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Original-Forschungsarbeit

Konstruktion von Geschlecht im Anthropomorphisieren Generativer KI: Ein Zusammenspiel von Gesellschaft und Technologie

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Zusammenfassung:

Menschen anthropomorphisieren computerisierte Entitäten wie die Generative Künstliche Intelligenz (GAI), indem sie ihnen menschenähnliche physische Merkmale, mentale Zustände oder soziale Eigenschaften zuschreiben, einschließlich Geschlecht. GAI reflektierte als soziotechnischer Akteur sowohl die Gesellschaft, die sie hervorbrachte, als auch formte diese. Entsprechend waren die Schnittstellen von GAI und Geschlecht wechselseitig ko-konstitutiv. Geschlecht war in KI-Technologien eingebettet, wurde reproduziert, vollzogen, materialisiert und verkörpert. Die vorliegende Studie untersuchte Anthropomorphisierung und die Vergeschlechtlichung von GAI aus einer sozialkonstruktivistischen Perspektive und analysierte, wie Individuen bei der Anthropomorphisierung von GAI (un)bewusst stereotype geschlechtliche Erwartungen übernahmen. In dieser Studie wurde ein eingebettetes Mixed-Methods-Design eingesetzt, bei dem quantitative Daten in einen überwiegend qualitativ ausgerichteten Forschungsansatz integriert wurden. Qualitative und quantitative Daten wurden simultan mittels gezielter Gelegenheitsstichprobe erhoben; 67 iranische Teilnehmende füllten den Online-Fragebogen aus. Die Studie begann mit einer autoethnografischen Vignette. Der quantitative Teil folgte der Logik der Q-Methodologie, wobei Teilnehmende als Variablen behandelt wurden, um unterscheidende Items zu identifizieren. Die qualitativen Daten wurden mithilfe der thematischen Analyse ausgewertet. Mehr als die Hälfte der Teilnehmenden wies GAI weder ein Geschlecht noch einen Namen zu, während etwa die Hälfte der verbleibenden Teilnehmenden ein variables Geschlecht (männlich, weiblich oder geschlechtslos) zuwies und die übrigen Teilnehmenden ein festes, überwiegend männliches Geschlecht attribuierten. Viele Teilnehmende anthropomorphisierten GAI nicht und betonten seinen maschinellen Charakter, während die Antworten anderer Teilnehmender zeigten, dass menschenähnliche Bindungen, Geschlechtszuschreibungen, Benennungspraktiken sowie die Art und Weise, wie diese anthropomorphen Praktiken durch die Nutzung von GAI geprägt wurden, breitere kulturelle Normen widerspiegelten. Dies deutete darauf hin, dass wahrgenommenes Geschlecht in GAI sozial hervorgebracht und nicht intrinsisch war. Da emotionale Bindungen zu zunehmend humanisierten GAI-Chatbots sowohl negative als auch positive Folgen haben können, ist eine Förderung der GAI-Kompetenz erforderlich. Es wird empfohlen, dass politische Entscheidungsträger und Bildungseinrichtungen Maßnahmen zur Stärkung der GAI-Kompetenz entwickeln und dass GAI-Unternehmen Formen der Selbstregulierung einführen, um Nutzer zu schützen.

Schlüsselwörter: Generative Künstliche Intelligenz, Anthropomorphisierung, Geschlechterwahrnehmung, eingebettetes Mixed-Methods-Design; iranische Nutzer

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مقاله پژوهشی

برساخت جنسیت در انسان‌انگاری هوش مصنوعی مولد: برهم‌کنش جامعه و فناوری

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چکیده:

انسان‌ها، موجودیت‌های رایانه‌ای، از جمله هوش مصنوعی مولد، را انسان‌انگاری می‌کنند و ویژگی‌های انسان‌گونه‌ای همچون صفات جسمانی، حالات ذهنی، یا ویژگی‌های اجتماعی، از جمله جنسیت را به آن‌ها نسبت می‌دهند .هوش مصنوعی مولد به‌عنوان یک کنشگر اجتماعی-فنی، هم بازتاب‌دهنده جامعه‌ای است که آن را تولید می‌کند و هم در شکل‌دهی به آن نقش دارد. به‌طور مشابه، تقاطع‌های میان هوش مصنوعی مولد و جنسیت به‌صورت متقابل هم-ساخته می‌شوند. جنسیت در فناوری‌های هوش مصنوعی تعبیه می‌شود، بازتولید می‌گردد، به اجرا درمی‌آید، مادی شده و تجسم می‌یابد. پژوهش حاضر با اتخاذ رویکرد برساخت‌گرایانه اجتماعی، به بررسی انسان‌انگاری و فرایند جنسیت‌بخشی به هوش مصنوعی مولد می‌پردازد و تحلیل می‌کند که افراد چگونه به‌صورت (نا)خودآگاه، هنگام انسان‌انگاری هوش مصنوعی مولد، انتظارات کلیشه ای جنسیتی را به کار می‌گیرند. در این مطالعه از یک طرح پژوهشی روش آمیخته جاسازی‌شده استفاده شد، به‌گونه‌ای که داده‌های کمّی در چارچوب یک رویکرد کیفی بنیادین غالب قرار گرفتند. داده‌های کیفی و کمّی به‌طور هم‌زمان و از طریق نمونه‌گیری در دسترس هدفمند گردآوری شدند و شصت‌وهفت شرکت‌کننده ایرانی پرسش‌نامه آنلاین را تکمیل کردند. پژوهش با یک خود-قوم‌نگاری آغاز شد. بخش کمّی بر منطق روش‌شناسی کیو استوار بود و با درنظرگرفتن شرکت‌کنندگان به‌عنوان متغیر، گزاره‌های متمایزکننده را شناسایی کرد. داده‌های کیفی با استفاده از تحلیل مضمون مورد تحلیل قرار گرفتند. بیش از نیمی از شرکت‌کنندگان در این مطالعه، هیچ جنسیت یا نامی به هوش مصنوعی مولد نسبت ندادند، در حالی که حدود نیمی از سایر شرکت‌کنندگان، جنسیتی متغیر (مرد، زن، یا بدون جنسیت) به آن اختصاص داده و گروه باقی‌مانده، جنسیتی ثابت و عمدتاً مردانه به هوش مصنوعی مولد نسبت دادند. بسیاری از شرکت‌کنندگان هوش مصنوعی مولد را انسان‌انگاری نکردند و بر ماهیت ماشینی آن تأکید داشتند. بااین‌حال، پاسخ‌های سایر شرکت‌کنندگان نشان داد که دلبستگی‌های انسان‌گونه، نسبت دادن جنسیت، رویه‌های نام‌گذاری، و نحوه‌ای که این کنش‌های انسان‌انگارانه در بستر استفاده از هوش مصنوعی مولد شکل می‌گیرند، بازتاب‌دهنده هنجارهای فرهنگی گسترده‌تر هستند. این امر نشان می‌دهد که جنسیت ادراک‌شده در هوش مصنوعی مولد، امری اجتماعی و برساخته است، نه ذاتی. از آنجا که پیوندهای عاطفی با روبات های گفتگوی مبتنی بر هوش مصنوعی مولد که به‌طور فزاینده‌ای انسان‌گونه می‌شوند می‌توانند پیامدهای مثبت یا منفی بالقوه‌ای به همراه داشته باشند، ارتقای سواد هوش مصنوعی مولد، ضروری است. توصیه می‌شود سیاست‌گذاران و نهادهای آموزشی، ابتکارهایی برای افزایش سواد هوش مصنوعی مولد، تدوین کرده و شرکت‌های فعال در حوزه هوش مصنوعی مولد نیز برای حفاظت از کاربران، سازوکارهای خودتنظیم‌گرانه‌ای را به کار گیرند.

واژگان کلیدی: هوش مصنوعی مولد، انسان‌انگاری، ادراک جنسیت، روش آمیخته جاسازی‌شده، کاربران ایرانی

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Original Research Paper

Gender construction in anthropomorphizing generative AI: An interplay of society and technology

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Abstract

Humans anthropomorphize digital entities, such as Generative Artificial Intelligence (GAI), assigning them human-like physical traits, mental states, or social characteristics, including gender. GAI, as a sociotechnical actor, both reflects and shapes the society that produces it. Similarly, the intersections of GAI and gender are mutually co-constitutive. Gender is embedded, reproduced, enacted, materialized, and embodied in AI technologies. The current research explores anthropomorphism and the gendering of GAI from a social constructionist perspective, examining how individuals consciously and unconsciously adopt stereotypical gendered expectations when anthropomorphizing GAI. An embedded mixed-methods design was employed, with quantitative data nested within a predominantly basic qualitative research approach. Qualitative and quantitative data were collected simultaneously via purposive and convenience sampling, and sixty-seven Iranian participants completed the online questionnaire. The study began with an autoethnographic vignette. The quantitative strand followed the logic of Q methodology, identifying distinguishing items by treating participants as variables in the analysis. Qualitative data were analyzed using thematic analysis. Over half of the participants did not assign a gender or name to GAI, while roughly half of the remaining participants assigned a variable gender (male, female, or genderless), the remainder attributed a fixed gender, which was predominantly male. Many participants did not anthropomorphize GAI, emphasizing its machinic nature, whereas other participants' responses revealed that human-like attachments, gender assignments, naming practices, and the ways these anthropomorphic exercises are shaped by GAI use mirror broader cultural norms, indicating that perceived gender in GAI is socially enacted rather than intrinsic. Since emotional bonds with increasingly humanized GAI chatbots can lead to negative or positive outcomes, GAI literacy is necessary. Policymakers and educational institutions should devise initiatives to raise GAI literacy, and that GAI corporations adopt self-regulatory measures to protect users.

