

Analysis of the impacts of generative AI-driven human-machine communication interactions on user subjectivity in social media

Jingyun Xiao

School of Literature, Gannan Normal university, Ganzhou, 341000, China

Abstract

Generative artificial intelligence has arrived on social media with large language models like chatgpt making features for AI-assisted production and communication mainstream. People have transformed how they make stuff and work with machines. This research analyses the effect of these advancements on the subjectivity of users from the perspective of human-machine communication theory. The usage of AI-assisted production can minimise the difficulty of expression, but the anchoring effect may discreetly limit the autonomous judgement of users; Personalised recommendation reinforces the selective exposure to information, undermining the conditions that support critical reflection; The involvement of AI in self-presentation blurs the barrier between human and machine, and the identity identification needs to be repositioned. In an effort to seek a balance point between AI efficiency and human autonomy, the paper proposes many solutions in three fields to address these issues, including technical transparency, media literacy education and platform standards. The factual applications of AI given in this article are taken from public papers such as the Stanford "Artificial Intelligence Index Report". The major research approaches are literature analysis and deduction of theory.

Keywords

Generative artificial intelligence; human-machine communication; social media; user subjectivity; cognitive autonomy; expressive autonomy.

1. Introduction

Social media is built on content provided by users, and the daily creation and engagement are the key driving force of the platform ecosystem. But the rise of generative artificial intelligence is bucking this trend. Since the launch of Chatbot in 2022, several of the world's main social media platforms have successively integrated AI creation tools into their essential operations such as copywriting generation, photo generation, intelligent chats and other scenarios. Thus, background AI is no longer merely a provider of information, but a conversationalist and collaborator in the user's communication chain.

The human-machine communication is the two-way communication between human and machine using language. AI, albeit devoid of human feeling and consciousness, has shown a lot of anthropomorphic qualities in terms of fluidity of interaction, quickness of reaction and openness of content. In actuality, the experience of typical users is that AI is moving from being a tool to being a quasi-subject: people communicate to AI, seek for help, receive instruction and even, in some situations, assign a personality to AI. This development raises a basic question: How has the dominant position of users in communication activities changed after the full inclusion of AI into users' communication practices?

In communication studies, subjectivity is seen as the position of the users as independent thinkers, active expressers and autonomous judges in communication activities. Prior research on algorithmic suggestion has highlighted the impact of the filtering of information on the

cognitive environment of users. But generative AI is a different beast, intervening directly in the formation of symbols and the construction of meaning, building a collaborative but contentious relationship with users at the level of language. Does this fundamental involvement expand the space for human expression, or does it undermine independent thought, or both at once? That is a crucial question in the study of intelligent communication. From the perspective of human-machine contact, this paper evaluates the changes of the position of AI in social media and its distinctive impact on expression autonomy, cognitive autonomy and identity recognition, and explores the treatments based on this [1].

2. From Backstage to Frontstage: The Evolution of the Role of Generative AI in Social Media and Its Interaction Patterns

To understand the effects of generative AI on user subjectivity, it is important to take into account the actual role of this technology in social media and its involvement in the daily interactions of users. In retrospect, the clear movement in the evolution of algorithms on the platform is from backstage to front stage. In the past, algorithms were only responsible for filtering and choosing content, but today they are directly involved in the interaction with users. This is the basis of the shift of user subjectivity – this change .

Discriminative algorithms were employed by social media for user profiling study and content suggestion before generative AI. The algorithms influence what consumers might see through sorting, filtering and matching, but these activities themselves were not available to individuals. They were algorithmically pushed content, but rarely had symbolic interactions with algorithms. The users were not deprived of the rights for generating the contents, all the texts, images and videos shared were generated by themselves. But in this implicit involvement there was a separation between man and machine; the algorithms altered what was seen but did not participate in what was thought.

That pattern was interrupted with the rise of generative AI. Large language models understand natural language and generate coherent documents, allowing AI to intervene in the communication process in a conversationalist way [2]. Today, there are three broad, related patterns of human-machine interactions on popular platforms. The first is that people use AI as an aid for copywriting or honing ideas. The latter gives several reference drafts or graphic options, which the user selects, integrates and adapts before publishing. AI is assumed to be coordinating. Second, the platforms offer AI-driven automated reply service for comments and automatic answer for private messages, although there are accounts running in the name of AI, which can hold continuous talks with followers and have styles approaching real humans [3]. Thirdly, AI no longer merely sends pre-prepared content, but is able to generate specific information summaries or knowledge-based answers depending on user preferences and the history of the dialogue. Users are evolving from passive surfing to actively querying for information.

