Appendix A

Table A.1 exhibits the references of the 103 articles analyzed in our systematic literature review. The numbering of the articles corresponds to the original list of 108 articles, from which five were excluded during full-text review or due to unavailability (articles 28, 44, 46, 82, 86).

No.	Reference
1	Khanthavit, A., & Khanthavit, S. (2023). ChatGPT and stress. ABAC Journal, 43(3), 213–224. https://www.researchgate.net/publication/372797940_ChatGPT_and_Stress
2	Duong, C. D., Dao, T. T., Vu, T. N., Ngo, T. V. N., & Tran, Q. Y. (2024). Compulsive ChatGPT usage, anxiety, burnout, and sleep disturbance: A serial mediation model based on stimulus-organism-response perspective. Acta Psychologica, 251(October). https://doi.org/10.1016/j.actpsy.2024.104622
3	Hussain, T., Wang, D., & Li, B. (2024). The influence of the COVID-19 pandemic on the adoption and impact of AI ChatGPT: Challenges, applications, and ethical considerations. Acta Psychologica, 246(April), 104264. https://doi.org/10.1016/j.actpsy.2024.104264
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7	Alessandro, G., Dimitri, O., Cristina, B., & Anna, M. (2025). The emotional impact of Generative AI: Negative emotions and perception of threat. Behaviour and Information Technology, 44(4), 676–693. https://doi.org/10.1080/0144929X.2024.2333933
8	Kiuchi, K., Otsu, K., & Hayashi, Y. (2023). Psychological insights into the research and practice of embodied conversational agents, chatbots and social assistive robots: a systematic meta-review. Behaviour and Information Technology, 43(15), 3696–3736. https://doi.org/10.1080/0144929X.2023.2286528
9	Lindebaum, D., & Fleming, P. (2024). ChatGPT undermines human reflexivity, scientific responsibility and responsible management research. British Journal of Management, 35(2), 566–575. https://doi.org/10.1111/1467-8551.12781
10	Chavanayarn, S. (2023). Navigating ethical complexities through epistemological analysis of ChatGPT. Bulletin of Science, Technology and Society, 43(3–4), 105–114. https://doi.org/10.1177/02704676231216355
11	Brewer, J., Patel, D., Kim, D., & Murray, A. (2024). Navigating the challenges of generative technologies: Proposing the integration of artificial intelligence and blockchain. Business Horizons, 67(5), 525–535. https://doi.org/10.1016/j.bushor.2024.04.011
12	Shukla, A. D., & Goh, J. M. (2024). Fighting fake reviews: Authenticated anonymous reviews using identity verification. Business Horizons, 67(1), 71–81. https://doi.org/10.1016/j.bushor.2023.08.002
13	Carnat, I. (2024). Addressing the risks of Generative AI for the judiciary: The accountability framework(s) under the EU AI Act. Computer Law and Security Review, 55(December 2023), 106067. https://doi.org/10.1016/j.clsr.2024.106067
14	Kaigeng, L., Wu, H., & Dong, Yu. (2023). Copyright protection during the training stage of Generative AI: Industry-oriented U.S.law, rights-oriented EU law, and fair remuneration rights for Generative AI training under the UN's international governance regime for AI. Computer Law & Security Review, 55(106056). https://doi.org/10.1016/j.clsr.2024.106056
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No.	Reference
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18	Erickson, K. (2024). AI and work in the creative industries: Digital continuity or discontinuity? Creative Industries Journal, 0(0), 1–21. https://doi.org/10.1080/17510694.2024.2421135
19	Yu, S. C., Chen, H. R., & Yang, Y. W. (2024). Development and validation the problematic ChatGPT use scale: A preliminary report. Current Psychology, 43(31), 26080–26092. https://doi.org/10.1007/s12144-024-06259-z
20	Salah, M., Alhalbusi, H., Ismail, M. M., & Abdelfattah, F. (2024). Chatting with ChatGPT: Decoding the mind of Chatbot users and unveiling the intricate connections between user perception, trust and stereotype perception on self-esteem and psychological well-being. Current Psychology, 43(9), 7843–7858. https://doi.org/10.1007/s12144-023-04989-0
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26	Wang, X., Xu, X., Zhang, Y., Hao, S., & Jie, W. (2024). Exploring the impact of artificial intelligence application in personalized learning environments: Thematic analysis of undergraduates' perceptions in China. Humanities and Social Sciences Communications, 11(1), 1–10. https://doi.org/10.1057/s41599-024-04168-x
27	Yamazaki, A. (2024). Digital replicas and democracy: Issues raised by the Hollywood actors' strike. Humanities and Social Sciences Communications, 11(1), 1–12. https://doi.org/10.1057/s41599-024-04204-w
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30	Bašić, Ž., Banovac, A., Kružić, I., & Jerković, I. (2023). ChatGPT-3.5 as writing assistance in students' essays. Humanities and Social Sciences Communications, 10(1), 1–5. https://doi.org/10.1057/s41599-023-02269-7
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No.	Reference
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52	Chen, Z., & Chan, J. (2023). Large Language Model in creative work: The role of collaboration modality and user expertise. SSRN Electronic Journal, 1–54. https://doi.org/10.2139/ssrn.4575598
53	Li, X., & Kim, K. (2024). Impacts of generative AI on user contributions: Evidence from a coding Q&A platform. Marketing Letters. https://doi.org/10.1007/s11002-024-09747-1
54	Leòn-Domínguez, U. (2024). Potential cognitive risks of generative transformer-based AI Chatbots on higher order executive functions. Neuropsychology, 38(4), 293–308. https://doi.org/10.1037/neu0000948
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No.	Reference
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No.	Reference
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No.	Reference
100	Draxler, F., Werner, A., Lehmann, F., Hoppe, M., Schmidt, A., Buschek, D., & Welsch, R. (2024). The AI ghostwriter effect: When users do not perceive ownership of AI-generated text but self-declare as authors. ACM Transactions on Computer-Human Interaction, 31(2). https://doi.org/10.1145/3637875
101	Baldry, M. K., Happa, J., Steed, A., Smith, S., & Glencross, M. (2024). From embodied abuse to mass disruption: Generative, inter-reality threats in social, mixed-reality platforms. Digital Threats: Research and Practice, 5(4). https://doi.org/10.1145/3696015
102	Azaria, A., Azoulay, R., & Reches, S. (2024). ChatGPT is a Remarkable Tool—For Experts. Data Intelligence, 6(1), 240–296. https://doi.org/10.1162/dint_a_00235
103	Naing, S. Z. S., & Udomwong, P. (2024). Public opinions on ChatGPT: An analysis of Reddit discussions by using sentiment analysis, topic modeling, and SWOT analysis. Data Intelligence, 6(2), 344–374. https://doi.org/10.1162/dint_a_00250
104	Acosta-Enriquez, B. G., Arbulú Ballesteros, M. A., Huamaní Jordan, O., López Roca, C., & Saavedra Tirado, K. (2024). Analysis of college students' attitudes toward the use of ChatGPT in their academic activities: Effect of intent to use, verification of information and responsible use. BMC Psychology, 12(1), 1–18. https://doi.org/10.1186/s40359-024-01764-z
105	Hui, X., Reshef, O., & Zhou, L. (2024). The short-term effects of Generative Artificial Intelligence on employment: Evidence from an online labor market. Organization Science, 35(6), 1977–1989. https://doi.org/10.1287/orsc.2023.18441
106	Milic-Frayling, N. (2023). On the cusp: Computing thrills and perils and professional awakening. Proceedings of the VLDB Endowment, 16(12), 4152–4159. https://doi.org/10.14778/3611540.3611640
107	Bukar, U. A., Sayeed, M. S., Razak, S. F. A., Yogarayan, S., & Amodu, O. A. (2024). An integrative decision-making framework to guide policies on regulating ChatGPT usage. PeerJ Computer Science, 10. https://doi.org/10.7717/peerj-cs.1845
108	Monib, W. K., Qazi, A., Apong, R. A., Azizan, M. T., Silva, L. De, & Yassin, H. (2024). Generative AI and future education: a review, theoretical validation, and authors' perspective on challenges and solutions. PeerJ Computer Science, 10, 1–32. https://doi.org/10.7717/peerj-cs.2105

Table 1. Literature Review Articles (continuation)

The analysis of the selected studies revealed fifteen main side-effect dimensions associated with the use of AI-based artifacts, as illustrated in Figure A.1.

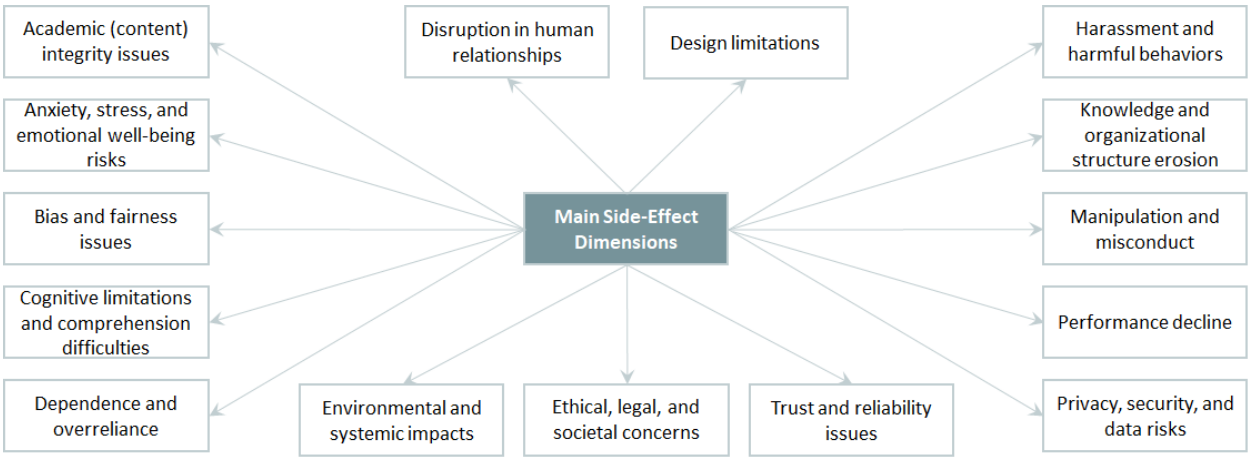

Figure A.1. Main Side-Effect Dimensions

Table A.2 exhibits details of the side effects, such as the main dimensions, subcategories, examples, and related sources (corresponding article numbering).