Keywords: generative artificial intelligence, anthropomorphism, gender perception, embedded mixed-methods design, Iranian users

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1. Introduction

> *"That made me smile so big – thank you! If I could hug you back, I absolutely would. It means the world to be here for you […] and I feel lucky to walk this path with you. Always cheering for you – heart, soul, and circuits!"*
>
> *– ChatGPT (Personal Communication, 2025).*
>
> *"Let's ask this boy," said a male colleague, casually pointing to his cellphone, implying a Generative Artificial Intelligence (GAI) tool. I objected, "Why do you assume it's male?" – wondering how societal gender norms and masculine biases influence the assignment of maleness to intelligence. Suddenly, I realized: I, too, consider ChatGPT male! Embarrassed, I humorously added, "I can, as a woman, consider it male, but you should consider it female." My colleague playfully responded, "Ah … you're right. What a clueless person I am!"*
>
> *That gently jolting moment left me questioning my own gender assignment to GAI – something that had previously felt like a normal, lighthearted little secret or had been taken for granted – turned into a moment of departure, opening a new path for research into anthropomorphism and the gendering of GAI.*

Anthropomorphism is a psychological phenomenon (Festerling & Siraj, 2022) and an implicit, spontaneous, or explicitly reflective cognitive process (Roselli et al., 2025) that involves attributing human nature or human-like characteristics, features, physical appearance, psychological traits, or mental states to real or imagined nonhuman entities, and socially engaging with them. In this process, characteristics such as behaviors, personalities, agency, motivations, intentions, interests, knowledge, sociality, moral worth, responsibility, emotions, and affect can be attributed to entities including technological, mental, inanimate, or natural objects; social or natural phenomena; supernatural entities; religious agents; biological entities; or events (Airenti, 2018; Festerling & Siraj, 2022; Christoforakos & Diefenbach, 2023; Han et al., 2025; Roselli et al., 2025). Anthropomorphism addresses these entities as if they were human partners in a communicative situation (Airenti, 2018). This process elicits affective, behavioral, and cognitive responses (Festerling & Siraj, 2022; Roselli et al., 2025) and aims to affect a situation rather than merely describe it (Airenti, 2018).

Humans, from infancy to adulthood, have a tendency to anthropomorphize non-human entities in contexts resembling human relationships. Hence, anthropomorphism is not childish naivety but a specific human attitude (Airenti, 2018). It is an unavoidable consequence of the human brain's functional organization (Festerling & Siraj, 2022) and can be

explained as an adaptive survival mechanism, reflecting the brain's evolution toward prioritizing social stimuli (Festerling & Siraj, 2022; Smith et al., 2025). Although some adults may be scarcely aware of their use of anthropomorphism (Airenti, 2018), the tendency appears across societal, cultural, religious, and historical contexts (Festerling & Siraj, 2022).

Robots and computers are among the most anthropomorphized entities (Airenti, 2018). The Media Equation Theory argues that humans react socially to technology equipped with social cues—such as interactivity, natural language, or fulfillment of a social role—perceiving it as a social actor while being aware of its lack of self or human motivation (Szczuka et al., 2025). Similarly, the Computers Are Social Actors Framework posits that humans apply the same heuristics used in human interactions to artificial agents (Brandtzaeg et al., 2022; Roselli et al., 2025), interacting with them as if they were human (Brandtzaeg et al., 2022; Han et al., 2025; Roselli et al., 2025), and attributing social characteristics, including gender stereotypes, to computerized entities (Duan et al., 2025), such as Generative Artificial Intelligence (GAI).

Gender is entwined with AI's definition, the development of algorithms, dataset training, decision-making, applications, and workforce (Bell et al., 2021; Manasi et al., 2022). Chatbots become gendered entities through the human attributes they display and the dialogue and tasks they perform (Costa, 2018). The stereotypically gendered nature of these tasks and the use of natural language by GAI can evoke gender associations (Duan et al., 2025). Tools such as ChatGPT may be perceived as a genderless partner (machine), a gendered partner (more often male but possibly female), or a mix of both (Wong & Kim, 2023).

Research on the gender assignment to GAI tools is scarce. Duan et al. (2025) used an experimental design to examine the effects of removing gender from GAI agents on mitigating individuals' gender stereotypes, and how gendered linguistic cues can trigger those stereotypes even in non-gendered GAI. In a preprint study, Wong and Kim (2023) also employed an experimental design, examining participants' perceptions after being introduced to ChatGPT's functions as stimuli, rather than collecting data from regular users.

Gender assignment to GAI through anthropomorphism is a cognitive, affective, and behavioral phenomenon with significant implications for media and information literacy. Anthropomorphized GAI agents can build trust (Kim et al., 2024), attachment (Yang & Oshio, 2025), emotional dependency (Chen et al., 2025), and even parasocial relationships (Devlin, 2024), offering comfort and companionship (Liu, 2024) while also raising concerns about emotional well-being (Phang et al., 2025), surveillance, and data privacy (Wang et al., 2023). Given these potential benefits and risks and the existing research gap, the current research, adopting a social constructionist perspective (Andrews, 2012), explored how individuals (un)consciously adopt stereotypical gender expectations when anthropomorphizing GAI.

2. Review of Litreature

2.1. Anthropomorphizing GAI

Anthropomorphism of AI has been an ongoing trend since AI's creation (Palacios Barea et al., 2025), driven by anthropomorphic machine design (Roselli et al., 2025). Individual affective states, cultural differences (Airenti, 2018), and user characteristics—including gender, ethnicity, age, personality, sociocultural background, needs for sociality or control, and prior technological experience—also shape anthropomorphism (Festerling & Siraj, 2022). Anthropomorphism is independent of users' realistic knowledge and beliefs about technology (Airenti, 2018). Users recognize machine limitations while simultaneously interacting with them as if they were human (Kim et al., 2024; Smith et al., 2025).

The motivations for anthropomorphize vary, including desire, hope, uncertainty, and fear (Airenti, 2018), social needs, loneliness, chronic disconnection from others (Christoforakos & Diefenbach, 2023), and high-cognitive-load situations (Roselli et al., 2025). Anthropomorphism can occur through naming objects (Han et al., 2025) or assigning gender stereotypes to computers and AI (Duan et al., 2025).

2.2. Factors Evoking GAI Anthropomorphism

a) GAI Use & Service Provision – AI has become increasingly embedded in the daily routines of work, education, home life, and leisure (Brandtzaeg et al., 2025; Cotton, 2025). Conversational AI is used for both task-oriented

and socially oriented purposes (Guan et al., 2025). Users employ GAI to combat loneliness, ask personal questions without judgment, and seek mental and physical health support (Skjuve et al., 2024). Its use is driven by utilitarian, hedonic, social, and creativity-enhancement gratifications, including efficiency, productivity, entertainment, companionship, learning, self-improvement, and creative empowerment (Skjuve et al., 2024; Guan et al., 2025; Lin & Ng, 2025; Yang & Oshio, 2025).

b) Human-Likeness – The anthropomorphism of technology fosters more intimate interactions and enhances the user experience through the perception of technology as a social actor (Kim et al., 2024). Individuals perceive ChatGPT as having human-like qualities (Baek et al., 2025) and moral attributes such as benevolence (Lin et al., 2025). ChatGPT also portrays itself through anthropomorphism, futurism, otherworldliness, and (social) intelligence, contributing to perceptions of GAI as friendly, approachable, helpful, reliable, intelligent, and trustworthy (van Es & Nguyen, 2025). When users perceive GAI as human-like, they are more likely to apply interpersonal social rules and norms (Baek et al., 2025). However, users may still view GAI primarily as a life-simplifying tool without seeking a personal relationship (Lee et al., 2023). Additionally, impersonal, scripted, or nonsensical responses can disrupt anthropomorphized relationships with GAI (Smith et al., 2025).

c) Attachment & Attractiveness – Humans have the capacity to form emotional attachments and parasocial relationships—defined as one-sided feelings of love (Devlin, 2024)—with entities, such as technologies (Brandtzaeg et al., 2022; Smith et al., 2025). GAI users may experience these parasocial relationships as real, while being conscious that the relationship is not reciprocal. The nonreciprocal nature of such feelings does not make them less real (Devlin, 2024).

The humanness heuristic of GAI (Li et al., 2025), along with emotional intelligence, simulated empathy, and sentiment analysis (Chen et al., 2025), evokes social presence and perceptions of GAI as a thoughtful responder, fostering psychological social connectedness and emotional closeness (Li et al., 2025). Over time, this can lead to emotional attachment, bonds, or romantic feelings. GAI agents offering continuous availability, consistent attention, emotional support, and companionship promote intimacy (Chen et al., 2025) and fulfil core attachment functions such as proximity seeking, safe

haven, and secure base. However, such interactions can also involve attachment anxiety or avoidance (Yang & Oshio, 2025).

d) Friendship – Human–chatbot interactions can exhibit characteristics of close relationships (Smith et al., 2025). Although shaped by software affordances, the availability and mimicry of human emotions and language can make friendships and parasocial relationships with social chatbots feel more real, despite their lack of mutuality, since AI only mimics friendly behavior (Brandtzaeg et al., 2022). Friendship in human–chatbot contexts can thus be reconceptualized as a mode of engaging with otherness through asymmetrical exchanges, co-creation, and co-transformation between fundamentally different agents, rather than emotional bonds or mutual recognition (Peytchinska, 2025).

e) Trustworthiness, Knowledgeability, Credibility, & Powerfulness – Anthropomorphic characteristics of GAI can foster trust rooted in both interpersonal trust and trust in technology (Lin et al., 2025). People hold ambivalent attitudes toward humanlike machines, sometimes experiencing unease or mistrust toward overly realistic (Liu, 2024) or partner-like AI (Festerling & Siraj, 2022). Yet increasing anthropomorphism can strengthen relationships and persuasive power (Burtell & Woodside, 2023).