The three patterns all point to the same conclusion. AI is no longer just a simple assistant. It has a specific "quasi-other" nature. The user is no longer in a solo act during communication, but in collaboration with language models that produce symbols and collectively build meaning. This pattern is the most elementary analytic scenario for further exploration of the particular differences in user subjectivity.

3. Two Faces of Expressive Autonomy: Enhanced Initiative in AI-assisted Creation and Implicit Regulation

The move of subjectivity is initially operationalised at the level of expression. Expressive autonomy is closely tied to the subjectivity of the user, and is concerned with whether users

can choose the expression technique according to their own want and communicate their own ideas. Generative AI is introduced into social media and this autonomy gets into an internal dilemma, enlarging the space of expression at the apparent level while quietly modifying the subjective will of expression at the hidden area.

AI-assisted creativity lowers the technical threshold and psychological strain in content production. Today, people without writing skills or visual design experience, who once faced insurmountable barriers to expression, can utilise natural language commands to produce workable draft content or image mockups. Some silent users have started to put out stuff, and this has diversified the ecology of expression. This is exactly why technology optimists admire AI for its "expression empowerment" effect.

But empowerment is only one side of the coin. As we become more reliant on AI to create content, it's easy to forget a concern: how much is the final output still "user expression"? Users have the ability to input instructions and offer final approval always at a surface level. But the "anchoring effect" in cognitive psychology makes us aware that the initial information framework will asymmetrically influence later judgement [4]. In the initial phase, AI proposes different options for expressions; the modifications and the choices of these options by the users can only be refined within the semantics provided and not independently conceptualised. The effect of one interaction may not be great, but the cumulative effect is not something to be ignored.

Expression habits change more profoundly. Long-term users who rely on AI for innovation might progressively affect the linguistic style and thought process. Large language models are trained on large-scale public texts, and the output is "average"—smooth and standardised, but lacking sense and emotional character of the individual. Through the semantic filter of AI, repeated expression leads to the convergence of personal style to this "average style" [5] progressively. The user's expressive autonomy is not instantly destroyed but unintentionally completes the transformation of the frame of reference: users no longer use actual expression as the criterion, but use the version provided by AI as the measurement. And that is exactly the key to understanding the shift in expressive autonomy we are currently experiencing—from "how I express" to "how AI thinks I should express".

4. The Hidden Erosion of Cognitive Autonomy: Instant Feedback, Customized Information, and the Weakening of Critical Thinking

Cognitive autonomy is deeper than expressive autonomy. It is the autonomy of the "thinker," not the "speaker". Generative AI enters cognitive autonomy in two ways: as micro-intervention of instant feedback from AI on users' judgements and as the systematic re-shaping of the information environment by material produced by AI.

AI on social media is usually designed for customers at the micro-interaction level. Most of the time when a consumer calls for support, AI will answer in a good and helpful manner such that the conversation flows. This design boosts satisfaction, but the evident downside is that people grow overly dependent on AI, and their drive to independently evaluate is undermined. A common use of AI is to review information that has been written by a person. AI keeps making suggestions and users' confidence in their own expression eventually erodes. The "transfer of cognitive authority" does not occur as a conscious choice on the part of the users but rather a consequence of the many conveniences they require. If an artificial intelligence is able to generate a "good enough" response, it is difficult to appraise independently due to cognitive bias for efficiency.

Shifting to the information environment, Generative AI + recommendation algorithms magnify the information cocoon. Traditional algorithms filter based on behavioural history and generative AI generates tailored summaries and viewpoints based on user profiles [6]. Users

not only see content that is relevant to their preferences, but the stuff they see is AI-generated specifically for them. When the information environment mirrors their own stance, the chances to encounter other points of view and to challenge their own cognitive frameworks are inevitably diminished and the foundation for openness is compromised. Ideas are the result of different facts colliding. AI's personalisation customisation skips this procedure and gives consumers conclusions.