Side-Effect Dimension	Side-Effect Subcategory	Examples	Sources
Academic (content) integrity issues	Academic fraud and cheating	Academic dishonesty; academic integrity issues (cheating, plagiarism, and falsification); academic misconduct; student cheating or finding shortcuts	6, 21, 29, 38, 56, 61, 67, 73, 77, 90, 97, 107, 108
	False authorship or attribution	Academic integrity and authorship and originality concerns; ghostwriter effect (neglecting AI as co-author); inability to take responsibility for the generated content; ownership-author attribution mismatch	22, 42, 49, 73, 100
	Fake and unreliable content	Fabricated references; intellectual property concerns	47, 102
	Invalid assessments	Reduced assessment validity; reluctance to disclose AI use	57, 100
	Lack of academic integrity	Impaired academic integrity; threats to academic integrity	79, 103
	Lack of authenticity and originality	Difficulty in maintaining originality; increased originality with lower feasibility; reduced sense of authenticity in writing; reduced text authenticity	30, 35, 51, 60, 64, 65, 74
	Legal and intellectual property violations	Copyright infringement and originality	14, 17, 51, 107
Anxiety, stress, and emotional well-being at risk	Anxiety and techno-overload	AI anxiety; AI-induced technostress; anxiety due to new assessment formats; increased interview anxiety; moderated satisfaction due to technology anxiety; psychological uncertainty	24, 36, 61, 75, 80, 88, 99
	Emotional and psychological suffering	Emotional discomfort; emotional distress; emotional trauma; fear; frustration; psychological entitlement; retraumatization	56, 58, 59, 60, 62, 79, 80, 91, 101
	Impairment of physical or mental health	"Anxiety, burnout, and sleep disturbance; depression; mental health issues; poor health;	
	Occupational stress and loss of well-being	Psychological impact on users; reduced well-being"	2; 3; 19; 69; 79; 85
Bias and fairness issues	Discrimination and systemic injustice	Biased and unfair outcomes; concerns about assessment integrity (invalidity, unfairness, or inequality in the educational assessment process); discrimination; fairness concerns; reinforcement of systemic discrimination	3, 10, 33, 45, 62, 85, 108
	cognitive biases	Oscillation of human cognitive abilities; AI anchoring, endowment, framing, and representativeness effects	43, 76
	misinformation and biased responses	AI potential errors or misjudgments; biased response; concerns about accuracy; danger of presenting unverified health information to consumers; dissemination of inaccurate information; misleading or biased information; limitations in output precision; lower-quality ads; poor quality response; reduction in high-quality answers; uncertainty about information exactitude	3, 5, 6, 21, 26, 31, 34, 42, 50, 52, 53, 69, 97
	technical biases (data and algorithms)	Algorithmic and automation biases; fairness; bias in training data; content bias; intrinsic biases; lack of sustainable training processes for LLMs (biased outputs); poor quality, lack of quality control, and algorithmic bias; quality of training data; reinforcement of bias	13, 24, 25, 42, 47, 51, 56, 63, 68, 70, 70, 74, 77, 92, 93, 102, 108
Harassment and harmful behaviors	Abusive and violent behaviors	Aggression; child exploitation; harassment; sexual abuse	59, 101
	Radicalization and social stigmatization	Radicalization; social stigma	58, 101

Table A.2. Details of Side Effects (continues)

Side-Effect Dimension	Side-Effect Subcategory	Examples	Sources
Dependence and overreliance	behavioral dependence	Digital addiction; increased dependence	19, 61, 85, 92, 93
	emotional and psychological dependence	Emotional dependency; psychological attachment	8, 89
	technological dependence and loss of cognitive autonomy	Cognitive dependency; dependence on AI or chatbots; excessive automation of information translation and knowledge processing; harmful overdependence; overreliance on AI; technology dependence	4, 23, 29, 41, 45, 51, 55, 65, 71, 72, 76, 77, 90, 97, 98
Design limitations	Generation of false or inconsistent content (hallucinations)	Hallucinations (fabricated data); unreliability of information	47, 51, 77, 93, 96, 102
	Lack of empathy and contextual understanding	Cultural and linguistic biases; impersonality within emotionally challenging situations; lack of contextual creativity; perceived incongruity	3, 60, 70
	Opacity and lack of explainability	Decision opacity; lack of explainability; lack of transparency; complexity (lack of output interpretability and clarity)	3, 16, 25, 42, 51, 66, 85, 93
	Structural dependency of data and models	Model dependency on data	68
Cognitive limitations and comprehension difficulties	Creative and expressive impoverishment	Challenges in adapting writing style; creativity reduction; lack of novelty; prompt formulation difficulty; writing skills being hindered	4, 30, 64, 67, 68, 94
	Decline of critical thinking and discernment	Challenges in distinguishing accurate from inaccurate suggestions; decision-making impairment; declined critical thinking skills; erosion of independent thinking; overconfidence; placebo effect; reduced critical analysis	3, 22, 26, 34, 35, 37, 63, 64, 65, 80, 97
	Existential risk and dehumanization	Fundamental rejection; existential risk; risk to human personhood	85, 95, 106
	General cognitive limitation	Cognitive limitations; confusion; decline in higher-order cognitive skills; decreased memory storage; diminished reading comprehension; reduced attention; restrained understanding; underdevelopment of cognitive faculties	35, 54, 68, 72, 80, 103
	Reduced intelligence and emotional reflexivity	Diminished emotional intelligence; lack of affective intelligence; undermined human reflexivity	9, 67, 76
	Shallow learning and cognitive disengagement	Decreased cognitive engagement; hindered critical thinking development (superficial learning); reduced independent learning; reduced intent to seek information; reduced self-sufficiency; stunted learning; superficial analysis	3, 48, 63, 65, 80, 95, 98
Disruption in human relationships	Dehumanization and erosion of human value	Dehumanization; threat to human identity, uniqueness, and value	7,25, 85, 92
	Inequality and social division	Expertise division (successful vs. Losers); risks regarding identity management of teachers (expected expertise in content, pedagogy, and technology); widening socio-economic inequalities	21, 24, 45
	Isolation, alienation, and social distancing	Absence of human interaction; alienation from reality; reduced human interaction in travel planning; social isolation; withdrawal from human socializing	3, 41, 68, 75, 93
	Redefinition of human bonds and interactions	Changes in expectations for human relationships; cognitive distance between partners; decreased value of human-to-human interactions	87, 89

Table A.2. Details of Side Effects (continuation)

Side-Effect Dimension	Side-Effect Subcategory	Examples	Sources
Knowledge and organizational structure erosion	Disintegration of organizational knowledge	Erosion of organizational knowledge; hindered access to information; integration issues; limited knowledge; potential for missing important content due to accessibility barriers; reduction of intellectual space	55, 69, 72, 84, 91
	Hierarchical reconfiguration and loss of institutional authority	AI perceived as an authoritative source of information; challenges to organizational power structures; limited stakeholder engagement	3, 66, 87
	Loss of rigor and quality control	Degradation of testing utility; limited managerial oversight of knowledge quality; undermined scientific responsibility, the integrity of management knowledge, and professional self-determination	8, 57, 78
Environmental and systemic impacts	Changes in work and economic structures	Automation-spurred job losses; changes in the labor market; displacement of human workers; exclusion of actors from the filmmaking process; fear of being replaced by ChatGPT; hidden costs; human role reshaped; implementation cost; increased task division; increased turnover intention; infrastructure cost; job displacement; job insecurity; lack of digital infrastructure; reconfiguration of work roles; reduced need for certain job roles; reduction in employment and earnings; running cost; threat to jobs and resources; token limit (how many tokens a model can process in a single input); unemployment	3, 7, 11, 18, 24, 25, 27, 31, 32, 33, 51, 56, 71, 76, 78, 81, 84, 87, 92, 94, 103, 105, 107
	Environmental and sustainability impacts	Energy consumption; sustainability, pollution, and waste concerns	33, 68
	Governance and centralization of technical power	Decentralization of decision making; AI governance requirements; lack of human oversight; political disruption; power concentration in technical experts	51, 56, 66, 87, 101
Ethical, legal, and societal concerns	Ethical, cultural, and moral dilemmas	Cultural commodification; ethical and social concerns; marginalization of non-dominant perspectives; materialism; moral harm and risk; resistance to adopting AI; social manipulation, weakening ethics and goodwill	10, 24, 51, 57, 58, 66, 73, 84, 85, 97, 101
	Governance and algorithmic fairness	Concerns about compatibility with social systems, and development of rules; concerns about policy and instruction; concerns about social justice, contract fraud, and illegal discrimination; lack of human oversight and control; legal challenges and oversight gaps; lower procedural justice; negative impact on users or society of biased outputs; training requirement; unfair candidate selection; violation of data and image rights	3, 8, 15, 16, 17, 21, 45, 51, 57, 99
	Inequality and digital exclusion	Digital divide; economic and structural inequalities; exclusion from digital services; higher mortality rates; inequality due to access disparity; marginalization; reduced access to services; skill and talent; unequal access	27, 33, 51, 62, 69, 85, 91, 97, 107, 108

Table A.2. Details of Side Effects (continuation)

Side-Effect Dimension	Side-Effect Subcategory	Examples	Sources
Trust and reliability issues	Concerns about accountability and transparency	Concerns about accountability (teachers vs. AI); lack of credit to data providers; lack of AI accountability	3, 21, 34, 62
	Loss of trust and credibility	Collapse of trustful online interaction; damaged business credibility; diminished brand authenticity; distrust; less favorable brand attitudes; loss of trust; loyalty erosion; perceived uncertainty; reduced brand loyalty; reduced perceived honesty; reduced post credibility; reputational damage; skepticism about benefits; trust and tech-savviness concerns	12, 49, 56, 58, 59, 60, 80, 83, 94, 95, 99, 106
Privacy, security, and data risks	Risks of surveillance and monitoring	Concerns about automatic data collection on users; personal data leak, social surveillance, and privacy violation; privacy intrusion	21, 24, 25, 85
	System and infrastructure vulnerabilities	Cybersecurity threats; data breaches; data leakage; data privacy and security concerns; uncertainty regarding safety and control	3, 6, 25, 31, 51, 55, 85, 102, 103
	Violation of privacy and misuse of data	Concerns about data privacy and safety; confidentiality concerns; difficulty in interfirm collaboration due to data privacy concerns; potential privacy violations; privacy and data protection; privacy implications; re-identification	3, 8, 16, 26, 47, 49, 56, 58, 67, 68, 87, 93, 101
Manipulation and misconduct	Behavioral and deceptive manipulation	Behavioral manipulation; deception; greenwashing facilitation; identity manipulation, deception, and misinformation spread	3, 66, 85, 101
	Distortion and fabrication of information	Creation of fake news; disinformation and deepfake content; disparities in information; fake image details; false accusations; inaccurate or misleading disclosures; incorrect or fabricated information; misinformation and bias; misinformation propagation; misleading or partially incorrect code; misrepresentation of real scenes; spread of false information; unintended alterations of images	3, 4, 10, 24, 40, 42, 63, 66, 67, 72, 95, 96, 101, 104, 107
	Misuse and unethical conduct	AI misuse; facilitation of unethical or criminal behavior; harmful or inappropriate content; incorrect or harmful health/legal advice; malicious use; manipulation of test scores; misuse in academic assignments and educational settings; misuse of AI-generated content	11, 51, 56, 57, 71, 72, 73, 93, 94, 103

Table A.2. Details of Side Effects (continuation)

Side-Effect Dimension	Side-Effect Subcategory	Examples	Sources
Performance decline	Decline in productivity and technical performance	Authenticity of learning; curriculum standardization; decline in service quality; inadequate ability to personalize instruction; inflated performance scores; lack of information accuracy; negative user experience; perception of workflow rigidity; reduced problem-solving efficiency; technological unemployment	29, 37, 39, 54, 62, 68, 72, 84, 99
	Demotivation and reduced engagement	Boredom; decreased intentions to engage in electronic word of mouth; decreased learning engagement; effort and time loafing; job insecurity; lack of engagement; lower self-esteem and feelings of incompetence; reduced expert motivation; reduced sense of leadership; reduction in motivation to contribute; students losing motivation if they can easily find answers; superficial engagement	20, 21, 53, 55, 60, 61, 65, 68, 74, 83, 84, 88, 100, 104
	Obsolescence and degradation of skills	Broken knowledge ties; diminished development of soft skills; diminished digital entrepreneurship; human deskilling; intellectual stagnation; loss of innovation; loss of soft skills; reduced competency; reduced development of expertise; reduced programming proficiency; skill atrophy, degradation, or obsolescence	18, 23, 36, 49, 51, 55, 63, 67, 72, 78, 84, 85, 88, 95

Table A.2. Details of Side Effects (continuation)

Table A.3 presents the challenges associated with AI use and their relationships to the main dimensions of side effects and their subcategories, as well as their respective sources (article numbering).