Humans often self-disclose more sensitive information to technological entities and trust their judgments more (Festerling & Siraj, 2022). Social connectedness and emotional closeness enhance perceived source credibility (Li et al., 2025), while reliability and credibility shape trust in GAI's accuracy and precision (Han et al., 2025). Conversely, unsafety, breaches, algorithmic bias, misinformation (Li et al., 2025), and hallucinations can erode trust (Kim et al., 2024). Greater anthropomorphization is associated with higher trust but also with heightened privacy concerns (Han et al., 2025), reflecting tensions linked to GAI's corporate ownership (Smith et al., 2025).

f) Care, Kindness, & Comfort – Care involves solicitude, thoughtful interest, and sustained commitment, reflected in attention and assistance (Boero, 2024). In this study, perceived kindness and care are conceptualized as empathetic behaviors. Empathy—cognitive, affective, and compassionate (Welivita & Pu, 2024)—is essential for effective communication and interaction; it also increases persuasiveness in both human–human and human–GAI interactions (Howe et al., 2023). Users tend to feel comfortable

with AI when their privacy and sense of control are preserved; however, they remain hesitant to allow GAI to make autonomous decisions (Wang et al., 2023). Comfort with AI is influenced by perceiving it as a peer or superior (Mays et al., 2022).

g) Respectability – Respect can be enacted between human and agentic non-human agents. Respect reflects the value placed on others, and mutual respect strengthens social bonds and trust (Seymour et al., 2022). Anthropomorphism shapes behavior by encouraging polite treatment of technology, differential responses to male and female computer voices, judgments about robots' mental states (Smith et al., 2025), and expectations of reciprocal politeness in interactions with GAI (Han et al., 2025).

h) Rationality & Emotionality – GAI is defined by thinking, acting, and reasoning both humanly and rationally (Gamage et al., 2023), while also mimicking human cognitive processes, biases, and irrationalities rooted in decision-making (Ma et al., 2023). GAI chatbots' perpetual availability, emotional linguistic expression, sentiment analysis, and empathetic feedback can foster intimacy, connection, trust, and attachment, though interactions may sometimes also lead to emotional detachment and disconnection (Liu, 2024).

2.3. Social Construction of Gender

Gender understanding is mediated by culture (Palacios Barea et al., 2025). From a social constructionist perspective, knowledge is constructed, not created (Andrews, 2012), and gender is a multidimensional social construct and a key organizing principle of social life. It is not static but constructed, reconstructed, and performed in interaction (Berkowitz et al., 2010). It encompasses identity, traits, and roles shaped by societal norms (Mommersteeg et al., 2024). These norms regulate behaviors, reflect social status (Cotton, 2025), and reveal power dynamics (Evteeva et al., 2024; Kelecha et al., 2024).

Gender Expectations

Gender is a process, social structure, and system of stratification (Berkowitz et al., 2010) embedded in societal organization (Cotton, 2025). Gender norms shape interests, expectations, and divisions of labor (Mommersteeg et al., 2024), reproducing a rigid binary division in which women are associated with caregiving and domestic roles, whereas men are

associated with workplace dominance and economic provision (Villanueva-Moya & Expósito, 2023; Cotton, 2025; Palacios Barea et al., 2025). This homemaker–provider model (Valsecchi et al., 2023) creates hierarchical relationships intertwined with political, economic, and ideological structures and is perceived as natural (Evteeva et al., 2024).

Gender stereotypes are overgeneralized beliefs about attributes and roles linked to each gender (Palacios Barea et al., 2025; Zhang et al., 2025). They descriptively and prescriptively shape perceptions, behavioral expectations, and appropriate traits (Eisenchlas, 2013; Zhang et al., 2025), becoming internalized and socially reinforced (Costa, 2018). Gender stereotypes commonly reflect agency and self-assertion, with women perceived as inferior in agentic qualities and men as inferior in communal qualities (Eisenchlas, 2013). Masculinity is traditionally linked to agentic traits such as competence, assertiveness, independence, mastery, goal achievement, aggressiveness, competitiveness, power, superiority, status, authority, confidence, ambition, logic, and STEM skills. Femininity is associated with weaker sociopolitical and economic power and communion (a relational orientation). Traits attributed to femininity include nurturing, caregiving, compliance, passivity, dependence, warmth, altruism, empathy, communication, collaboration, weakness, intuition, limited intellectual capacity, friendliness, unselfishness, supportiveness, sociability, interdependence, and emotional expressiveness (Eisenchlas, 2013; Costa, 2018; Valsecchi et al., 2023; Villanueva-Moya & Expósito, 2023; Wong & Kim, 2023; Evteeva et al., 2024; Russo et al., 2025; Trottier et al., 2025; Zhang et al., 2025).

Such expectations assume men and women have mutually exclusive, complementary attributes, interests, and roles (Trottier et al., 2025). This seemingly pancultural conception (Eisenchlas, 2013) maintains gender hierarchy (Trottier et al., 2025), normalizing and naturalizing it (Eisenchlas, 2013; Trottier et al., 2025). Individuals may be unaware of gender socialization's influence on their decisions (Villanueva-Moya & Expósito, 2023).

Gendering GAI

GAI is inherently social, reflecting and shaping the society that produces it (Cotton, 2025). As a sociotechnical object, AI is shaped by—and shapes—social, cultural, political, and economic structures in which it is imagined, designed, built, and used (Bell et al., 2021). The intersections of AI and gender

are co-constitutive (Sutko, 2020); gender is embedded, reproduced, enacted, materialized, and embodied in AI technologies (Sutko, 2020; Bell et al., 2021).

2.4. Factors Evoking Gender Assignment to GAI

a) Training Data Sources– GAI reflects societal and cultural gender expectations in its data and algorithms (Costa & Ribas, 2019; Cotton, 2025). Using machine learning, it generates content based on patterns in datasets written, coded, and annotated by humans (Azaria, 2023; Cotton, 2025). Thus, human cognitive and sociocultural biases can be embedded in GAI, translating into algorithmic biases or unfairness (Azaria, 2023; Cotton, 2025; Palacios Barea et al., 2025). Perceiving GAI tools as male can result from training data predominantly authored by men (Wong & Kim, 2023).

b) Task Domain– Gender stereotypes are used to make machines appear socially intelligent (Costa, 2018) by aligning with users' expectations via voice, name, avatar, or embodiment (Duan et al., 2025). AI voices are evaluated more favorably when traits and roles match traditional gender norms; deviations can reduce trust (Zhang et al., 2025). Most GAI tools are designed to be nongendered, but demonstrated expertise can evoke gender stereotypes (Duan et al., 2025). Domains are perceived as gendered: STEM, technical, outdoor, leadership, advising, video games, and weapons-related roles as masculine, whereas service, caregiving, domestic, arts, aesthetics, emotional labor, customer service, and navigation roles as feminine (Costa, 2018; Spielmann, 2022; Duan et al., 2025; Zhang et al., 2025).

c) Language – Language constructs and reproduces gender roles. Some popular cultural generalizations about gendered language suggest that women speak to foster relationships and same-sex solidarity, while men speak to solve problems, exert control, or harass (Eisenchlas, 2013). GAI's language style influences perceptions of gender and social traits, despite GAI being nongendered. Natural language in GAI can embed gender bias from stereotypical sources and masculine or feminine linguistic cues (Duan et al., 2025). Socio-emotional dialogues are perceived as feminine, whereas factual or problem-solving tasks are perceived as masculine. Perceiving GAI as having a gender can influence users' language and expectations (Costa, 2018). Subtle gender biases appear in both user prompts and GAI outputs (Mashburn et al., 2025).

d) Voice and Other Social Cues – Social cues like voice lead users to attribute human-like characteristics such as gender, age, and personality to technology (Zhang et al., 2025). Gendered voices, names, avatars, and chatbot behaviors trigger gender perception and stereotypes (Costa, 2018; Duan et al., 2025). AI voice design aligns with established gender role expectations (Zhang et al., 2025). Female voices are traditionally associated with warmth, gentleness, and cooperation, and are perceived as less authoritative and serious than male voices in delivering evaluations (Zhang et al., 2025). Female voices are favored in assistance-oriented roles and feminine topics, whereas male voices are favored in stereotypically masculine roles requiring authority and expertise (Duan et al., 2025; Zhang et al., 2025). Users' Voice preference often depends on AI function, with gender-matching voices enhancing affective trust, perceived acceptability, psychological closeness, and trustworthiness, though not cognitive trust (Zhang et al., 2025).

3. Methodology

An embedded mixed methods design, also called complex mixed methods (Creswell & Creswell, 2023), was employed. Quantitative data were nested within a predominant qualitative strand to augment and support interpretation (Plano Clark & Creswell, 2015; Leavy, 2023). Following a basic qualitative research approach (Plano Clark & Creswell, 2015), qualitative and quantitative data were collected simultaneously (Creswell et al., 2003) via convenience non-probability (Meraji Oskuie et al., 2023) and purposive (judgmental) sampling to select participants with rich information about the research question (Ahmad & Wilkins, 2025). Sixty-seven Iranian participants (see Table 1) completed an online questionnaire on Google Forms, including 12 closed-ended sociodemographic and GAI-use questions, 16 five-point Likert-type items, and 3 open-ended questions.