Another issue is the dependability of the content generated by AI and the change of the information ecosystem. Big models are tuned for coherence and trustworthiness, not for factual accuracy. Sometimes you get stuff that is conceptually consistent but the facts are bad. If users consistently accept the "standard answers" of AI, then cross-validation and traceability queries slowly erode. Subjectivity, according to Giddens (1984) in *The Constitution of Society*, is not only an independent action but also a required reflection of the maintenance of the reflective monitoring of one's own cognitive process. Instantaneous reflexes of the AI replace the deliberate process, turning the users into passive recipients rather than active thinkers [7]. This is a slow process and hard to detect, tougher to notice than changes at the level of expression and considerably more deserving of attention.

5. Fluidity of Identity Recognition: Blurring of Human-Machine Boundaries and Structural Shift in Self-Presentation

The self-presentation and identity construction of social media users are classical concerns in the communication studies. People like to post material to create an idealised self-portrait. Input from the audience influences it but the users make the final decision. Generative AI's role in content development has created a radically different way to create content.

You're changing the way you present yourself. Some users are employing AI to develop their online identities—crafting avatars, tweaking copy and emulating voices. The gap between "real self" and "AI-enhanced self" is becoming more and more blurred [8]. Artificial intelligence can alleviate the deficiency of expression ability and allow more people to participate in social performances in a more ideal way. The connection of the user with the image is a specific difficulty for AI when it generates social images. There is also a need to re-examine if the object of recognition and enjoyment is one's self or the consequence of collaboration with AI.

In various standardised expression tasks, the quality of content generated by AI has been comparable or even outperformed that of ordinary people. This has created new identity worries—how can people be sure they are irreplaceable? Some users actively label AI-assisted work, to preserve the integrity of independent authors utilising transparent methodologies. However, the influence of these individual efforts is negligible when considering rapid technological advancement. AI generated material is narrowing the gap with human original content and the value of the creator's identity is being re-assessed.

We can also see blurring of human machine barriers at the level of social connection [9]. The AI characters on the platform have better dialogue continuity and interactivity, and in some circumstances can respond to the user's emotional emotions. Some people may experience interpersonal companionship-like feelings while interacting with AI characters for extended periods of time. This experience can sometimes be a substitute for real engagement with another individual. Non-human life can provide users with social gratification, therefore readjusting the self-positioning of users as social entities.

These developments suggest a trend: Generative AI is transforming the socio-technical conditions of user self-construction. We no longer define ourselves in words and actions, but together we shape our identities in conversation and collaboration with AI. This drive toward a sort of subjectivity that is distributed, not exclusive, is a significant clue to understanding the identity alterations of today's social media users.

6. Reflection and Response: Seeking Dynamic Balance between AI Efficiency and Human Autonomy

at earlier sections we have examined the transformations at the three levels of expression, cognition and identity. These repercussions are not mutually exclusive and are building on each other. What is needed is a simultaneous response to these inter-related changes in the architecture of the technology, the capacities of the users and the norms of the platforms.

From the technology design point of view, the current artificial intelligence systems mostly aim at fluency and anthropomorphism, which leads to a too smooth interaction process, so that users don't realise they are having a conversation with a computer and involuntarily lose the initiative in judging. The "perceivable AI" suggests another approach: to leave traces of the machine in the interface. This can be accomplished by marking the source of AI-generated material, proactively prompting users to verify the content, and even somewhat reducing the degree of anthropomorphism without compromising core functionality. Transparent design does not make things difficult, but makes consumers aware of their cognitive process [10].

In conventional media literacy instruction, the training of users' competencies is often emphasised on the critical interpretation of information from the media. This training should be tailored for popularisation of human-machine communication. Users should understand the principles and limitations of AI, and more importantly develop metacognitive skills in human-machine collaboration, i.e., to be aware of the effects of AI on their own judgements and expressions, and to actively monitor AI outputs. Educational practice can help users cultivate the habit of "think independently first, then use AI to refine". Also schedule some expressive activities without AI to keep language sense and judgement. The purpose of these trainings is not to ban AI but to ensure that users are always in control of their choices while utilising AI.