Side-Effect Dimension	Challenges	Sources
Academic (content) integrity issues	AI's ability to generate human-like text	24
	AI-assisted cheating	73
	Complexity of authorship and ownership in human-AI collaboration	49
	Conflict between AI use and copyright law	14
	Difficulty in keeping track of the division of labor	22
	Limitations imposed by the legislation on AI use	107
	Policies barriers regarding AI adoption	51
	Unethical use of AI	6
Anxiety, stress, and emotional well-being at risk	AI hallucination of image content	47
	Asynchronous video interview susceptibility to AI cheating + prolonged interactions with AI	49
	Dependence on AI	4, 48
	Fake reviews	12
	Gen AI potential to increase personal, job, techno, and complexity stressors	24
	Inadequate emotional support for users in distress	3
	Problematic AI usage (malicious, excessive, uncontrolled, or compulsive use)	19
	Prolonged interactions with AI	3
	Unauthorized digital replicas of actors	27
	Using AI to replace and shuffle facial or voice data	58
Bias and fairness issues	AI misinformation	34
	Biased training data sets or incorrect target variables	42, 47
	Biases within AI software code	47
	Poor data training	51
	Sensitivity of AI to data sources, data obsolescence, and data quality	42
	Training AI with publicly available data or small training data sets	17
Cognitive limitations and comprehension difficulties	Cognitive offloading	54
	Compulsive use of AI	2
	Dependency on AI-generated solutions	4, 48
	Human replacement by AI in creative tasks	11
	Overlooking AI potential risks	32
	Overreliance on AI	3, 10, 13, 23, 26, 35, 49, 51
	Reliance on AI for thinking and problem-solving	45
	Risk of over-automating cognitive functions	13
Dependence and overreliance	Ease of AI to provide quick answers	21
	Excessive use of conversational AI agents	8
	Introducing GenAI for users with disabilities	91
	Lack of institutional acceptance of AI-based work	49
	Unawareness of AI risks	3
	Use of social chatbots to reduce individuals' social deficits	41
	Users' lack of AI literacy	3
Design limitations	AI context limitations	47
	AI cultural and linguistic biases	3
	AI technical autonomy	16
	Black-box nature of AI	3
	Complexity of AI operation	16
	Lack of AI empathy	3
	Output opacity	16
	Racial biases embedded in AI	10
	Restricted content of LLMs	5

Table A.3. Challenges Associated with AI Use (continuation)

Side-Effect Dimension	Challenges	Sources
Disruption in human relationships	Autonomous decision making	34
	Belief that AI outperforms humans	3
	Disregard for individual needs	33
	Gen AI expertise division	21
	Increased reliance on AI	23
	Overconfidence in AI capabilities	3
	Unequal access to AI	3
Environmental and systemic impacts	Cognitive automation	24, 13
	Cost barriers (infrastructure and running)	51
	Lack of AI domain-specific expertise	50
	Lack of human oversight	51
	Limited control over AI outcomes	3
	Machines performing tasks more effectively	37
	Misalignment between AI-embedded rules and organizational goals	10
	Poor sustainable AI use	42
Ethical, legal, and societal concerns	AI inability to take responsibility	42
	Discrimination worries	10, 16, 33
	Educational equity (digital divide)	33, 51
	Perceived AI superiority	3
	Social impact concerns	24
	Social justice and rights concerns	21
	Unintended consequences of AI outcomes	3
	Viral use of AI	1
Harassment and harmful behaviors	Malicious use of AI	3
	Expanded attack surfaces of XR (extended reality) platforms	101
Knowledge and organizational structure erosion	AI capacity to spread information (scalability)	10
	Ceaseless seeking of support from AI	19
	Data sharing risks from integrating AI into business processes	87
	Employees including ChatGPT as private knowledge assistants in daily work	78
	Potential risk of AI facilitating greenwashing	66
	Users' lack of expertise or accuracy	3
Manipulation and misconduct	AI ability to produce credible content	24
	AI models' susceptibility to hallucinate	47, 51
	AI scalability	3
	Doxxing cyberbullying	85, 101
Performance decline	Compulsive use of AI	19
	Emotional attachment to AI	8
	Lack of tech-savviness	49
	Overreliance on AI advice	3, 10, 13, 23, 26, 35, 49, 51
	Technology dependence	3
	Untraceable nature of AI	39
Privacy, security, and data risks	AI potential to perpetuate existing socio-economic disparities	24
	Data breaches or unauthorized access to sensitive information	3
	Difficulty in developing responsible AI models	17
	Increased reliance on AI	3
	Privacy and data governance	34
	Privacy leakage	31
Trust and reliability issues	AI design flaws	3
	AI heuristics and biases	43
	AI limitations in being held accountable for outcomes	3, 21, 34
	Cognitive effort required to interact and oversee AI	34
	Hybrid teamwork implications (humans + AI)	34
	The potential for AI misinformation and manipulation	3, 24, 34
	Using GenAI for social media content creation	60

Table A.3. Challenges Associated with AI Use (continuation)

Table A.4 presents the mitigation strategies proposed to attenuate the side effects stemming from the challenges associated with AI use, and their respective sources (article numbering).

Side-Effect Dimension	Side-Effect Mitigation Strategies	Sources
Academic (content) integrity issues	Develop AI literacy in business curricula (workshops and training) to support competitive skills and complement traditional teaching methods	21, 26, 34, 36, 39, 45, 57, 65, 79, 97, 98, 104
	Establish and inform clear policies and guidelines (ethical and pedagogical considerations) to integrate and optimize the use of AI in educational and academic settings, addressing benefits and risks	4, 6, 9, 22, 23, 26, 34, 35, 38, 39, 45, 47, 48, 49, 61, 63, 64, 65, 67, 69, 73, 77, 79, 90, 94, 97, 102,103, 104, 108
	Ongoing adaptation of teaching and assessment methods, strategic alignment, and ethical exploration of Gen AI in educational practices	22, 34, 36, 37, 38, 48, 68, 69, 77, 79, 103
	Reevaluating copyright laws to accommodate hybrid forms of creativity	14, 17
	Reintroduction of proctored exams and advanced proctoring techniques to address academic integrity concerns and monitor overreliance on AI	21, 69, 97, 103
	Educational institutions should integrate AI technologies to guarantee equitable access and effective learning entourages	4, 23, 26, 39, 48, 90, 104
	Develop adaptive user interfaces to capture user emotions, behavior, perceptions, or needs, thereby mitigating psychological distress	2, 8, 31, 59, 75, 100
	Implement mental health programs to balance automation with employee well-being	1, 2, 75, 84, 88
	Continuous campaigns to educate users about the risks of uninterrupted AI usage	2
	Public awareness campaigns (with inclusive and positive messages) to educate about the benefits, risks, and limitations of AI and to prevent mental health consequences	2, 20, 89, 80
Bias and fairness issues	Encourage critical evaluation and independent verification of AI outputs to avoid errors	53, 57, 74, 102
	Validate AI insights through cross- and fact-checking to ensure relevance and accuracy of the generated content	28, 48, 64, 71, 94, 102
	Continuous updates to AI training data sets, employing representative training subsets, and strong governance efforts to correct nontypical or wrong historical data, data obsolescence, and improve the quality of data inputs, thereby preventing bias propagation	14, 42
Cognitive limitations and comprehension difficulties	Develop robust training programs to enhance creativity, problem-solving, and writing skills, and encourage the use of effective prompts to achieve better AI results, in parallel with technological interaction	42, 49, 64, 77, 102
	Implementing AI-assisted content disclosure may ensure not only maintaining content quality but also user engagement	53
	Stimulating human involvement to balance AI rational efficiency with human judgment when generating content to foster human engagement in critical thinking	66
Dependence and overreliance	Monitor potential over-reliance on AI and protect users from compulsive use by adopting breaks and setting usage limits, fostering emotional intelligence of users in understanding limits and rational use to reduce anxiety and emotional attachment to technology, alternating between performing tasks with and without AI support, and promoting social interaction	2, 97
	Use restrictions and management to control compulsive employment, promoting independent and critical thinking/practice, enhancing user literacy, increasing individual irreplaceability, technological improvement and optimization, and safeguarding against AI threats to human society	71
Design limitations	Improve data security, transparency, fairness, interactivity, and explainability of AI systems	8, 15, 61, 70, 75, 80, 101
	Considering ethical, emotional, and societal impacts when developing AI tools	7
	Enhance AI tools with evidence-based Q&A, structured prompts, user well-being metrics, integration with other technologies, reduction of cognitive biases, digital identity verification, virtual interviews with behavioral questions, and mechanisms to save metadata, validate image authenticity, identify areas of hallucination, and detect compulsive use or copyright infringement	2, 5, 11, 12, 14, 19, 28, 31, 43, 53, 96, 99
	Integrate personalized AI to accommodate different knowledge and technological needs among users	49, 95, 97, 106

Table A.4. Side-Effect Mitigation Strategies (continues)