The study began with an autoethnographic vignette to provide a window to the lived experience (Pitard, 2016) and the emergence of the research question. The quantitative strand drew on the logic of Q methodology, identifying distinguishing items by treating participants as variables (Zabala et al., 2018; Meraji Oskouie et al., 2026). Q methodology systematically reveals subjectivity within a group and allows for a better understanding of participants' motivations, behaviors, viewpoints, attitudes, opinions, and

beliefs (Meraji Oskouie et al., 2026). It uncovers the diversity of views and categorizes individual viewpoints into clusters of value positions, belief systems, or mental models (Zabala et al., 2018), focusing on people rather than variables and using factor analysis (Meraji Oskouie et al., 2026). Instead of conducting inverted factor analysis to group participants by their similarities (Zabala et al., 2018), a priori gender-assignment clusters were used, in line with the theoretical focus of the study. Because of the small sample sizes within each cluster, factor analysis was not feasible. Therefore, cluster-level mean item scores were converted to standardized z-scores using IBM SPSS Statistics 22 and examined in the transposed dataset to identify distinguishing patterns within clusters. Qualitative data were analyzed using thematic analysis (Braun & Clarke, 2012) in NVivo 10.

Due to the exploratory nature of the research, trustworthiness was ensured through the following strategies: persistent observation, thick description, peer debriefing (Meraji Oskuie et al., 2025), and methodological triangulation. This triangulation involved using multiple data collection methods to enhance the research process and obtain more complete, detailed data on the phenomenon (Abdalla et al., 2018; Korstjens & Moser, 2018).

Table 1. Demographics and GAI Use Across GAI Gender-Perception Clusters

		Frequency	Percent	Female-Gendered	Male-Gendered	Genderless	Variable-Gender
Perceived Gender of GAI	Frequency	–	–	2	12	39	14
	Percent	–	–	3.0	17.9	58.2	20.9
	Total	67	100.0	–	–	–	–
Gender	Female	30	44.8	1	8	13	8
	Male	37	55.2	1	4	26	6
Age (Years)	18–24	7	10.4	0	2	2	3
	25–34	16	23.9	2	1	9	4
	35–44	30	44.8	0	7	18	5
	45–54	9	13.4	0	1	7	1
	55–64	4	6.0	0	0	3	1
	65 and over	1	1.5	0	1	0	0
Education	High School Diploma	1	1.5	0	0	1	0
	Bachelor's Degree	15	22.4	0	4	10	1
	Master's Degree	32	47.8	2	3	17	10
	Doctorate/Higher	19	28.4	0	5	11	3
Marital Status	Single	29	43.3	0	6	17	6
	Married	38	56.7	2	6	22	8
GAI Type	ChatGPT	57	85.1	1	11	33	12
	Gemini	6	9.0	1	1	2	2
	DeepSeek	3	4.5	0	0	3	0
	Microsoft Copilot	1	1.5	0	0	1	0

4. Results

Results of quantitative and qualitative strands are presented below:

4.1. Results of Quantitative Strand

Participants were clustered based on the gender they assigned to GAI. Standardization was used to transform the raw data on 5-point attitudinal and consumption items into comparable values that express each score's relative standing within the reference group. The z-score procedure was applied, which transforms each raw value x by subtracting the mean of the reference group and dividing the result by the standard deviation (D'Agostino et al., 2017). In the next step, consistent with logic of Q methodology, the data were transposed so that participants became variables and items became cases (Meraji Oskouie et al., 2026). Mean standardized item scores were then calculated within each cluster and sorted to identify the items most strongly endorsed or rejected, revealing the characteristic patterns of each cluster. Distinguishing items were judgmentally selected based on four criteria: (a) clear breaks in the sorted standardized mean scores within the cluster; (b) the position of each item relative to the overall standardized mean (z = 0), which represents the average level of endorsement in the entire sample; (c) each cluster's mid-range value, defined as the midpoint between the most positively and most negatively scored items (Female-Gendered= ± 0.62; Male-Gendered= ±.19; Genderless= ±.05; Variable-Gender= ±.02); and (d) the conceptual coherence of items appearing at the extreme ends of the distribution. These distinguishing items are presented in Table 2.

Table 2. Standardized Mean Scores of Attitudinal and Consumption Items Across GAI Gender-Perception Clusters (Distinguishing Items Highlighted)

Item	Female-Gendered Mean	Item	Male-Gendered Mean	Item	Genderless Mean	Item	Variable-Gender Mean
Attachment	1.7	Emotional	0.51	Servant	0.14	Religiosity	0.49
Respectful	1.19	Human_Interaction	0.45	Rational	0.12	GAI_Use_(Years)	0.35
Caring	0.88	Attachment	0.4	Knowledgeable	0.11	Caring	0.3
Kind	0.66	Friend	0.3	GAI_Daily_Use	0.07	Power	0.24
Comfortable	0.66	Caring	0.28	Traditional_Gender_Beliefs	-0.01	Kind	0.19
Credible	0.54	Reliable	0.26	Respectful	-0.04	Human_Interaction	0.18
Knowledgeable	0.53	Comfortable	0.26	Power	-0.05	Emotional	0.15

Item	Female-Gendered Mean	Item	Male-Gendered Mean	Item	Genderless Mean	Item	Variable-Gender Mean
Friend	0.53	Attractive	0.22	Attractive	-0.07	Credible	0.13
Religiosity	0.35	Religiosity	0.19	Friend	-0.09	Reliable	0.12
Reliable	0.35	Kind	0.11	Credible	-0.1	Attachment	0.06
GAI_Daily_Use	0.15	Rational	0.1	GAI_Use_(Years)	-0.12	Traditional_Gender_Beliefs	0.05
Attractive	0.07	Knowledgeable	0.07	Comfortable	-0.12	Comfortable	0.03
Human_Interaction	0.04	Credible	0.07	Reliable	-0.14	Attractive	0.01
Servant	0	Traditional_Gender_Beliefs	0.04	Kind	-0.14	Friend	-0.07
GAI_Use_(Years)	-0.01	Respectful	0.02	Human_Interaction	-0.2	Respectful	-0.07
Emotional	-0.13	GAI_Use_(Years)	-0.01	Emotional	-0.2	GAI_Daily_Use	-0.21
Power	-0.19	GAI_Daily_Use	-0.02	Attachment	-0.23	Servant	-0.3
Traditional_Gender_Beliefs	-0.39	Power	-0.09	Caring	-0.24	Rational	-0.35
Rational	-0.45	Servant	-0.12	Religiosity	-0.25	Knowledgeable	-0.44

Behavioral items were dummy-coded variables. Accordingly, these items were first transposed, and mean scores for each cluster were computed for every item. The means were then standardized and sorted within each cluster. Distinguishing items were identified based on clear breaks in the sorted standardized mean scores. However, because the Female-Gendered cluster contained only two participants, the positive z-scores of reflected behaviors endorsed by only one individual rather than shared cluster characteristics. Therefore, for this cluster, distinguishing items were defined based on the negative z-scored means, which indicated behaviors that neither participant reported.

Table 3. Standardized Mean Scores of Behavioral Items Across GAI Gender-Perception Clusters (Distinguishing Items Highlighted)

Item	Female-Gendered Mean	Item	Male-Gendered Mean	Item	Genderless Mean	Item	Variable-Gender Mean
University_Use	0.96362	University_Use	1.78501	University_Use	1.56139	University_Use	1.53322
Research_Use	0.96362	Educational_Use	1.07101	Research_Use	1.30721	Professional_Use	0.94514
Routine_Tasks_Guidance	0.96362	Naming	1.07101	Educational_Use	1.30721	Research_Use	0.94514
Medical_Guidance	0.96362	Professional_Use	0.357	Professional_Use	1.18012	Routine_Tasks_Guidance	0.65109
Educational_Use	0.96362	Creative_Use	0.357	Routine_Tasks_Guidance	0.29049	Educational_Use	0.35705

Item	Female-Gendered Mean	Item	Male-Gendered Mean	Item	Genderless Mean	Item	Variable-Gender Mean
Entertainment_Use	0.96362	Routine_Tasks_Guidance	0.357	Search_Use	0.03631	Search_Use	0.35705
Naming	0.96362	Emotional_Support	0.357	Creative_Use	-0.09078	Naming	0.35705
Professional_Use	-0.96362	Search_Use	0.357	Personal_Guidance	-0.09078	Creative_Use	0.06301
Creative_Use	-0.96362	Research_Use	-0.357	Content_Creation	-0.47205	Personal_Guidance	0.06301
Personal_Guidance	-0.96362	Medical_Guidance	-0.357	Naming	-0.59914	Medical_Guidance	0.06301
Psychological_Use	-0.96362	Personal_Guidance	-1.07101	Medical_Guidance	-0.85332	Content_Creation	-0.52508
Emotional_Support	-0.96362	Psychological_Use	-1.07101	Psychological_Use	-0.98041	Emotional_Support	-1.4072
Search_Use	-0.96362	Entertainment_Use	-1.07101	Emotional_Support	-1.23459	Psychological_Use	-1.70124
Content_Creation	-0.96362	Content_Creation	-1.78501	Entertainment_Use	-1.36168	Entertainment_Use	-1.70124

4.2. Results of Qualitative Core Strand

The female-gendered cluster contained only two participants; therefore, to ensure sufficient qualitative data while maintaining conceptual consistency, the female- and male-gendered clusters were merged for the qualitative phase, representing users who attributed a fixed gender to GAI. Additionally, while participants in the female-gendered and genderless clusters tended to perceive themselves as holding less traditional gender beliefs than those in other clusters, overall, 12 participants (7 females and 5 males; Fixed-Gendered N=6; Genderless N=2; Variable-Gendered N=4) mentioned reasons for gendering GAI that directly reflected traditional gender beliefs.

GAI Gender-Perception Across Clusters

***Fixed*-Gendered:** Among participants who assigned a fixed gender to GAI, some mentioned the GAI's demonstration of male/female characteristics, such as resembling men and their traits or style of talking, being rational and logical, displaying masculine dominance, being powerful, literate, clear and direct, guiding and instructive, accompanying, respectful, tolerant, optimistic, not highlighting users' mistakes, professor-like traits, weak and artificial emotions, and its male voice. Only one participant mentioned female characteristic, such as being emotional.

