyke et al., 2023). However, there's a noticeable gap in research that neglects to explore the kinds of relationships formed by emerging technologies, particularly in the context of the teacher-student dynamic. While the teacher-student relationship remains pivotal, questions persist regarding the influence of AI, particularly generative AI, on this relationship.

3.2. “Ménage à trois”: "I-It" or "I-Thou"?

In analyzing a specific relationship within education, we adopt Martin Buber's philosophical perspective, particularly his differentiation between "I-It" and "I-Thou" relations which is considered the principle of education research (Morgan & Guilherme, 2012).

Martin Buber's seminal work, "I and Thou", explores profound aspects of human relationships, reality, and spirituality, laying the foundation for his educational philosophy. In this text, Buber introduces a typology of human relations, distinguishing between "I-Thou" and "I-It" relationships. The "I-Thou" relation emphasizes mutual recognition and dialogue, wherein individuals encounter each other as equals in a dialogue of authentic connection. Buber argues that this relation lacks structure and content as it is based on infinity and universality, fostering dynamic and meaningful interactions. Examples of the "I-Thou" relation include intimate connections like those between lovers, friends, and even between teacher and student (Guilherme, 2019; Morgan & Guilherme, 2012). In contrast, the "I-It" relation involves objectification and instrumental use of others, treating them as means to an end rather than recognizing their inherent dignity. While necessary for fulfilling basic needs, the "I-It" relation falls short of the depth and authenticity found in the "I-Thou" relation, highlighting the importance of fostering genuine human connection in education and beyond (Guilherme, 2019; Morgan & Guilherme, 2012).

In exploring the “ménage à trois” (Teacher-student-AI), through the lens of Buber's philosophy, we suggest delving deeper into how the introduction of Generative AI not only alters the dynamics between teachers and students but also embodies the essence of "I-Thou" and "I-It" relationships. Initially, when Generative AI is introduced into the educational setting, it may be perceived as a mere tool ("I-It") by both teachers and students. The focus might be on its utility in automating certain tasks, such as grading assignments or providing supplemental learning materials. In this stage, AI is seen as an external entity, separate from the human participants in the educational process. However, as teachers and students interact more extensively with AI, a transformation occurs. Through personalized feedback, adaptive learning algorithms, and even simulated conversational interfaces, the AI starts to transcend its initial role as a tool and becomes an active participant in the educational dialogue ("I-Thou"). Teachers begin to collaborate with the AI in designing curriculum, analyzing student progress, and tailoring instruction to individual learning needs. Likewise, students engage with the AI not just as a passive recipient of information but as a partner in their learning journey, seeking guidance, feedback, and support. This shift towards a more relational approach to AI integration mirrors Buber's concept of the "I-Thou" relationship, characterized by genuine encounters, mutual recognition, and reciprocal influence. As

teachers and students interact with the AI in increasingly meaningful ways, they develop a sense of connection and rapport with the technology, viewing it not simply as a tool but as a co-participant in the educational process. Conversely, the AI itself transforms, evolving from a static tool to a dynamic presence capable of adapting to the unique needs and preferences of teachers and students ("I-Thou"). Through machine learning algorithms and natural language processing capabilities, the AI learns from each interaction, honing its ability to provide personalized assistance and support.

This dynamic interplay between the teacher, students, and AI represents Buber's notion of oscillation between "I-Thou" and "I-It" relationships. Just as Buber suggests, according to Guilherme (2019), the intensity of the "I-Thou" connection may occasionally slip back into a more instrumental "I-It" mode, and vice versa. However, this fluidity is not a drawback but rather a source of transformation and growth within the educational environment. Additionally, Human-centered AI ethics demand a shift towards genuine engagement with AI systems, akin to the "I-Thou" encounter described by Buber. In this paradigm, human development plays a central role, as individuals must go beyond the instrumental use of AI and strive for mutual recognition and understanding between humans and machines.

According to our best knowledge, Guilherme (2019) and Wegerif and Major (2019) are pioneers in applying Buber's theory to analyze what happens in teacher-student relations when AI is used. However, their approaches lacked experimental confirmation and faced challenges related to the accessibility of AI technology at the time. We think this dynamic interplay between teachers, students, and Generative AI embodies the essence of Buber's philosophy, illustrating how the introduction of technology can catalyze a shift towards more relational, dialogical forms of interaction. By embracing the principles of "I-Thou" relations, educators can leverage Generative AI to foster deeper engagement, collaboration, and mutual understanding within the classroom, ultimately transforming the nature of teacher-student relations in the digital age. Additionally, as technology continues to advance, there is an opportunity to further explore the implications of AI through a cultural lens which can provide valuable insights into how different cultural norms, values, and practices influence the dynamics of teacher-student interactions, as "I-It" or "I-Thou" or both would fit in suitable situation. This could reinforce the idea that technology is not neutral and can be influenced by cultural values and practices, thereby shaping the nature of teacher-student interactions in unique ways across different cultural contexts.

4. Planned methodology

To comprehensively understand the role of AI within a human-centric framework, we adopt a critical research perspective, aligning with Stahl's work (2008) on its significance in addressing IS ethical considerations. Despite its Western origins, the reflexivity and value position of critical research, emphasizing researchers' emancipation and ethical engagement (Myers & Klein, 2011; Stahl, 2008), offer potential for an intercultural approach to AI perspectives. The case study methodology allows the researcher to analyze current phenomena within its real-life setting, which is especially useful when the boundaries between the phenomenon and the environment are unclear (Yin, 1994). Depending on the research goals and assumptions, case studies can accept many philosophical views, such as positivist, interpretative, or critical (Benbasat et al., 1987; Lee, 1989; Walsham, 1993). As a result, case studies are a helpful and adaptable research tool that may improve our comprehension of the suggested topic. Additionally, Buber's philosophy is well-aligned with qualitative methodologies (Fife, 2015), and ethical frameworks in various domains (Friedman, 2001; Scott et al., 2009; Seidler, 2024), including its application to technology in education, particularly emphasizing anthropomorphism (Guilherme, 2019; Morgan & Guilherme, 2012; Richardson, 2019; Wegerif & Major, 2019), which intersects with discussions on AI principles (Floridi & Nobre, 2024).

This study tries to concentrate on studying teacher-student relations in universities in different countries. Initially, we frame the stakeholders within the realm of AI ethics through a human-centric lens, as proposed by Trittin and Martin (2022). We categorize both teachers and students, as "unequal" and "unaware" stakeholders. Given the rise of generative AI, we question if these stakeholders understand their impact on AI training. We explore if they become "inevitable" stakeholders, regardless of awareness. Furthermore, we explore whether generative AI is perceived as a novel stakeholder, with perceptions potentially varying across cultures, manifesting as either "I-It" or "I-Thou" relationships in different cultural aspects. Secondly, we will interview students and teachers who are utilizing generative AI in their studies, and whose relationships have been impacted by this cutting-edge technology. Furthermore, we propose employing the framework of the "Four modes of chatbot work" (authenticated, autonomous, automated, and augmented) as introduced by Hannigan et al. (2024) to analyze the responses of both teachers and students to the generative AI chatbot across different countries. Specifically, we aim to investigate the various modes of interaction between teachers and students when utilizing generative AI, and whether these modes remain static or evolve. Additionally, we seek to understand the context in which these transitions occur. From the perspective of students, we aim to explore the role that teachers play in each mode of interaction with generative AI. Similarly, from the perspective of teachers, we aim to ascertain how they perceive their roles in each mode of interaction with generative AI.

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