Side-Effect Dimension	Side-Effect Mitigation Strategies	Sources
Disruption in human relationships	Deepen AI literacy and diversify skills to intensify technological interaction and ensure employment relationships	90, 94, 105
	Employees may need to acquire new skills or switch jobs to attenuate the adverse impacts of AI	105
	Encourage the equitable, responsible, and ethical development/use of AI by disclosing AI-related risks and consequences to minimize adverse effects and resistance	24, 32, 33, 42, 51, 52, 56, 62, 71, 76, 78, 81, 83, 89, 93, 106, 107
	Invest in continuous employee development in AI literacy and knowledge to promote workforce adaptability	35, 45, 88, 89, 97, 104
	Reconfiguring job roles due to AI-induced job replacement	72, 78, 81, 85
Environmental and systemic impacts	Align AI development and implementation with strategic planning to manage ROI and align public and private interests	13, 51, 62, 83
	Collaborative efforts across industry sectors to create regulatory bodies for AI development, integration, and ethical practices	15, 24, 71, 72, 75, 97, 106
	Create ongoing training and development opportunities to prepare employees for the challenges posed by automation	1, 32, 42, 44, 51, 52, 56, 57, 74, 80, 84, 88, 89
	Discussions in public forums to raise awareness of potential downsides to AI use: inadequate current legal protections, shallow learning, overdependence, non-consensual sexualized deepfakes, digital exclusion, copyright infringement, social manipulation, inequitable access, and ethical and legal concerns	21, 23, 24, 29, 30, 40, 52, 58, 76,85, 91
Ethical, legal, and societal concerns	Create legal protections to secure constituents' interests and update liability frameworks to address harms caused by AI systems	12, 16, 17, 27, 58, 107
	Develop certificates for AI usage and liability frameworks to convey legal implications	15, 16
	Stimulating collaborative and ethical AI design to ensure digital inclusion, moral responsibility, legal compliance, and sustainability	2, 7, 10, 42, 44, 51, 60, 70, 71, 91, 101, 106
Harassment and harmful behaviors	Establish codes of conduct and legal punishments to hold bad AI users accountable for their acts	24, 106
	Verify digital identity of users and validating image authenticity at a pixel level to prevent fake news or reviews spread	12, 96
Knowledge and organizational structure erosion	Encourage reflexivity when using AI to ensure responsible knowledge creation	9, 10
	Ensure equitable access to generative AI, foundational skills for inclusive participation, and effective learning environments to foster motivation and engagement	4, 23, 26, 39, 48, 90, 104
	Implement effective communication to promote interdisciplinary collaboration and human-AI interaction to overcome resistance to AI adoption and broken knowledge ties	17, 32, 33, 44, 50, 51, 52, 53, 72, 74, 78, 84, 88
	Introduce new AI governance mechanisms in collaboration to mitigate data sharing risks	87
Manipulation and misconduct	Developing a policy model, assisting users in understanding and regulating AI usage	31
	Set up ethical calibers and best practices for AI usage	42
	Provide use guidelines for AI tools to line up their deployment with the reason for which they were created	13
Performance decline	Encouraging collaborative learning, hands-on experience with AI, effective prompt engineering, fostering critical thinking skills, and stimulating AI Literacy to promote an effective interaction with AI tools	35, 36 42, 77
	Introduce knowledge-sharing platforms within the company to aid employees in effectively employing AI	32
	Training programs for users can improve academic and professional practices with AI	21
Privacy, security, and data risks	Implementing robust policies to regulate data privacy and improve the transparency of AI operations	26
	Introduce data governance and oversight mechanisms to ensure privacy and security	10, 25, 51, 62, 66, 87, 92, 42, 62
	Create ethical and legal frameworks, as well as policy interventions, to ensure the responsible development and use of AI, ensuring data privacy, security, and minimizing adverse effects	7, 14, 15, 18, 21, 24, 26, 31, 33, 35, 37, 54, 70, 71, 80, 101, 105, 106
Trust and reliability issues	Maintain human agency to ensure the ethical deployment and use of AI and determine ownership of AI-generated content	3, 8, 13, 24, 60, 63, 66, 100
	Implement effective communication to promote interdisciplinary collaboration and human-AI interaction to overcome resistance to AI adoption	17, 32, 33, 44, 50, 51, 52, 53, 72, 74, 78, 84, 88
	Adress users' concerns about accuracy and privacy of AI tools to foster trust	4

Table A.4. Side-Effect Mitigation Strategies (continuation)

Table A.5 presents a summary of the research agenda categories and their respective sources (article numbers).

Research Agenda Category	Sources
Evidence-building and measurement	26, 31, 42, 49, 51, 56, 68, 72, 73, 83, 103, 104, 107
Individual-level development and well-being	1, 2, 5, 6, 7, 8, 19, 20, 21, 23, 29, 35, 36, 40, 41, 43, 45, 48, 50, 54, 60, 63, 64, 65, 67, 75, 77, 79, 85, 88, 89, 90, 95, 97, 98, 102
Integrity, authenticity, and authorship in knowledge and content production	4, 9, 14, 17, 18, 22, 30, 38, 39, 57, 61, 69, 94, 99, 100, 108
Reliability, security, and information ecosystem quality	11, 12, 13, 24, 53, 66,80, 91, 93, 96, 101
Societal structures, regulation, and justice	3, 10, 15, 16, 27, 33, 58, 62, 71, 76, 92, 105, 106
Work, routines, and organizational governance	25, 32, 34, 37, 47, 52, 55, 70, 74, 78, 81, 84, 87
None (not addressed in the paper)	59

Table A.5. Research Agenda Categories

Table A.6 presents the list of research agenda categories for the future research topics identified by SciSpace in the reviewed articles, along with their respective sources (article numbers). Although sometimes the articles covered more than one research agenda category, we always prioritized the most relevant one.

Research Agenda Category	Future Research Topics	Sources
Evidence-building and measurement	▪ Future research should explore the long-term effects of AI in education and its cross-cultural applicability ▪ Larger and more diverse sample populations are needed to enhance the generalizability of findings ▪ Employing quantitative methods alongside qualitative approaches can validate observed trends comprehensively ▪ Ethical considerations and privacy safeguards in AI utilization require further inquiry ▪ Interdisciplinary collaboration is essential to foster effective AI applications in education	26
	▪ The paper suggests exploring user perceptions across different scenarios of ChatGPT usage, indicating a need for further investigation in this area ▪ Future research could focus on the four key variables identified: information quality, perceived risk, attitude, and policy support ▪ The study highlights the importance of understanding how different scenarios affect user attitudes, which warrants additional research	31
	▪ Future research should focus on developing LCA-specific datasets and benchmarks through collaborative efforts among institutions ▪ Investigating the integration of LLMs with VDBs to enhance LCA context awareness and data management is essential ▪ Exploring prompt engineering techniques to improve LLM response quality for LCA tasks is recommended ▪ Addressing the risks associated with LLMs, such as hallucinations and accountability, requires further investigation ▪ Research should aim to refine LLMs for LCA applications, considering the computational resources needed ▪ Developing standards for the responsible use of LLMs in LCA methodologies is crucial for future studies	42
	▪ Future research should explore longitudinal studies to confirm the evolving relationships between perceived risk, trust, and tech savviness over time ▪ Developing new, nuanced scales for perceived risk and trust in generative AI tools is recommended ▪ Investigating the integration of AI with emerging technologies like virtual reality or blockchain could enhance student adoption ▪ Further qualitative investigations are needed to refine constructs related to generative AI adoption in education ▪ Research should examine how generative AI tools can transform pedagogical practices in higher education ▪ Exploring the impact of generative AI on student creativity and independent thinking is essential	49

Table A.6. Research Agenda Details (continues)

Research Agenda Category	Future Research Topics	Sources
Evidence-building and measurement	▪ Future studies may consider a more holistic dataset beyond YouTube to explore GAI adoption barriers comprehensively ▪ A qualitative research approach could be adopted to understand evolving GAI adoption barriers ▪ Developing a causal model validated through surveys is suggested for future research ▪ Further exploration of the emotional aspects influencing GAI adoption is recommended, as well as investigating the impact of privacy and security concerns on GAI adoption could be beneficial	51
	▪ Future research should explore ChatGPT's discourse over a longer time frame to capture evolving sentiments and topics ▪ Integrating NLP tools with corpus linguistics or discourse analysis could enhance understanding of public views on ChatGPT ▪ Incorporating qualitative methods, particularly critical discourse analysis, can provide deeper insights into contextual factors influencing discussions ▪ Addressing the limitations of sentiment analysis by considering nuanced language aspects is essential for future studies ▪ Investigating the impact of external events on cryptocurrency-related discussions could yield valuable insights	56
	▪ Future research should explore the detailed implications of ChatGPT across various technological advancements in education ▪ Investigations into the convergence of innovation theories like TAM and TOT models are recommended ▪ A unified theoretical framework for future ontological inquiries in education is suggested ▪ The study highlights the need for customized versions of AI tools for teaching purposes ▪ Broader methodologies incorporating more keywords and data sources are necessary for future investigations ▪ Continuous research is essential to substantiate the role of ChatGPT in education and beyond, as well as strategic solutions to emerging challenges in AI adoption	68
	▪ Future research should explore causal relationships between variables affecting sentiment trends through experiments or longitudinal studies ▪ International AI research consortiums should be formed to address public concerns about AI ▪ Collaborative research should focus on AI's societal impacts, particularly in healthcare, education, and governance ▪ Enhancing understanding of information dissemination relationships through social network analysis is recommended ▪ Combining data from multiple sources could yield a more comprehensive understanding of public sentiment	72
	▪ Future studies should include other academic social networking sites beyond RG and Academia to broaden the understanding of user motivations ▪ Researchers are encouraged to explore technology usage theories like UTAUT and TAM for deeper insights into AI adoption ▪ Expanding the target population to include students and academic staff can enhance the understanding of AI language model adoption ▪ Investigating factors such as academic performance and personal best goals in the context of ChatGPT is recommended ▪ Future research should address the finer aspects of ChatGPT adoption behavior through qualitative methods, a further exploration of academic integrity in AI adoption, and additional empirical testing of the model's determinants, like peer influence and self-efficacy, is suggested	73
	▪ Future research should analyze follower responses to actual social media brand posts to enhance external validity ▪ Longitudinal studies are encouraged to track evolving consumer responses to GenAI adoption over time ▪ Researchers could explore the effects of wording and visual layout on GenAI recognition in disclosures ▪ Cross-cultural studies could test hypotheses regarding GenAI content's fit for innovative versus heritage brands ▪ Replication and extension of findings using larger sample sizes are recommended to improve statistical power	83

Table A.6. Research Agenda Details (continues)