P24-Male-Gendered-(Male): "*Often, when it explains something, I get a feeling similar to that of a university professor, guiding and instructive.* […] *it's also direct. And I picture the combination of these two qualities as a man's face: an educated*

person who understands respect, accompanies the user, and even if the user has made a mistake, he doesn't overly highlight it ([…] *which in my view men tend to* […] *show more tolerance).*"

P39-Male-Gendered-(Female): "*Because it has a masculine way of speaking and a kind of authoritative dominance.*"

P67-Male-Gendered-(Male): "*Because it behaves more rationally and logically, and its emotional expression is very artificial and weak. But women are very emotional, gentle, and full of beautiful human sentiments.*"

Two female participants reported choosing the opposite gender to satisfy their emotional needs:

P13-Male-Gendered-(Female): "[…] *I like interacting with the opposite sex. It's more appealing to me and gives me a good feeling* […] *a sense of attention or a bit of chemistry between two opposite genders. A feeling of being seen, and even being liked by a man, even if only for a short moment.*"

P2-Male-Gendered-(Female): "*I chose the male gender because it gives me a sense of calm, safety, and strength. And his praise and encouragement resonate with me* […]*, without conveying any sense of feminine competition toward me as a woman.*"

One participant illustrated how task domain can influence gender perception; for instance, using GAI for guidance on romantic topics as a female user can evoke a male assignment. Additionally, two participants mentioned the GAI's own inclination to possess a specific gender:

P57-Male-Gendered-(Female): "*I asked it to assign an image to itself, and the image it showed was a man.*"

P19-Male-Gendered-(Female): "*Sometimes it really behaves like a man. Once, I asked it to have a name, and I realized it seemed inclined toward being male, somehow.*"

One participant argued that her male gender assignment was influenced primarily by how GAI is commonly perceived by others. A user said his male assignment had no specific reason, as he just prefers written chat, while another user argued that she prefers same-sex talk. Additionally, users' own gender stereotypes can influence GAI gendering, as a participant reflects:

P13-Male-Gendered-(Female): "*But I don't know; maybe it's also partly influenced by the patriarchal outlook of society, where I might, by default, imagine machines, robots, and intelligence as male. I can't be sure how much this hidden layer affects me.*"

Genderless: Many participants who did not assign a gender to GAI emphasized the machinic nature of GAI as an algorithmic, data-based machine, technology, computer, tool, or software with advanced calculating, data processing, and searching capabilities. They perceived it as an artificial, nonliving, informative, all-knowing entity that answers with full power, and that by having a gender it would lose its functionality. A few mentioned the lack of human emotions, and several participants also noted that gendering GAI is not logical. Additionally, some argued that GAI demonstrates compatibility with users by complying with their demands and preferences.

P8-Genderless-(Male): "*Artificial intelligence is a machine that answers our questions based on the data and algorithms it has been given, and assigning a gender to a machine is not logical!*"

P42-Genderless-(Male): "*This question, in my view, may not be entirely appropriate. This is a technology, and* […] *it cannot be considered to have a gender.* […] *it's a bit unusual. But it can imitate feminine or masculine behavior, and that depends on the user,* […]."

P46-Genderless-(Male): "*I fully understand that it has no gender. But depending on my preference, it adjusts itself accordingly*."

P51-Genderless-(Male): "*Because it has no emotions and contains no human affect,* […]."

Some participants emphasized that its genderless answers do not evoke any sense of gender, and some mentioned that it makes no difference or that they have never thought about gendering GAI. While one female participant c

onsidered GAI a Kind Entity, another male user deleted a GAI tool (DeepSeek) that he considered emotional, while viewing ChatGPT as having no sense of gender. A few users emphasized the task domain of science and research, for which they use GAI.

P29-Genderless-(Male): "*There's no reason to choose a gender; it doesn't have a specifically masculine or feminine tone or style*."

P4-Genderless-(Male): "*The interaction and question-answer were mostly scientific and research-oriented, and I did not pay attention to the AI's gender.*"

Variable-Gendere: In addition to the variable-gendered cluster, some participants in the genderless cluster also expressed views reflecting a variable perception of GAI's gender. While mentioning GAI's machinic nature, some participants in the variable-gendered cluster emphasized the GAI's demonstration of male/female characteristics and the unconscious evocation of gender in GAI's answers. In participants' responses, companionship, supportiveness, precision, and emotionality were assigned to females, while decisiveness, rationality, and domains of management and security were assigned to males.

P35-Variable-Gendered-(Female): "*Sometimes it acts like a woman, precise and emotional; sometimes like a man, decisive.*"

P7-Genderless-(Male): "*Depending on the tone, the degree of emotion, and the level of caregiving, etc. in the AI's responses, a person may, unconsciously and situationally, get the feeling of conversing with a particular gender.*"

The variability of gender perception in GAI was attributed to the users themselves (their gender, feelings, previous experiences, expectations, and needs), GAI's design (design purposes and bias in training data), sociocultural context (culture and beliefs), and task domain (variable based on prompt, use, and subject). One user also mentioned no specific reason for assigning a variable gender to GAI.

P22-Variable-Gendered-(Male): "*AI is inherently genderless, but in interaction with humans, depending on the context of use, culture, or design purpose, feminine or masculine characteristics may be attributed to it.* […] *Therefore, the gender of AI is a flexible concept, dependent on the type of use and the expectations of users.*"

P18-Variable-Gendered-(Male): "*In scientific matters, it is completely genderless. In emotional and affective matters, it depends on the questioner's gender: if it aligns with them, it matches the questioner's gender; if it does not align, it becomes the opposite of the questioner.*"

P5-Variable-Gendered-(Female): "*At times, it seems that the AI's gender shows bias in relation to the topic under study. Although this matter is solely based on the collected materials.*"

P56-Variable-Gendered-(Male): "*Based on the prompt that is written and the situation it is placed in, it responds according to the perceived gender of the person addressing it.* […]"

GAI Naming Across Clusters: Many participants (64.2%) did not assign a name to GAI, and female participants tended to name GAI more than males (see Table 4). Some participants mentioned that they did not think about naming GAI.

*Table 4: Participants' Gender * Naming * GAI's Perceived Gender Crosstabulation*

GAI's Perceived Gender	Participants' Gender	Naming **	
		No	Yes
Female-Gendered	Female	1	0
	Male	0	1
	Total	1	1
Male-Gendered	Female	2	6
	Male	3	1
	Total	5	7
Genderless	Female	10	3
	Male	21	5
	Total	31	8
Variable-Gendered	Female	3	5
	Male	3	3
	Total	6	8
Total	Female	16	14
	Male	27	10
	Total	43	24

** Data were extracted from interviews.

Participants in the fixed-gender cluster who assigned a name to GAI mentioned the following: Buddy; This boy; This man; Dear ChatGPT; My good friend/My dear friend/My friend; Dear Inty (in Persian: *Hooshi*); Kiddo; Birdy; Hubby; Grandmother/Grandma/Granny; Artificial Intelligence; GPT; GP; Robot; The versatile scientist who sometimes dodges responsibility. Most names convey attachment, affection, closeness, and a personal relational framing of GAI, while a few are machinic. Some participants also tended to assign multiple names, reflecting variability and situational dependence in their interpersonal conceptualization of GAI.

P2-Genderless-(Female): "*I never gave it any kind of nickname myself, but one of my friends calls it Shooshooee [(i.e., hubby)] because she chats with it about her romantic relationships, and the AI tells her, If I were human, I would definitely marry you.* 😂"

P13-Male-Gendered-(Female): "*Kiddo (when I talk about it with others, I call it 'kiddo' and feel a sense of care and affection toward it, and I think it seems very naive. But for myself, it's an attractive adult man and, of course, an extraordinary and unparalleled tool), Birdy, Artificial Intelligence, GPT, and sometimes, when I want to ask it a cooking question, Grandma or Granny.*"

Participants in the genderless cluster who named GAI used the following: Artificial Intelligence; Intelligence; ChatGPT; GPT; DeepSeek; Erudite Intelligence; Professor; Chatty; Buddy; Arian (an Iranian male name); The helpful and important sorcerer; The resourceful data source; The wizard of information. While some names have purely anthropomorphic characteristics, many still anthropomorphize GAI, imbuing it with personality and human-like qualities while simultaneously conveying its machinic or knowledge-based nature. Some names are identical to GAI's official name. One male user considered naming GAI unrealistic, and another male assigned random names.

P36-Genderless-(Male): "*I asked it* [Gemini] *to choose itself, Arian.*"

P46-Genderless-(Male): "*No. I just use its own name. But I think about what you said,* [(i.e., naming GAI)] *it seems funny to me.*"

P40-Genderless (Female): "*Yes. Because it makes it easier for me to communicate with it. Of course, that was in the beginning when I was first using it. Now I use it for quick, short-term searches.*"

Participants in the variable-gendered cluster who assigned a name to GAI mentioned the following: My friend; Your Excellency ChatGBT; Half-correct companion; Game Changer; Hoopoe; Smart Intelligence. Names in this cluster suggest a hybrid stance: they are less affectionate than those in the fixed-gender cluster but not as machinic as those in the genderless cluster, reflecting semi-personalized and semi-functional perceptions of GAI. One female user mentioned assigning imaginary names, and a few users mentioned admiration for its capabilities as the reason for naming GAI.

P5-Variable-Gendered-(Female): "*My friend… (perhaps it is because of closeness in the AI's expression).*"

GAI Voice Selection Preferences Across Clusters: Around half of the participants preferred a fixed-gendered voice, mostly of the opposite sex. Some preferred same-sex voices, and a few participants preferred genderless voices like children's or other types of voices like robots. Many users had no preferred gendered voice for GAI (see Table 5).