Social media is the main space for human-machine interaction, and this comes with major responsibilities around platform governance. Many platforms now do not have a complete set of guidelines to identify and guarantee transparency for material created by AI, therefore there is no easy way for users to know if they are reading content from a human or a machine. The creation of a uniform, unambiguous and operational system for identifying content produced by AI is the basis for maintaining transparency in the information environment, as well as the guarantee of the right of users to know and choose [11]. "The protection of user subjectivity" should be integrated into the ethical assessment at the design level, so that the commercial logic of user retention and activity squeezing out human autonomy is prevented.

All the efforts at these three levels are moving in the same direction: In today's world of human-machine co-communication, how to guarantee such co-communication is genuinely for the human autonomous development instead of reducing the human subjectivity for the sake of efficiency, is a question that deserves constant attention.

7. Conclusion

Above research indicates that the role change of generative AI in social media has transformed the social technological conditions for user content production, information acquisition and self-presentation, and consequently triggered three tiers of progressive effects. In expression, AI-assisted production lowers the threshold of content creation, but due to the anchoring effect and linguistic discipline, in practice, the reference system of users' judgement has changed from themselves to the standards provided by AI. At the cognitive level, the normalisation of real-time feedback and customised tailoring has resulted in a reduction of the capacity for critical reflection of the users, and an increase in the degree of solidification of the information bubble. AI in self-image creation has blurred the boundary between the real and the artificial at the level of identity and the form of the users' subjectivity is changing from exclusive to scattered.

The three affects are additive. The adjustment of expressive habits is the external performance of cognitive dependency. The buildup of cognitive dependence eventually reaches the basis of identity recognition. It shows a dramatic shift in consumers from "I express" to "AI helps me express" without intending to.

In this sense, a feasible framework for response is the design of technical transparency, the updating of media literacy instruction and the strengthening of platform governance, under the assumption that human-machine collaboration is a reality. This is both a response to the growth of technology and a necessary maintenance of users' autonomy. The argument here is mostly based on theoretical analysis and a careful examination of past findings, and has not been extensively tested empirically. In the subsequent research, we can conduct longitudinal tracking and comparative experiments to further observe the long-term effects and individual differences of human-machine communication interaction on users' subjectivity, and accumulate more substantial experience-based evidence for the governance of communication in the intelligent era.

References

- [1] Sundar, S. S. (2020). Rise of machine agency: A framework for studying the psychology of human–AI interaction (HAI). *Journal of Computer-Mediated Communication*, 25(1), 74–88.
- [2] Hancock, J. T., Naaman, M., & Levy, K. (2020). AI-mediated communication: Definition, research agenda, and ethical considerations. *Journal of Computer-Mediated Communication*, 25(1), 89–100.
- [3] Go, E., & Sundar, S. S. (2019). Humanizing chatbots: The effects of visual, identity and conversational cues on humanness perceptions. *Computers in Human Behavior*, 97, 304–316.
- [4] Logg, J. M., Minson, J. A., & Moore, D. A. (2019). Algorithm appreciation: People prefer algorithmic to human judgment. *Organizational Behavior and Human Decision Processes*, 151, 90–103.
- [5] Doshi, A. R., & Hauser, O. P. (2024). Generative AI enhances individual creativity but reduces the collective diversity of novel content. *Science Advances*, 10(28), eadn5290.
- [6] Flaxman, S., Goel, S., & Rao, J. M. (2016). Filter bubbles, echo chambers, and online news consumption. *Public Opinion Quarterly*, 80(S1), 298–320.
- [7] Couldry, N., & Hepp, A. (2017). *The mediated construction of reality* (Vol. 10). Polity Press.
- [8] Belk, R. W. (2013). Extended self in a digital world. *Journal of Consumer Research*, 40(3), 477–500.
- [9] Guzman, A. L. (2020). Ontological boundaries between humans and computers and the implications for human-machine communication. *Human-Machine Communication*, 1, 37–54.
- [10] Yin, M., Wortman Vaughan, J., & Wallach, H. (2019, May). Understanding the effect of accuracy on trust in machine learning models. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1–12).
- [11] Diakopoulos, N. (2016). Accountability in algorithmic decision making. *Communications of the ACM*, 59(2), 56–62.