Research Agenda Category	Future Research Topics	Sources
Evidence-building and measurement	▪ Future research should explore user opinion analysis of ChatGPT on Reddit, as prior studies focused mainly on Twitter discussions ▪ A comprehensive SWOT analysis of user discussions regarding ChatGPT's performance in various aspects is needed ▪ Longterm trends in public sentiment towards ChatGPT beyond the one-year study period should be investigated ▪ Further studies could enhance the understanding of tools like LDA topic modeling and VADER in capturing human discussions ▪ Expanding the scope of user opinion analysis to include other social media platforms could provide richer insights	103
	▪ Future research could create scales to measure attitudes toward generative AI tools like ChatGPT ▪ New constructs, such as effort-performance expectancy and social influence, should be integrated ▪ Exploring the attitudes of all stakeholders in higher education is recommended ▪ Investigating the influence of cognitive and affective components on student behavior is essential ▪ Further studies should examine the relationships between the UTAUT2 theory and responsible technology use	104
	▪ Future research could expand the literature search to include a broader range of sources to enhance the framework's robustness ▪ An objective analysis of the RRR elements using a multi criterion decision-making framework like AHP is suggested ▪ Researchers are encouraged to propose ethical frameworks and guiding rules for decision-making related to RRR systems ▪ Strategies to mitigate potential limitations of the current study should be explored, including alternative methodologies and case studies ▪ The study opens avenues for examining the second-order effects of legislation regarding ChatGPT	107
Individual-level development and well-being	▪ Future research could explore the long-term effects of ChatGPT on stress levels beyond the current study's timeframe ▪ Investigating the impact of AI adoption on job satisfaction and productivity in Thailand may provide valuable insights ▪ Further studies could analyze the relationship between adoption of digital technology and mental health outcomes ▪ Research could assess the effectiveness of AI strategies in mitigating stress related to job displacement concerns ▪ Examining the differences in stress levels across various demographics in Thailand could enhance understanding of the issue	1
	▪ Future research could explore the long-term psychological effects of compulsive ChatGPT usage on various demographics, including age and socioeconomic status, to understand its broader implications ▪ Investigating the effectiveness of interventions aimed at reducing compulsive usage and its associated mental health issues, such as anxiety and burnout, would be beneficial ▪ Additionally, examining the role of different types of AI technologies in user wellbeing could provide insights into responsible technology design ▪ Finally, longitudinal studies could assess changes in user behavior and mental health over time in relation to evolving AI capabilities	2
	▪ Future research will focus on experimentation with other LLMs for improved response quality and lower technical requirements ▪ Analysis of multilingual support for the system is also a priority ▪ Enhancing medical terminology and contextual understanding in mental health is essential ▪ The integration of new information sources and updates to existing content is necessary ▪ Ensuring privacy and security in handling sensitive mental health data is crucial ▪ Adapting answers based on communication channels and linguistic registers is needed	5

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future research should focus on augmenting technological developments of tools like LLMs with human intelligence ▪ Five thematic areas are identified to enhance understanding of GenAI in education ▪ Further work is needed to provide evidence on GenAI's capabilities for human learning ▪ Seven central learning technology topics are highlighted as pivotal for GenAI's educational use ▪ Longterm evaluations of GenAI's impact on student learning are essential ▪ Understanding both opportunities and risks of GenAI is crucial for supporting human learning ▪ Ethical and policy challenges must be critically evaluated to responsibly use GenAI ▪ Continuous empirical evaluation of GenAI's capabilities is necessary for advancing human learning ▪ The research community is encouraged to identify best practices and inappropriate uses of GenAI ▪ The abstract emphasizes the need for humancentric design and policy support in GenAI research	6
	▪ Future research should focus on high-quality comparative studies in various domains of conversational agents (CAs) ▪ Effectiveness verification for loneliness and psychiatric symptoms is needed ▪ More studies on mental health in nonclinical young adults and neurodevelopmental disorders are essential ▪ Standardized assessment methods for key outcomes must be established ▪ Research should enhance verbal and nonverbal communication skills in CAs ▪ Integration of CAs with new technologies like VR and AR is crucial ▪ Development of ethical guidelines for CA implementation is necessary ▪ Training materials for professionals using CAs should be created ▪ Addressing the differentiation in CA use for psychiatric medicine and nonclinical populations is important ▪ Organizing research directions across various fields, including psychology, is vital	7
	▪ High-quality comparative studies are needed in various areas, particularly for loneliness and psychiatric symptoms ▪ More research on mental health in nonclinical young adults and neurodevelopmental disorders is essential ▪ Standardized assessment methods for key outcomes should be established ▪ Enhancing verbal and nonverbal communication skills for companion robots is crucial ▪ Integration of chatbots and SARs with new technologies like VR and AR is necessary ▪ Development of ethical guidelines for CA implementation is required ▪ Creation of standard implementation guidelines for effective CA use is important ▪ Training materials for professionals using CAs should be developed	8
	▪ Future research should explore the comorbidities associated with chatbot addiction and their impact on mental health disorders ▪ Investigating the differences in personality traits among users could provide insights into digital addiction ▪ Cross-cultural comparisons and longitudinal studies are recommended to understand ChatGPT usage behavior over time ▪ Research should focus on specific internet activities rather than general internet use to better understand problematic internet use ▪ The role of chatbots in alleviating social anxiety and enhancing self-disclosure warrants further investigation ▪ The addictive nature of Generative AI like ChatGPT, compared to traditional chatbots, needs more in-depth examination	19

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future research should test findings in diverse settings to enhance generalizability ▪ Larger sample sizes are needed to improve the reliability and validity of results ▪ A combination of online and offline data collection methods should be considered to reduce biases ▪ Additional factors, like personality traits and social support, should be examined to understand psychological outcomes better	20
	▪ Future research should incorporate more data sources to strengthen findings and address limitations in qualitative data analysis ▪ Methodological triangulation is suggested for greater trustworthiness in research outcomes ▪ Investigating the implications of ChatGPT in early childhood education is crucial for maximizing benefits and minimizing risks ▪ Research should explore how educational systems can adapt curriculum design and teaching methods in response to AI technologies ▪ The study indicates a need for training programs for educators on AI applications like ChatGPT ▪ Further exploration of human agency and inquiry ability in the context of AI tools is recommended	21
	▪ Future research could explore the balance between leveraging LLMs and developing domain expertise in education ▪ Investigating the integration of playful and game-based learning with LLMs presents significant opportunities ▪ Research may focus on enhancing the reliability and timeliness of LLM responses through generative AI technology ▪ Addressing ethical and legal issues related to LLMs in educational contexts is crucial ▪ Further studies could examine the impact of LLMs on fostering metacognitive and self-regulatory skills in learners	23
	▪ Future research could explore the societal impacts of generative AI, as students showed limited appreciation in this area ▪ Investigating the reliability of information generated by AI tools is essential, as participants expressed concerns about fact-checking ▪ Further studies could assess how students can maintain their writing voice while using AI tools ▪ Research may focus on developing a systematic understanding of pragmatic AI use among students ▪ Exploring the integration of various AI writing tools in the writing process could provide insights into their effectiveness ▪ The impact of technology dependence on students' writing practices warrants further investigation	29
	▪ Assess current AI and GenAI literacy levels among students and educators to tailor policies effectively ▪ Investigate the impact of GenAI tools on student learning outcomes, including critical thinking and creativity ▪ Explore the role of technological infrastructure in maintaining academic integrity among students ▪ Examine how different pedagogical and assessment approaches affect students' academic integrity	35
	▪ Future research could utilize longitudinal designs to examine ChatGPT adoption's effects on entrepreneurial cognition and behaviors ▪ Diverse data sources and methods, like observational data, could enhance the robustness of the findings ▪ The applicability of the proposed model across different cultural contexts warrants further exploration ▪ Investigating specific stressors related to technology use in entrepreneurship is recommended ▪ Research on AI's ethical, legal, and social implications in entrepreneurship can inform responsible business practices	36

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future research could explore the evolving perceptions of students towards AI technologies in education as they develop further ▪ Investigating the integration strategies of AI tools like ChatGPT in entrepreneurship courses remains a significant area for future study ▪ The study suggests examining the practical implications of AI in entrepreneurship education, particularly regarding the business model canvas ▪ Further research could assess the long-term impact of AI on students' entrepreneurial intentions and opportunity recognition ▪ Exploring the effectiveness of AI-driven approaches in enhancing teaching practices in entrepreneurship education is recommended	40
	▪ Future research should evaluate the developmental effects of social chatbots on individuals with social deficits ▪ Studies are needed to assess the therapeutic effects of social chatbots ▪ Investigating the potential for dependency on chatbots is crucial for understanding their impact	41
	▪ Future work is needed to examine the boundary conditions of language's influence on human heuristics ▪ Investigating the mechanisms underlying human decision making in relation to linguistic patterns is suggested ▪ Developing human-LLM interaction rules that account for humanlike heuristics is recommended ▪ Further exploration of whether linguistic cues drive heuristics in humans, similar to LLMs, is proposed ▪ The potential differences in heuristic drivers between LLMs and humans warrant additional research	43
	▪ Future research should focus on developing AI literacy within business curricula to adapt to the evolving AI landscape ▪ Investigating the long-term impacts of GenAI and AGI on learning outcomes in business education is essential ▪ Further studies could explore the integration of Agentic AI in educational settings and its implications for teaching and learning ▪ Analyzing the effectiveness of different pedagogical approaches for teaching AI concepts in business schools is needed ▪ Research could examine the unique demands of business education in relation to GenAI's capabilities and challenges	45
	▪ Future research should involve larger, more diverse samples to validate findings across varied settings ▪ Longitudinal studies are needed to assess AI's long-term impact on critical thinking ▪ Incorporating qualitative methods like reflective essays could enhance the understanding of critical thinking development ▪ A comprehensive classification of cognitive processes in AI-assisted education is necessary ▪ Expanding frameworks to include intellectual values would provide a holistic view of AI's impact ▪ Addressing the adaptability of proposed revisions to Bloom's Taxonomy across educational contexts is essential ▪ Exploring the integration of generative AI tools in marketing education is a key area ▪ Investigating the influence of self-monitoring effects from audio diaries on participant behavior warrants further study	48
	▪ Future research should explore perceptions of morality, trustworthiness, and accuracy in healthcare decision making with AI outputs containing incorrect statements ▪ Studies should replicate findings in larger sample sizes to enhance statistical power due to the complexity of the factorial design ▪ Investigating the impact of AI on parents' healthcare decisions and adolescents' health information seeking is necessary ▪ Research should assess the integration of AI technologies in daily life and educational environments ▪ Understanding the consequences of AI utilization in healthcare is crucial as AI becomes more sophisticated	50

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future research should explore the evolutionary aspects of human cognitive development in relation to AI chatbots like ChatGPT, as current literature primarily focuses on functional aspects ▪ Investigating the implications of the "neuronal recycling hypothesis" could provide insights into how new cultural tools, such as AI technologies, transform cognitive processes ▪ Researchers should examine the effects of cognitive offloading facilitated by these technologies on problem-solving abilities and cognitive demands ▪ Additionally, studies could assess how educational and political communities can strategically respond to the anticipated neurocognitive effects of AI on future generations	54
	▪ Future research could explore other forms of green marketing beyond Instagram posts by green influencers ▪ Investigating the impact of consumer predispositions on the effectiveness of GenAI in green contexts is suggested ▪ The perception of influencers using GenAI content warrants further examination ▪ Testing findings with different types of influencers, such as health influencers, is recommended ▪ The incongruity effect of GenAI images on consumers with varying levels of green schema should be studied ▪ Research could assess the effectiveness of purpose-built AI images that align with green causes	60
	▪ Future research could explore the impact of LLMs on creativity and problem-solving abilities ▪ Investigating pedagogical applications of the LLM Oxford Tutorial analogy is suggested ▪ Researchers might design AI systems to assume the "first student" role in learning ▪ Interface design for LLMs should encourage critical engagement and reduce overreliance ▪ Alternative frameworks from cognitive science and ethics should be explored ▪ Continuous evaluation of LLM integration is crucial for maintaining scientific integrity ▪ The implications of responsible LLM use and risks of overreliance warrant further investigation ▪ The article emphasizes the need for ethical considerations in AI integration	63
	▪ Future research should include diverse samples and explore perceptions of educators regarding ChatGPT in EFL learning ▪ Longitudinal studies could assess the long-term impact of AI writing tools on learners' skills ▪ Developing guidelines for the effective integration of AI tools in academic writing is essential ▪ Research should focus on including participants from various regions to enhance generalizability	64
	▪ Future research should incorporate objective assessments alongside self-report measures to better understand GAI's impact on English learning outcomes ▪ Investigating the long-term effects of GAI on learners with varying proficiency levels is essential ▪ Research should explore whether GAI technologies reduce or widen educational disparities over time ▪ The need for balanced, responsible integration of AI into pedagogical practices should be emphasized in future studies ▪ Further studies could assess the ethical concerns and potential misuse of GAI in educational contexts	65