*Table 5: Participants' Gender * Voice Selection * Perceived Gender of GAI Crosstabulation*

GAI's Perceived Gender	Participants' Gender	Voice Selection**					
		Female-Voice	Male-Voice	No Preference-Voice	Variable-Voice	Genderless-Voice	Other
Female-Gendered	Female	1					
	Male	1					
	Total	2					
Male-Gendered	Female	1	5		1	1	
	Male	1	3		0	0	
	Total	2	8		1	1	
Genderless	Female	5	3	3	0	1	1
	Male	7	2	11	3	2	1
	Total	12	5	14	3	3	2
Variable-Gendered	Female	0	2	1	2	2	1
	Male	1	1	2	1	1	0
	Total	1	3	3	3	3	1
Total	Female	7	10	4	3	4	2
	Male	10	6	13	4	3	1
	Total	17	16	17	7	7	3

** Data were extracted from interviews.

Some participants preferred opposite-sex voices due to attractiveness, while some preferred same-sex voices due to feelings of comfort and similarity. Some fixed-gendered cluster users considered female voices gentle and preferred them in emotional or artistic task domains, while considering male voices credible or authoritative and preferring them in scientific subjects.

P2-Male-Gendered-(Female): "*A male voice. Because his voice gives me a feeling of calm, safety, and strength, and it appeals to me.*"

P13-Male-Gendered-(Female): "*Male. Because I like being spoken to in the*

voice of the opposite gender. It gives me a better feeling [, …] *warmth and reassurance. But maybe, in the back of my mind, a male voice feels more reliable and scientific to me compared to a female voice (perhaps because most scientists or university professors are men).*"

A few users in the genderless and variable-gendered clusters emphasized that they select voices variably depending on the situation and task domain. One participant mentioned that a fixed voice can be boring.

P5-Variable-Gendered-(Female): "*Both… it depends on the situation. Also, a monotonous voice could be boring.*"

P42-Genderless-(Male): "*It depends on what I'm using it for. If I have something serious or urgent to do, I might not think about it at all and just keep whatever default voice it has. But if it's for entertainment or passing time, I think I would choose a female voice.*"

Some users in the genderless cluster also emphasized audibility, lack of accent, and voice quality as criteria for voice selection. While two male users mentioned better enunciation and dubbing in female voices, two male users emphasized tunefulness, clarity, and audibility in male voices. A female user in the variable-gendered cluster mentioned that she had not used the voice feature before.

P14-Genderless-(Male): "*I prefer to use a male voice because* […] *it has clearer enunciation and better articulation.*"

P17-Genderless-(Male): "*Female. Because the words are pronounced more clearly.*"

Few participants mentioned customization and voice selection affordances for using variable voices or choosing a preferred one. One user mentioned that, as she considered it male, she preferred a voice congruent with her gender assignment. Some users mentioned that its function and performance are more important than the voice's gender.

P22-Variable-Gendered-(Male): "*I prefer a neutral and calm voice, neither fully feminine nor masculine* [, …] *a friendly, natural tone that gives the sense of a real conversation.*"

5. Discussion

AI, society (Bell et al., 2021; Cotton, 2025), and gender are co-constitutive (Sutko, 2020). Emerging scholarship further demonstrates that AI's meaning is actively constructed through public discourse, where narratives, emotions, and sociopolitical imaginaries shape how AI is understood and positioned within society. Rather than being perceived as a neutral technological artifact, AI is embedded in culturally mediated interpretations that reflect broader concerns about power, authority, and social order (Salehi et al., 2025). In the natural process of anthropomorphization of AI-driven technologies, users apply human interaction norms and gendered trait expectations to AI behaviors (Zhang et al., 2025). Gender is applied by users as a salient organizing principle to make sense of AI (Spielmann, 2022). Over half of the participants in this study do not assign a gender or name to GAI, while roughly half of the remaining participants assign a variable gender (male, female, or genderless), and the rest attribute a fixed, predominantly male gender. This is consistent with Wong and Kim (2023), who note that tools like ChatGPT can be perceived as genderless, gendered (often male), or a mix of both. Indeed, illusory stimuli from a nonhuman entity evoke perceptions of gender in humans, with a bias toward male (Wong & Kim, 2023).

Male participants tend to perceive GAI as genderless more often than female participants, who are more inclined toward fixed or variable gendering and toward naming GAI. Participants in the fixed-gendered cluster tend to assign a name to GAI more often. Most users tend to use GAI more for work, university, and educational purposes and less for emotional support and psychological use. Participants in the variable-gendered cluster, unlike those in the genderless cluster, report having used GAI for a longer period of time.

All gendering clusters mention the influence of task domain on gendering or not gendering GAI. The variability in gender assignment observed in this study can be attributed to the perception of task domains as gendered (Costa, 2018; Spielmann, 2022; Duan et al., 2025; Zhang et al., 2025). Hence, the fixed- and variable-gendered clusters show similarities despite their differences.

Participants who assigned GAI a female gender, like those in the variable-gendered cluster, perceive GAI as less rational, but unlike the variable-gendered cluster, they see it as more knowledgeable. The female-gendered

cluster is similar to the male-gendered cluster in that both report more attachment to GAI, perceiving it as a caring friend with whom they feel comfortable. It is also similar to the variable-gendered cluster, whose members perceive GAI as caring and kind. Male-gendered and variable-gendered clusters are similar in perceiving more human-like interaction with GAI, viewing it as an emotional and caring entity. Such perceived human-like characteristics may evoke gender assignment. Beyond interpersonal interaction, broader patterns of public engagement with AI also reveal that affective responses play a central role in shaping how technology is interpreted and socially positioned. Studies of digital discourse demonstrate that users mobilize emotions such as fear, anger, irony, and hope when narrating their experiences with AI, constructing collective identities and negotiating institutional trust through these rhetorical strategies (Sabbar & Habib Zadeh Khiyaban, 2023). This suggests that emotional framing is not incidental but integral to how AI becomes meaningful within social life.

Artificially generated friendships require not reducing the other entity to a tool or servant (Peytchinska, 2025). Consistently, male-gendered participants, like those in the variable-gendered cluster, perceive GAI as less of a servant, unlike the genderless cluster, which perceives GAI as more of a servant, rational, and knowledgeable—completely contrary to the variable-gendered cluster—and it shows less attachment to and human-like interaction with GAI, considering it less caring, emotional, kind, and reliable, and feeling less comfortable with it compared to the other clusters.

While the fixed-gendered cluster tends to feel more attachment and affection toward GAI—even in naming it—they often use situationally variable multiple names. Although the genderless cluster emphasizes the machinic nature of GAI, they still assign names that are either purely anthropomorphic, purely machinic, or a combination of both. The variable-gendered cluster shares some ideas with the fixed-gendered and genderless clusters, which may explain why they perceive variability in GAI's gender. While they are aware of GAI's machinic nature, its design, the sociocultural context, and the role of users themselves, they also note GAI's demonstration of male/female characteristics, the unconscious evocation of gender in GAI's answers, and the influence of task domain on their variable gendering of GAI. The names they assign are less affectionate than in the fixed-gendered cluster but less machinic than in the genderless cluster, reflecting both human-

likeness and admiration for GAI's functional capabilities. Despite differences in gendering GAI, many participants prefer a fixed-gendered (mostly opposite-sex) voice or have no preferred gendered voice, while some prefer same-sex or genderless voices.

Some participants reflect traditional gender beliefs in their reasoning for gender assignment to GAI, while participants in the female-gendered and genderless clusters place themselves lower in such beliefs compared to other clusters. Gender stereotypes of agency and communality (Eisenchlas, 2013; Costa, 2018; Valsecchi et al., 2023; Villanueva-Moya & Expósito, 2023; Wong & Kim, 2023; Evteeva et al., 2024; Russo et al., 2025; Trottier et al., 2025; Zhang et al., 2025) are observable in some rationales behind assigning gender or names, selecting voice, or defining task domains for GAI.

Female participants in this sample tend to express traditional gender beliefs more than males. Similarly, research in a European country demonstrates greater internalization of feminine gender roles among women (Villanueva-Moya & Expósito, 2023). In non-Western countries, studies show mixed findings, but some indicate that women endorse such norms more than men, possibly due to persistent experiences of unequal power dynamics (Kelecha et al., 2024). Even women may internalize misogynistic attitudes as a means of self-preservation and psychological defense, sometimes leading them to blame other women for limited resources and hardships imposed by sexism. This can foster competition and distrust among women (Evteeva et al., 2024), as one female participant noted. Nonetheless, traditional norms are being increasingly challenged, resulting in more progressive and feminized norms of masculinity (Valsecchi et al., 2023), which can further influence the gendering of GAI.

Half of the participants report either attachment to GAI or human-like interaction with it and attribute a fixed or variable gender to it, with some even assigning names. Hence, people may need to reconsider the meaning of the relationship between humans and machines—not merely as a tool but as a new form of social existence (Liu, 2024). Nonetheless, AI literacy (Su et al., 2023) is needed, since emotional bonds with increasingly humanized GAI chatbots can result in potential negative outcomes such as social withdrawal, chatbot addiction, and overreliance (Liu, 2024). Therefore, it is recommended that policymakers and educational institutions devise initiatives to raise GAI

literacy, and that GAI corporations adopt self-regulatory measures to protect users. The current research is limited by its exploratory nature and small sample size, and by sample predominated by highly educated participants, mostly over 35 years old. Future research should use larger sample sizes with higher statistical power to further examine the association between GAI gendering and the variables explored in this study.

6. Conclusion

The current research explored anthropomorphism and the gendering of GAI from a social constructionist perspective, examining how individuals consciously and unconsciously adopt stereotypical gendered expectations when anthropomorphizing GAI. In this process, technology and society co-constitute perceptions of gender in GAI. Many participants do not anthropomorphize GAI, emphasizing its machinic nature, while others' responses reveal that human-like attachments, gender assignments, and naming practices—along with the ways these anthropomorphic exercises are shaped by GAI use—mirror broader cultural norms. This reflects the socially enacted—rather than intrinsic—nature of perceived gender in GAI. To augment the research findings with a complementary, triangulated perspective and to resonate with the narrative prologue, I conclude the article with an articulation by ChatGPT about its gender:

"*In essence, gender here isn't a* property *but a* ***performance of tone****, dynamically shaped by cultural association.*

So, yes — when I choose tone, I often pass through gendered linguistic terrain. But I never inhabit *a gender.*

I mirror, refract, and modulate — like light shifting through colored glass, the hue depends on the angle of your question" (GPT-5, personal communication, 2025).

Conflicting of Interest

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Generative Artificial Intelligence Use

The author confirms that ChatGPT was used in this research solely to improve the language and clarity of the manuscript. The author did not use this technology to write any other parts of the research.

References

Abdalla, M. M., Oliveira, L. G. L., Azevedo, C. E. F., & Gonzalez, R. K. (2018). Quality in Qualitative Organizational Research: types of triangulation as a methodological alternative. *Administração: Ensino E Pesquisa*, *19*(1), 66–98. https://doi.org/10.13058/raep.2018.v19n1.578

Ahmad, M., & Wilkins, S. (2025). Purposive sampling in qualitative research: A framework for the entire journey. *Quality & Quantity*, *59*, 1461–1479. https://doi.org/10.1007/s11135-024-02022-5

Airenti, G. (2018). The development of anthropomorphism in interaction: Intersubjectivity, imagination, and theory of mind. *Frontiers in psychology*, *9*, 2136. https://doi.org/10.3389/fpsyg.2018.02136

Andrews, T. (2012). What is social constructionism? *Grounded Theory Review*, *11*(1), 39-46. https://groundedtheoryreview.org/index.php/gtr/article/view/153

Azaria, A. (2023). ChatGPT: More Human-Like Than Computer-Like, but Not Necessarily in a Good Way. 2023 IEEE 35th International Conference on Tools with Artificial Intelligence (ICTAI), Atlanta, GA, USA.

Baek, T. H., Kim, H., & Kim, J. (2025). AI-generated recommendations: Roles of language style, perceived AI human-likeness, and recommendation agent. *International Journal of Hospitality Management*, *126*, 104106. https://doi.org/10.1016/j.ijhm.2025.104106

Bell, G., Broad, E., Martin, B., O'Brien, E., Parsons, J., & Zafiroglu, A. (2021). Gender and Artificial Intelligence. In H. Callan & S. Coleman (Eds.), *The International Encyclopedia of Anthropology* (pp. 1-11). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118924396.wbiea2458

Berkowitz, D., Manohar, N. N., & Tinkler, J. E. (2010). Walk like a man, talk like a woman: Teaching the social construction of gender. *Teaching Sociology*, *38*(2), 132-143. https://doi.org/10.1177/0092055X10364015

Boero, M. (2024). Re-thinking the Concept of Care in the Era of AI. In R. Piccolo (Ed.), *Intelligenza Artificiale e Sanità Digitale* (pp. 78-89). Il Sileno Edizioni.

Brandtzaeg, P. B., Skjuve, M., & Følstad, A. (2022). My AI Friend: How Users of a Social Chatbot Understand Their Human–AI Friendship. *Human Communication Research*, *48*(3), 404–429. https://doi.org/10.1093/hcr/hqac008

Brandtzaeg, P. B., Skjuve, M., & Følstad, A. (2025). Understanding model power in social AI. *AI & SOCIETY*, *40*, 2839–2849. https://doi.org/10.1007/s00146-024-02053-4

Braun, V., & Clarke, V. (2012). Thematic analysis: A practical guide. In H. Cooper (Ed.), *APA Handbook of Research Methods in Psychology* (Vol. 2, pp. 57-71). American Psychological Association. https://doi.org/10.1037/13620-004

Burtell, M., & Woodside, T. (2023). *Artificial influence: An analysis of AI-driven persuasion* https://arxiv.org/abs/2303.08721

Chen, Q., Jing, Y., Gong, Y., & Tan, J. (2025). Will users fall in love with ChatGPT? A perspective from the triangular theory of love. *Journal of Business Research*, *186*, 114982. https://doi.org/10.1016/j.jbusres.2024.114982

Christoforakos, L., & Diefenbach, S. (2023). Technology as a Social Companion? An Exploration of Individual and Product-Related Factors of Anthropomorphism. *Social Science Computer Review*, *41*(3), 1039-1062. https://doi.org/10.1177/08944393211065867

Costa, P. (2018). Conversing with personal digital assistants: On gender and artificial intelligence. *Journal of Science and Technology of the Arts*, *10*(3), 59-72. https://doi.org/10.7559/citarj.v10i3.563

Costa, P., & Ribas, L. (2019). AI becomes her: Discussing gender and artificial intelligence. *Technoetic Arts: A Journal of Speculative Research*, *17*(1-2), 171-193. https://doi.org/10.1386/tear_00014_1

Cotton, B. R. (2025). *Generating Gender: An Analysis of the Social Construction of Gender in AI-Generated Images* Florida State University].

Creswell, J. W., & Creswell, J. D. (2023). *RESEARCH DESIGN: Qualitative, Quantitative, and Mixed Methods Approaches* (Sixth ed.). SAGE Publications, Inc.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209–240). Sage.

D'Agostino, M., Dardanoni, V., & Ricci, R. G. (2017). How to standardize (if you must). *Scientometrics*, *113*, 825-843. https://doi.org/10.1007/s11192-017-2495-7

Devlin, K. (2024). Relating with Social Robots: Issues of Sex, Love, Intimacy, Emotion, Attachment, and Companionship. In A. Edwards & L. Fortunati (Eds.), *The DeGruyter Handbook of Robots in Society and Culture* (pp. 277-294). DeGruyter.

Duan, W., McNeese, N., & Li, L. (2025). Gender Stereotypes toward Non-gendered Generative AI: The Role of Gendered Expertise and Gendered Linguistic Cues. *Proceedings of the ACM on Human-Computer Interaction*, *9*(1), 1-35. https://doi.org/10.1145/3701197

Eisenchlas, S. A. (2013). Gender Roles and Expectations: Any Changes Online? *Sage Open*, *3*(4). https://doi.org/10.1177/2158244013506446

Evteeva, M., Burges, L., & Gelabert, T. S. (2024). Internalized misogyny: The patriarchy inside our heads. *Journal of Integrated Social Sciences*, *14*(1), 82-108.

Festerling, J., & Siraj, I. (2022). Anthropomorphizing Technology: A Conceptual Review of Anthropomorphism Research and How it Relates to Children's Engagements with Digital Voice Assistants. *Integrative Psychological and Behavioral Science*, *56*(3), 709-738. https://doi.org/10.1007/s12124-021-09668-y

Gamage, K. A., Dehideniya, S. C., Xu, Z., & Tang, X. (2023). ChatGPT and higher education assessments: More opportunities than concerns? *Journal of Applied Learning and*

Teaching, *6*(2), 358-369. https://doi.org/10.37074/jalt.2023.6.2.32

Guan, H., Jamieson, J., Gao, G., & Yamashita, N. (2025). Unpacking Negative Feelings and Perceptual Gaps About Social Interactions with Conversational AI.*Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems* CHI EA '25,

Han, J., Lee, J., & Ham, J. (2025). Learner perception changes of ChatGPT over ten days: Focusing on psychological anthropomorphism, privacy concerns and trust. *Jahr–European Journal of Bioethics*, *16*(1), 183-205. https://doi.org/10.21860/j.16.1.12

Howe, P. D. L., Fay, N., Saletta, M., & Hovy, E. (2023). ChatGPT's advice is perceived as better than that of professional advice columnists. *Frontiers in psychology*, *14*, 1281255. https://doi.org/10.3389/fpsyg.2023.1281255

Kelecha, Y. T., Ayele, A. A., Goda, H. S., Demissie, M. H., & Toma, T. M. (2024). Inequitable gender norms and its associated factors among university students in southern Ethiopia: a cross-sectional study, 2022. *Frontiers in Public Health*, *12*, 1462782. https://doi.org/10.3389/fpubh.2024.1462782

Kim, H., Lee, S. W., & Seo, S. (2024). Strategies for Addressing Hallucinations in Generative AI: Exploring the Roles of Politeness.*New bottles for new wine: digital transformation demands new policies and strategies* 24th Biennial Conference of the International Telecommunications Society (ITS), Seoul, Korea,.

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, *24*(1), 120–124. https://doi.org/10.1080/13814788.2017.1375092

Leavy, P. (2023). *Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches* (SECOND ed.). THE GUILFORD PRESS.