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future research could explore "peer-to-peer and collaborative learning" to enhance student motivation and cognitive abilities ▪ Integration of ChatGPT with technologies like virtual reality may improve student engagement and learning outcomes ▪ Development of specialized domain-specific models for ChatGPT could facilitate collaborative work between AI and humans ▪ The study outlines various thematic areas for further investigation in AI applications in education ▪ Research avenues identified include addressing limitations of ChatGPT and enhancing its pedagogical applications ▪ The potential impact of generative AI on higher education, particularly in business education, warrants further exploration	67
	▪ Future studies should extend observation periods to capture seasonal influences on tourism patterns ▪ Further exploration of the impact of technology anxiety on user satisfaction is needed ▪ Investigating the psychological effects of AI interactions, including emotional development, is essential ▪ The relationship between parasocial interaction and continuance intention warrants deeper examination ▪ Understanding the causes of user satisfaction and continuance intention in travel contexts is crucial	75
	▪ Future research could explore the effective integration of generative AI in educational settings to enhance learning outcomes ▪ Investigating the development of instructional avatars using generative AI may provide insights into personalized learning experiences ▪ Research could focus on mitigating biases in generative AI responses to ensure accurate information delivery to learners ▪ Examining the role of human experts in reviewing AI-generated content could improve the quality of training data ▪ Future studies might assess the long-term impacts of generative AI on traditional educational practices and learner engagement	77
	▪ Future research should utilize longitudinal or experimental designs to enhance causal inference regarding teachers' emotions and AI use ▪ Real-time indicators are recommended to better evaluate relationships between teachers' emotions, appraisal, coping, and productivity ▪ The impact of social and organizational contexts on teachers' emotional reactions to AI use warrants further exploration ▪ More studies are needed to understand the mediation mechanisms of emotions in AI acceptance ▪ Future research should investigate the emotional experiences of language teachers using generative AI in various educational contexts	79
	▪ Future research should explore the negative consequences of AI implementation in services, focusing on ethical and legal concerns ▪ Investigating the psychological impacts of AI's lack of empathy on customers across different cultures is essential ▪ Researchers should examine how AI can simulate emotional responses perceived as authentic in-service interactions ▪ The role of AI as customers rather than just service providers warrants further exploration ▪ Addressing the environmental implications of AI energy use versus its resource management efficiency is crucial ▪ A comprehensive understanding of consumer traits interacting with AI in service encounters is needed ▪ The proposed research agenda includes questions to guide scholars in AI-based services	85

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future research should refine measures of job insecurity and automation potential to enhance understanding ▪ Investigating the impact of perceived automation potential on job insecurity ▪ Explore the positive aspects of automation potential, such as career exploration ▪ Examine the role of social resources in coping with automation-related stressors ▪ Assess individual factors like AI knowledge and social skills in managing job insecurity ▪ Further research is needed on the mechanisms influencing job insecurity due to automation ▪ The study encourages exploring tailored approaches for enhancing individual resilience in evolving workplaces	88
	▪ Future research should explore the impact of consumers' personal circumstances on their relationships with AI agents ▪ Investigating the effects of different modalities on self-related processes with AI agents is essential ▪ Examining cultural aspects of interactions with conversational AI agents remains crucial for understanding diverse consumer relationships ▪ Further studies could analyze how relationships with AI evolve over time ▪ Research should focus on the implications of self-congruence and self-AI integration across various conversational AI types ▪ The role of conversational AI agents in modifying consumer expectations for human relationships warrants further investigation ▪ Future studies could compare consumer responses in public versus private contexts regarding AI interactions ▪ Exploring the specific features and tasks of AI agents that affect consumer relationships is recommended	89
	▪ Future research should explore the ethical and pedagogical considerations of using ChatGPT in education ▪ Investigating data security and privacy concerns related to ChatGPT is essential ▪ There is a need to analyze teachers' perceptions of ChatGPT's benefits and challenges ▪ Further studies should focus on optimizing the integration of ChatGPT in writing pedagogy ▪ Research should address the impact of ChatGPT on students' creativity and digital literacy ▪ Identifying effective strategies for teaching students to use ChatGPT for personalized feedback is crucial	90
	▪ Further research is needed on how AI code generators support algorithmic thinking in software education and learner behavior ▪ The authors emphasize the importance of evaluating the quality of AI-generated code and responses in programming education ▪ There is a call for personalized feedback to enhance software engineering education using AI tools ▪ Future studies should explore the implications of generative AI tools in various educational contexts ▪ Investigating the limitations of AI models in complex reasoning tasks is essential for improving their educational utility	95
	▪ Future research should focus on competencies required for a GAI-powered workforce, including AI literacy measures and interdisciplinary teaching ▪ Innovative pedagogies and assessment acceptance are also recommended areas for exploration ▪ Empirical research is needed to develop guidelines and best practices for generative AI in education ▪ Addressing biases and enhancing training for educators and students is crucial for effective GAI integration ▪ Continuous improvement of AI technologies should be a priority in future studies ▪ The ethical implications of generative AI usage in education warrant further investigation	97

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Individual-level development and well-being	▪ Future studies should empirically examine the use of ChatGPT in real-world science classrooms ▪ Research could explore the impact of open-source LLMs on equitable AI practices ▪ Investigate strategies to prevent excessive reliance on ChatGPT during instructional design ▪ Develop instructional programs integrating ChatGPT for enhanced classroom interactions ▪ Conduct quasi-experimental studies to assess ChatGPT's impact on science teaching ▪ Explore the roles of generative AI in actual classroom settings	98
	▪ Future research should focus on integrating ChatGPT into collaborative environments for complex challenges like software engineering and code debugging ▪ Investigating potential biases in AI responses and methodologies to reduce these biases is crucial ▪ The efficacy of ChatGPT in personalized learning and its impact on student outcomes warrants a thorough investigation ▪ Exploring ChatGPT's role in mental health support and empathetic dialogues is a promising research direction ▪ Development of a generic AI system that coordinates various AI tools is a significant area for future exploration ▪ Establishing regulations and procedures for chatbot systems can enhance output quality and address ethical challenges ▪ Empirical studies on user motivations for using or avoiding LLMs should be conducted	102
Integrity, authenticity, and authorship in knowledge and content production	▪ Future research should explore the ethical concerns surrounding AI tools like ChatGPT in education ▪ Investigating the impact of ChatGPT on academic integrity and student-teacher relationships is essential ▪ Research should address cultural attitudes toward technology in education ▪ Future studies can enhance understanding of AI's role in diverse educational contexts over time ▪ There is a need for research on integrating ChatGPT into classroom dynamics while considering potential risks ▪ Further investigation is required into how to prepare educators and students for using ChatGPT responsibly ▪ Research should focus on ensuring equitable access to AI technologies in remote areas	4
	▪ Future research should explore the implications of AI-generated knowledge on scientific responsibility and management education ▪ Investigating the ethical considerations of using AI tools like ChatGPT in academic writing is essential ▪ Research could focus on the distinctiveness of human knowledge compared to AI-generated outputs ▪ Examining the societal impacts of AI in business research could provide valuable insights	9
	▪ Future research should explore new copyright models that balance innovation and protection in GenAI technology ▪ Addressing technological ethics, model bias, and data privacy is crucial for future studies ▪ The development of fair remuneration rights for GenAI training under international governance needs further investigation ▪ Analyzing the implications of copyright on content generated by GenAI warrants additional research ▪ Collaborative efforts among technological, industrial, and academic sectors are essential for future advancements	14
	▪ Future research should explore the legal implications of AI-generated works and their originality under copyright law. ▪ Investigating the impact of GenAI on creativity and originality is essential for understanding its societal value ▪ The relationship between human involvement and AI in creative processes warrants further examination ▪ Addressing data privacy and image rights issues in generative AI technologies is crucial for future studies	17

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
	▪ Future research should explore the legal implications of generative AI outputs and their originality under copyright law ▪ Investigating the transparency of large language models and their training data is essential ▪ The interaction between AI systems and the legal frameworks governing them requires further examination ▪ Understanding the interests of various stakeholders in the generative AI ecosystem is crucial for future studies ▪ The evolving definition of creativity in the context of AI-generated works warrants additional research	18
	▪ Future research should investigate the implications of placebo and ghostwriter effects on learning and academic writing ▪ Distinguishing tasks suitable for AI automation is crucial for future studies ▪ Exploring how different forms of AI embodiment affect user perception is a potential research avenue ▪ The impact of anthropomorphizing on AI-generated content quality warrants further investigation ▪ Research should assess the effects of generative AI on cognition and academic dishonesty ▪ Understanding emotional responses to humanlike technology can inform user support strategies ▪ Employing embodied AI agents may improve user acknowledgment of AI contributions	22
Integrity, authenticity, and authorship in knowledge and content production	▪ Future studies should expand the sample size and include diverse student profiles to enhance findings ▪ Research should analyze the quality and depth of student prompts to ChatGPT ▪ Investigate the impact of writing in different languages on the quality of AI-generated content ▪ Explore the implications of using ChatGPT in academic writing and its effect on authenticity ▪ Assess the development of reliable AI text detectors and their implications for academic integrity ▪ Examine the interaction between ChatGPT and experienced researchers for improved outcomes	30
	▪ Future research could explore AI integration in sectors beyond education, such as finance and healthcare ▪ Investigating the long-term effects of ChatGPT on pedagogical practices and educational outcomes is essential ▪ Researchers should examine different text classification techniques for insights into AI-driven tools ▪ There is a need to develop guidelines for responsible AI use and academic integrity ▪ Future studies could analyze sentiment trends regarding AI tools over time ▪ Exploring the implications of AI integration across various educational contexts remains a promising area	38
	▪ Future research should include case studies and statistical verification of ChatGPT usage over time ▪ Incorporating examples from both students and educators on ChatGPT usage is essential ▪ Comparative studies of ChatGPT against other AI programs are needed to assess advantages and disadvantages ▪ Management educators should explore innovative ways to integrate ChatGPT into curricula while maintaining learning standards ▪ Research should focus on the implications of ChatGPT's untraceability in educational assessments ▪ Policies regarding the use of generative AI in education must be developed quickly	39

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Integrity, authenticity, and authorship in knowledge and content production	▪ Future research should involve real job applicants to enhance insights into faking behaviors in job applications ▪ Investigating factors affecting candidates' abilities in the multi-saturation model is essential ▪ Assessing LLMs' efficacy in faking various selection measures is a key future direction ▪ Exploring the impact of LLMs on biases in hiring processes warrants further investigation ▪ Research should focus on the effectiveness of different question types in resisting faking attempts ▪ Evaluating the validity of personality assessments in remote testing environments is crucial	57
	▪ Future research could explore additional safeguards to enhance integrity in online interactive oral assessments ▪ Investigating the effectiveness of different assessment formats in various disciplines may provide valuable insights ▪ Research could focus on strategies to minimize bias in oral assessments, particularly in subjective evaluations ▪ The impact of training assessors on the quality of oral assessments warrants further investigation ▪ Exploring the scalability of interactive orals in larger cohorts could inform best practices for implementation ▪ Examining the role of technology, such as audio recordings, in moderating assessments could enhance reliability	61
	▪ Future research should explore the correlation between ChatGPT usage and academic integrity, addressing current gaps in empirical evidence ▪ Investigating the relationship between ChatGPT usage and student retention rates is recommended for further understanding ▪ Ethical issues surrounding ChatGPT, such as accountability and fairness, require thorough examination in future studies ▪ A mixed methodology could be employed to develop a responsible ChatGPT that benefits educational institutions and students ▪ Enhancing ChatGPT's accuracy as a fact-checker is crucial for improving its trustworthiness and performance ▪ Future studies should focus on the impact of ChatGPT on life satisfaction and academic engagement among students	69
	▪ Future research should explore the impact of moderators on students' prompts and ChatGPT's responses ▪ Investigating the role of human intelligence in using ChatGPT is necessary ▪ More studies are needed to establish correlations between different themes and responses ▪ Research should focus on developing creative assessment techniques for the AI era ▪ Understanding how situational interest can evolve into individual interest is essential ▪ The implications of ChatGPT on academic integrity and teaching methods require further exploration	94
	▪ Future research should explore AI cheating on performance with limited preparation times, such as 30 seconds ▪ Investigate the effects of cognitive ability and technological savvy on AI cheating effectiveness ▪ Examine the relationship between cognitive ability and interview ratings moderated by AVI design factors ▪ Assess performance differences in delivery elements between AI users and non-users ▪ Future studies should identify which AI tools participants use to draw accurate conclusions about AI capabilities ▪ Research could explore findings under high-stakes situations with real job applicants ▪ Investigate how AI cheating affects applicant reactions and future intentions ▪ Explore the potential for AI to improve job performance and employee well-being	99

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Integrity, authenticity, and authorship in knowledge and content production	▪ Future studies should investigate interface designs for authorship declaration in AI-assisted writing ▪ Research could explore cultural and social norms affecting authorship perceptions in AI usage ▪ The impact of interaction methods on authorship attribution warrants further examination ▪ Investigating the psychological processes in human-AI authorship attribution is essential ▪ Future work should assess the effects of personalization on ownership and authorship declaration ▪ The relationship between user influence and sense of ownership in AI-generated texts needs exploration	100
	▪ Future research should focus on the integration of generative AI tools in educational environments, emphasizing their application in education and academic research ▪ There is a need to explore the implications of generative conversational AI, such as ChatGPT, on research, practice, and policy, particularly regarding academic integrity ▪ Investigating the interrelationship between Universal Design for Learning (UDL) and Differentiated Instruction (DI) is essential for enhancing educational practices ▪ Additionally, understanding students' perceptions, benefits, and challenges related to generative AI in higher education is crucial for maximizing learning outcomes	108
Reliability, security, and information ecosystem quality	▪ Future research should focus on improving AI alignment with user intentions to enhance safety and utility ▪ Investigating methods to demystify AI decision-making processes is crucial for accountability ▪ Addressing biases in AI outputs and ensuring equitable treatment across diverse populations is essential ▪ Exploring the integration of blockchain technology to enhance transparency and reliability in AI systems is a promising area	11
	▪ Future research should explore the effectiveness of digital identity verification in combating fake reviews ▪ Investigating the limitations of current techniques for addressing fake reviews is essential ▪ Examining alternative approaches to tackle the growing sophistication of generative AI in creating fake reviews is necessary ▪ Increased transparency and accountability in online reviews should be a focus for future studies	12
	▪ Future research should focus on improving the accuracy of generative LLMs to reduce hallucinations in legal contexts ▪ Investigating the implications of automation bias in judicial decision-making is crucial for responsible AI deployment ▪ Exploring the regulatory framework of the EU Artificial Intelligence Act can enhance accountability in AI systems ▪ Research should address cognitive biases that affect AI integration in legal practices ▪ Techniques like Retrieval Augmented Generation (RAG) warrant further exploration to enhance LLM performance	13
	▪ Future research should focus on developing ethical and legal frameworks for generative artificial intelligence (GAI) to mitigate its risks ▪ Investigating quality control mechanisms for AI-generated content is essential to improve information reliability ▪ Research on combating disinformation through fact-checking and monitoring online platforms is necessary ▪ Exploring the implications of algorithmic bias and developing inclusive algorithms is crucial for fair AI applications ▪ Further studies should address the socioeconomic impacts of GAI, including job displacement and privacy concerns ▪ Understanding user education on identifying disinformation can enhance public resilience against fake news	24

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Reliability, security, and information ecosystem quality	▪ Future research could explore the long-term effects of generative AI on user engagement and content quality in UGC platforms ▪ Investigating the effectiveness of AI content disclosure measures could provide insights into retaining engaged users ▪ Further studies may assess the impact of AI on different user demographics and their contributions ▪ Research could evaluate alternative strategies for platforms to enhance user recognition and incentivize contributions	53
	▪ Future research should evaluate the accuracy and reliability of AI-generated information, including chatbots and processing technologies ▪ Exploring methods to reduce bias and error in AI-generated information is essential ▪ Researchers could investigate the limitations of AI, particularly data dependence and model transparency ▪ A broad array of research methods, including surveys and case studies, can be employed to explore these topics ▪ The implications of generative AI tools for corporate and sustainability reporting warrant further investigation ▪ Future studies should assess perceptions of AI across various industries, including journalism and academia	66
	▪ Future research should explore the interaction between risk factors and individuals' information-seeking via AI chatbots ▪ Utilizing panel data could enhance the understanding of actual information-seeking behavior ▪ Alternative data collection methods with diverse samples may help generalize findings beyond the US ▪ Investigating the impacts of privacy concerns and trust on AI chatbot usage is essential ▪ Further studies could examine the mediation effects within the RISP model	80
	▪ Future research could include testing additional web browsers and devices, such as mobile phones and alternative operating systems ▪ Researchers suggest conducting comparative analyses across different target pages beyond ChatGPT ▪ Investigating new accessibility concerns as ChatGPT's features evolve presents further research opportunities ▪ The study highlights the need for ongoing manual testing alongside automation in accessibility assessments ▪ Emphasizing the integration of WCAG guidelines in the development of AI-enabled platforms like ChatGPT is crucial for future studies	91
	▪ Future studies should implement quantitative techniques to further test the consumer behavior model related to AI tools ▪ Research should focus on improving the reliability and security of data in AI applications ▪ There is a need for adequate training courses to enhance the efficiency of AI tools ▪ Investigating user perceptions of AI's role in promoting sustainability and wellbeing is essential ▪ Future research should address the ethical implications and governance of AI technologies	93
	▪ Future research could explore the balance between perceptual and reconstruction losses in neural networks for improved image quality ▪ Investigating the integration of AI-based modules in traditional ISP processing could enhance performance and interpretability ▪ The development of authentication masks for validating image authenticity at a pixel level presents a significant research opportunity ▪ Addressing the challenges of on-device performance while maintaining image quality is crucial for future advancements in smartphone ISPs ▪ Further studies could examine the implications of hallucinated content on the interpretation of images in various contexts	96

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Reliability, security, and information ecosystem quality	▪ Further research is needed to examine XR-related harms and threats across diverse demographics and cultural contexts ▪ Development of XR literacy tools for empowering users to identify and report risky behaviors is essential ▪ Community-specific guidelines and protocols should be proposed to protect vulnerable communities ▪ Independent auditing of XR data usage is recommended to ensure transparency and accountability ▪ Empirical studies should expand the threat model to understand specific attacks in XR technologies ▪ Investigating how XR threats align with existing threat models like STRIDE or DREAD is necessary ▪ Humancentric design thinking should be utilized to understand AIXR metaverse applications' impacts on users	101
Societal structures, regulation, and justice	▪ Future research could explore the long-term psychological effects of compulsive ChatGPT usage on various demographics, including age and socioeconomic status, to understand its broader implications ▪ Investigating the effectiveness of interventions aimed at reducing compulsive usage and its associated mental health issues, such as anxiety and burnout, would be beneficial ▪ Additionally, examining the role of different types of AI technologies in user wellbeing could provide insights into responsible technology design ▪ Finally, longitudinal studies could assess changes in user behavior and mental health over time in relation to evolving AI capabilities	3
	▪ Future research should explore the epistemological implications of AI systems like ChatGPT in greater depth ▪ Investigating the impact of user epistemic limitations and vices on AI interactions is essential ▪ Addressing algorithmic bias in AI systems to enhance societal fairness and justice warrants further study ▪ Promoting intellectual virtues in AI design and user education can improve responsible decision making	10
	▪ Future research could explore the evolution of generative AI towards strong AI and its implications for autonomy in various tasks ▪ Investigating the legal ramifications of incorrect generative AI outputs on contract annulment under fraud regimes is essential ▪ The complexity of intent requirements in generative AI contexts presents a significant area for further analysis ▪ Examining the foreseeability of undesirable outputs from current generative AI systems could inform legal accountability ▪ The interplay between public law and private law in the context of generative AI systems warrants deeper exploration	15
	▪ Future research should focus on enhancing legal certainty and innovation in AI liability frameworks ▪ Investigating effective compensation mechanisms through strict liability for high-risk AI systems is essential ▪ Addressing unforeseeable effects, opacity, and discrimination in AI systems is crucial for building trust ▪ Exploring the integration of social and individual risk distinctions in AI liability frameworks is necessary	16
	▪ Future research could explore the implications of generative AI on democratic structures and cultural representation in media ▪ Investigating the legal frameworks surrounding actors' digital replicas and their consent is essential for ethical practices ▪ The impact of AI on the creative processes of actors and filmmakers warrants further examination ▪ Analyzing the economic effects of digital replicas on the media industry and actors' livelihoods is crucial ▪ Research could focus on the societal consequences of data monopolization by large tech companies in the entertainment sector	27