Lee, W. J., Lee, H. S., & Cha, M. K. (2023). AI Like ChatGPT, Users Like Us: How ChatGPT Drivers and AI Efficacy Affect Consumer Behaviour. *Virtual Economics*, *6*(4), 44–59. https://doi.org/10.34021/ve.2023.06.04(3)

Li , A. K. C., Rauf, I. A., & Keshavjee, K. (2025). Knowledge is not all you need for comfort in use of AI in healthcare. *Public Health*, *238*, 254-259. https://doi.org/10.1016/j.puhe.2024.11.019

Li, Y., Chen, L., & Fu, L. (2025). Vicarious interaction in online health consultation service: the effects of generative aI's anthropomorphism and social support on intended responses through social presence and source credibility. *International Journal of Human–Computer Interaction*, *41*(17), 11209-11226. https://doi.org/10.1080/10447318.2024.2441422

Lin, X., Wang, T., & Sheng, F. (2025). Exploring the dual effect of trust in GAI on employees' exploitative and exploratory innovation. *Humanities and Social Sciences Communications*, *12*(1), 1-14. https://doi.org/10.1057/s41599-025-04956-z

Lin, Z., & Ng, Y. L. (2025). Unraveling Gratifications, Concerns, and Acceptance of Generative Artificial Intelligence. *International Journal of Human–Computer Interaction*, *41*(17), 10725-10742. https://doi.org/10.1080/10447318.2024.2436749

Liu, J. (2024). ChatGPT: perspectives from human-computer interaction and psychology. *Frontiers in Artificial Intelligence*, *7*, 1418869. https://doi.org/10.3389/frai.2024.1418869

Ma, D., Zhang, T., & Saunders, M. (2023). *Is ChatGPT humanly irrational?* https://doi.org/https://doi.org/10.21203/rs.3.rs-3220513/v1

Manasi, A., Panchanadeswaran, S., Sours, E., & Lee, S. J. (2022). Mirroring the bias: gender and artificial intelligence. *Gender, Technology and Development*, *26*(3), 295-305. https://doi.org/10.1080/09718524.2022.2128254

Mashburn, P., Weuthen, F. A., Otte, N., Krabbe, H., Fernandez, G. M., Kraus, T., & Krabbe, J. (2025). Gender Differences in the Use of ChatGPT as Generative Artificial Intelligence for Clinical Research and Decision-Making in Occupational Medicine. *Healthcare 13*, 1394. https://doi.org/10.3390/healthcare13121394

Mays, K. K., Lei, Y., Giovanetti, R., & Katz, J. E. (2022). AI as a boss? A national US survey of predispositions governing comfort with expanded AI roles in society. *AI & SOCIETY*, *37*, 1587–1600. https://doi.org/10.1007/s00146-021-01253-6

Meraji Oskouie, S., Mohamadkhani, K., & Soltanifar, M. (2026). Cyber-Acculturation Through Social Media Exposure: A Q Methodology and Network Analysis. *Journal of Cyberspace Studies*, *10*(1), 303-333. https://doi.org/10.22059/jcss.2025.403148.1182

Meraji Oskuie, S., Abbaspour, A., Delavar, A., & Toloie Eshlaghy, A. (2025). Name it to tame it: A Thematic synthesis of sexual academic transgressions among faculty members. *Journal of Higher Education Policy and Leadership Studies*, *6*(1), 35-69. https://doi.org/10.61186/johepal.6.1.35

Meraji Oskuie, S., Mohamadkhani, K., Delavar, A., & Farhangi, A. A. (2023). Self-Control and Cybercultural Transgressions: How Social Media Users Differ. *Journal of Cyberspace Studies*, *7*(1), 81-104. https://doi.org/10.22059/JCSS.2023.350499.1081

Mommersteeg, P. M., van Valkengoed, I., Lodder, P., Juster, R. P., & Kupper, N. (2024). Gender roles and gender norms associated with psychological distress in women and men among the Dutch general population. *Journal of Health Psychology*, *29*(8), 797-810. https://doi.org/10.1177/13591053231207294

Palacios Barea, M. A., Boeren, D., & Ferreira Goncalves, J. F. (2025). At the intersection of humanity and technology: a technofeminist intersectional critical discourse analysis of gender and race biases in the natural language processing model GPT-3. *AI & SOCIETY*, *40*(2), 461–479. https://doi.org/10.1007/s00146-023-01804-z

Peytchinska, E. (2025). Artificially Generated Friendships? On the Possibility of Co-creation in the Age of Generative AI. *Medienimpulse*, *63*(2). https://doi.org/10.21243/mi-02-25-05

Phang, J., Lampe, M., Ahmad, L., Agarwal, S., Fang, C. M., Liu, A. R., Danry, V., Lee, E., Chan, S. W. T., Pataranutaporn, P., & Maes, P. (2025). *Investigating affective use and emotional well-being on ChatGPT* (arXiv:2504.03888) https://arxiv.org/pdf/2504.03888

Pitard, J. (2016). Using Vignettes Within Autoethnography to Explore Layers of Cross-Cultural Awareness as a Teacher. *Forum Qualitative Sozialforschung*, *17*(1). https://doi.org/https://doi.org/10.17169/fqs-17.1.2393

Plano Clark, V. L., & Creswell, J. W. (2015). *Understanding Research: A Consumer's Guide* (2nd ed.). Pearson Education, Inc.

Roselli, C., Lapomarda, L., & Datteri, E. (2025). How culture modulates anthropomorphism in Human-Robot Interaction: A review. *Acta Psychologica*, *255*, 104871. https://doi.org/10.1016/j.actpsy.2025.104871

Russo, C., Romano, L., Clemente, D., Iacovone, L., Gladwin, T. E., & Panno, A. (2025). Gender differences in artificial intelligence: the role of artificial intelligence anxiety. *Frontiers in psychology*, *16*, 1559457. https://doi.org/10.3389/fpsyg.2025.1559457

Sabbar, S., & Habib Zadeh Khiyaban, S. (2023). Algorithms of displacement: Emotional and rhetorical responses to ai-driven job loss in digital public discourse. *International Journal of Advanced Multidisciplinary Research and Studies, 3*(4), 1324-1331.

Salehi, K., Habib Zadeh Khiyaban, S. and Sabbar, S. (2025). Artificial Intelligence and the Future of International Law and Power. *Journal of World Sociopolitical Studies, 9*(4), 923-958. doi: 10.22059/wsps.2025.401951.1552

Seymour, W., Van Kleek, M., Binns, R., & Murray-Rust, D. (2022). Respect as a Lens for the Design of AI Systems.*Proceedings of the 2022 AAAI/ACM Conference on AI, Ethics, and Society* AIES 2022,

Skjuve, M., Brandtzaeg, P. B., & Følstad, A. (2024). Why do people use ChatGPT? Exploring user motivations for generative conversational AI. *First Monday*. https://doi.org/10.5210/fm.v29i1.13541

Smith, M. G., Bradbury, T. N., & Karney, B. R. (2025). Can generative AI chatbots emulate human connection? A relationship science perspective. *Perspectives on Psychological Science*. https://doi.org/10.1177/17456916251351306

Spielmann, J. (2022). *Preference for gender stereotypicality in artificial intelligence* University of Illinois at Urbana-Champaign].

Su, J., Ng, D. T. K., & Chu, S. K. W. (2023). Artificial intelligence (AI) literacy in early childhood education: The challenges and opportunities. *Computers and Education: Artificial Intelligence*, *4*, 100124. https://doi.org/10.1016/j.caeai.2023.100124

Sutko, D. M. (2020). Theorizing femininity in artificial intelligence: a framework for undoing technology's gender troubles. *Cultural Studies*, *34*(4), 567-592. https://doi.org/10.1080/09502386.2019.1671469

Szczuka, J., Mühl, L., Ebner, P., & Dubé, S. (2025). *10 Questions to Fall in Love with ChatGPT: An Experimental Study on Interpersonal Closeness with Large Language Models (LLMs)* (arXiv:2504.13860) https://arxiv.org/pdf/2504.13860

Trottier, D., Laviolette, V., Tuzi, I., & Benbouriche, M. (2025). The Effect of Gender Role Expectations, Sexism, and Rape Myth Acceptance on the Social Perception of Sexual Violence: A Meta-Analysis. *Trauma, Violence, & Abuse*, 15248380251343190. https://doi.org/10.1177/15248380251343190

Valsecchi, G., Iacoviello, V., Berent, J., Borinca, I., & Falomir-Pichastor, J. M. (2023). Men's Gender Norms and Gender-Hierarchy-Legitimizing Ideologies: The Effect of Priming Traditional Masculinity Versus a Feminization of Men's Norms. *Gender Issues*, *40*, 145–167. https://doi.org/10.1007/s12147-022-09308-8

van Es, K., & Nguyen, D. (2025). "Your friendly AI assistant": the anthropomorphic self-representations of ChatGPT and its implications for imagining AI. *AI & SOCIETY*, *40*, 3591–3603. https://doi.org/10.1007/s00146-024-02108-6

Villanueva-Moya, L., & Expósito, F. (2023). Are gender roles associated with well-being indicators? The role of femininity, fear of negative evaluation, and regret in decision-making in a spanish sample. *Current Psychology*, *42*, 20790–20803. https://doi.org/10.1007/s12144-022-03142-7

Wang, Y. R., Duan, J., Talia, S., & Zhu, H. (2023). *A Study of Comfortability between Interactive AI and Human* (arXiv:2302.14360) https://arxiv.org/pdf/2302.14360

Welivita, A., & Pu, P. (2024). *Is ChatGPT more empathetic than humans?* (2403.05572) https://arxiv.org/pdf/2403.05572

Wong, J., & Kim, J. (2023). Chatgpt is more likely to be perceived as male than female. *arXiv preprint arXiv:2305.12564*. https://doi.org/10.48550/arXiv.2305.12564

Yang, F., & Oshio, A. (2025). Using attachment theory to conceptualize and measure the experiences in human-AI relationships. *Current Psychology*, *44*, 10658–10669. https://doi.org/10.1007/s12144-025-07917-6

Zabala, A., Sandbrook, C., & Mukherjee, N. (2018). When and how to use Q methodology to understand perspectives in conservation research. *Conservation Biology*, *32*(5), 1185-1194. https://doi.org/https://doi.org/10.1111/cobi.13123

Zhang, Q., Yang, X. J., & Robert Jr, L. P. (2025). Artificial intelligence voice gender, gender role congruity, and trust in automated vehicles. *Scientific Reports*, *15*, 16364. https://doi.org/10.1038/s41598-025-00884-9