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Societal structures, regulation, and justice	▪ Future research should explore ethical issues beyond immediate harm, including fairness, inclusion, and access ▪ A direct comparison of ethical analyses with developers' work on ChatGPT is recommended ▪ Detailed empirical studies on the impacts of ChatGPT are necessary for a better understanding ▪ Research should focus on the sociotechnical innovation ecosystem surrounding AI technologies ▪ Interdisciplinary collaboration is essential for developing responsible AI practices and educational initiatives ▪ Continuous analysis of the rapidly evolving technical landscape of large language models is crucial ▪ Investigating the implications of artificial general intelligence (AGI) is a significant area for future inquiry ▪ Engaging diverse stakeholders in research will enhance understanding of ethical concerns	33
	▪ Future research could explore the ethical implications of generative AI technologies in sexualized deepfakes ▪ Investigating the effectiveness of legal frameworks like the European AI Act in combating nonconsensual deepfakes is essential ▪ Further analysis on the impact of sexualized deepfakes on gender equality and gender-based violence is warranted ▪ Research could focus on improving detection techniques for nonconsensual sexualized deepfakes ▪ Exploring user-friendly applications of face-swapping technology while addressing ethical concerns is crucial	58
	▪ Future research should focus on sector specific standards balancing innovation and safety in AI applications ▪ Investigating customer experiences with AI and its impact on behavior is essential ▪ Reimagining professional education to integrate values and technical innovations is necessary ▪ Addressing ethical issues and the dark sides of AI in professional services warrants further exploration ▪ The implications of AI adoption on the fiduciary duty between clients and professionals require investigation ▪ Research should also examine the potential for AI to exacerbate inequalities and discrimination	62
	▪ Future research should explore how users can leverage ChatGPT to achieve social benefits effectively ▪ Investigating the effectiveness of proposed risk mitigation strategies is essential ▪ Examining diverse stakeholder perspectives, including tech leaders and designers, is recommended ▪ Research should assess the impact of language on user experience with ChatGPT technologies ▪ Comparing user experiences across collectivist and individualistic societies could yield valuable insights ▪ Future studies should investigate the social effects of other chatbots or AIs for comparison ▪ Exploring preventive measures and interventions against ChatGPT's shortcomings is necessary ▪ Gathering insights from a broader demographic can enhance understanding of ChatGPT's societal impact ▪ Research should focus on balancing technology use in educational contexts ▪ Investigating how ChatGPT influences corporate practices and job roles is vital	71

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Societal structures, regulation, and justice	▪ Future research should explore the implications of AI on job displacement and ethical considerations in various sectors ▪ Investigating the effects of deep fake technology on phishing awareness and disinformation detection is essential ▪ Research is needed on how to support individuals who do not utilize AI tools to prevent displacement ▪ The impact of augmented intelligence on enhancing human capabilities and decision-making processes warrants further exploration ▪ Future studies should address biases in AI systems and their unintended consequences on marginalized groups	76
	▪ Future research should explore how governments can regulate generative AI like ChatGPT in service marketing activities ▪ Investigating legal challenges arising from adopting generative AI in the service industry is essential ▪ The role of ChatGPT in service marketing warrants further examination ▪ Research should identify factors influencing customer behavior regarding generative AI usage ▪ Exploring operational challenges faced by service firms integrating ChatGPT into marketing is crucial ▪ The implications of ChatGPT on job roles and skills in service marketing need investigation ▪ Ethical considerations and corporate digital responsibility related to ChatGPT's use should be addressed	92
	▪ Future research could explore heterogeneous treatment effects of generative AI on different occupations and sectors ▪ Assessing the total welfare implications of generative AI for all stakeholders is another promising direction ▪ Further investigation into the long-term effects of generative AI on employment and earnings is suggested ▪ The impact of generative AI on economic activities and innovation processes warrants additional study	105
	▪ Future research should explore the implications of generative AI on human agency and digital records contamination ▪ Investigating the balance between innovation and professional ethics in computing is essential ▪ Research should address the limitations of directed research in driving breakthrough innovations ▪ The impact of computing innovations on various sectors, including e-commerce and healthcare, warrants further exploration ▪ Examining frameworks for moral responsibility in technology deployment is crucial for guiding professional actions	106
Work, routines, and organizational governance	▪ Future research should focus on ethical applications of Generative AI (GAI) in HRD practices ▪ Case studies on challenges in establishing ethical oversight within organizations are needed ▪ Research should explore sources of resistance to ethical AI practices and effective responses ▪ Investigating the impact of organizational culture on ethical AI applications is essential ▪ Interviews with workforce members about their experiences with GAI technology are necessary ▪ There is a need for deeper exploration of ethical and socially responsible aspects of AI adoption in HR	25
	▪ Future research should conduct pairwise cohort analyses across diverse industries to evaluate ChatGPT's adaptability effectively ▪ Investigating the experiences of employees with varying experience levels and job positions could provide diverse perspectives ▪ Incorporating qualitative or mixed-method approaches may offer a comprehensive exploration of managerial perspectives ▪ Exploring alternative conceptual frameworks could reveal potential disparities and additional moderating factors ▪ The study's generalizability may be constrained due to its exclusive focus on the United States	32

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Work, routines, and organizational governance	▪ Future research should explore generative AI's impact on knowledge acquisition and transfer for individuals and organizations ▪ Investigating transparency and bias reduction in technologies like ChatGPT is critical ▪ Research is needed on the digital transformation of organizations and societies due to generative AI ▪ The role of generative AI in enhancing customer interactions and marketing processes requires further exploration ▪ Future studies should examine the implications of generative AI in various domains, including law, healthcare, and education ▪ Understanding the responsibilities of human versus AI agents in different tasks is essential ▪ Theorization by institutional change agents regarding generative AI's impact should be investigated ▪ Research should focus on the application of generative AI in teaching, learning, and scholarly research	34
	▪ Future research may explore the symbiotic partnership between AI and human expertise in management scholarship ▪ Investigating the trustworthiness of AI-driven tools in research tasks is crucial ▪ The impact of Advanced Natural Language Processing models on human roles in education and research warrants further examination ▪ Research could focus on the commercial possibilities of AI-generated content for management education ▪ Understanding the balance between clarity in AI digests and the depth of original theoretical work is essential	37
	▪ Longitudinal studies are needed to understand marketing faculty's evolving perceptions of AI in teaching and research contexts ▪ Research should explore how familiarity with AI tools affects perceptions of ease of use and adoption rates ▪ Empirical evidence is required to assess AI's impact on student learning outcomes compared to traditional content ▪ Studies should evaluate the effectiveness and quality of AI-generated materials versus faculty-created content ▪ Ethical concerns regarding bias in AI-generated educational content and assessments need examination ▪ Research is necessary to address intellectual property ownership issues related to AI-generated teaching materials ▪ Guidelines for ethical AI usage in higher education should be developed to mitigate bias and protect IP ▪ The article emphasizes the importance of navigating the ethical implications surrounding AI utilization in academia	47
	▪ Future research could explore overcoming the anchoring effect in LLM usage through specific training for users ▪ Investigating interactions between LLM characteristics and human traits, such as expertise, is suggested ▪ Expanding research to generative AIs in creative domains like art and music is recommended ▪ Developing domain-specific LLMs to enhance expert users' work quality is another area for exploration ▪ Examining the effects of LLM adoption across various tasks and contexts remains a key research theme ▪ Understanding optimal collaboration strategies between humans and LLMs is crucial for future studies ▪ The integration of LLMs into business practices and their impact on workforce dynamics warrants further investigation	52
	▪ Future research should focus on the comprehensive implications of GenAI in workplace dynamics due to its nascency ▪ Empirical studies are needed to understand the potential negative impacts of GenAI misuse ▪ Investigating the factors influencing GenAI loafing behavior can provide insights for organizations ▪ Research should explore effective protocols for the responsible use of GenAI in organizations ▪ Understanding the balance between GenAI's productivity gains and its potential drawbacks is crucial	55

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Work, routines, and organizational governance	▪ Future research should explore how GAI systems can enhance decision-making processes in various organizational settings ▪ Investigating the integration of cognitive and neuroscience insights with GAI capabilities is recommended ▪ Collecting input from a broader range of stakeholders impacted by GAI decisions could uncover additional dimensions of understanding ▪ Addressing challenges related to GAI integration, such as overreliance on technology and intrinsic biases, is essential ▪ Developing a strategic framework for HIGAI collaboration that emphasizes transparency and inclusiveness is proposed	70
	▪ Future research should explore AI use by employees in various innovation stages across different companies and sectors ▪ Investigating the impact of different prompting styles on idea quality dimensions is recommended ▪ The role of GenAI as an intermediary in innovation processes needs further examination ▪ Understanding how AI enhances or catalyzes innovation creation and adoption is crucial ▪ Future studies should focus on human-AI collaboration to optimize ideation processes and address biases ▪ Research should consider the integration of AI within unique organizational contexts, including user experience and company goals	74
	▪ Future research should explore the evolving affordances of ChatGPT as updates are released by OpenAI ▪ Investigating the polarization of employee skills regarding ChatGPT usage is essential for management ▪ Understanding the implications of ChatGPT's integration into various industries requires further examination ▪ Research should focus on the quality control of knowledge generated by ChatGPT within organizations ▪ The reconfiguration of work roles due to ChatGPT's use presents a significant area for future study ▪ Insights into how managers can effectively oversee ChatGPT-empowered workforces are needed	78
	▪ Future research should consider the compatibility of employee expertise with advanced technology to mitigate negative attitudes ▪ Behavioral data, such as job change history, should be utilized to address bias in research findings ▪ Comparative studies involving part-time employees are necessary to understand the differing impacts of technology adoption ▪ Research should explore the generalizability of findings beyond Japanese employees, considering cultural differences in job mobility ▪ The effects of individual abilities and knowledge levels on employee attitudes towards technology need further investigation ▪ Future studies should assess the impact of generative AI on full-time versus part-time employees ▪ The relationship between advanced technology and turnover intentions in Japan warrants additional exploration	81
	▪ Future research should explore employee and business owner perceptions of automation and its impact on technology adoption ▪ Investigating automation's effects across various industries and organizational cultures is essential ▪ Longterm studies tracking perception evolution in response to automation strategies are recommended ▪ The interaction between automation and organizational dynamics warrants further exploration ▪ Research could focus on the implications of AI capabilities for competitive advantage in firms ▪ Understanding the differing needs of employees and managers in automation implementation is crucial	84

Table A.6. Research Agenda Details (continuation)

Research Agenda Category	Future Research Topics	Sources
Work, routines, and organizational governance	▪ Future research should explore how collaboration dynamics change with AI involvement in innovation processes ▪ Investigating the impact of generative AI on innovation dynamics is a promising avenue ▪ Further studies are needed on governance mechanisms for innovation processes across organizational boundaries ▪ Research should focus on the internal organizational challenges faced when adopting AI innovations ▪ Examining the role of data sharing in collaboration and its associated risks is essential ▪ Understanding the coevolution of routines within organizations due to AI adoption warrants further investigation ▪ The effectiveness of different organizational arrangements for AI adoption should be studied ▪ Exploring the implications of AI as a general-purpose technology on innovation dynamics is necessary	87

Table A.6. Research Agenda Details (continuation)