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COMMENTARY

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AI-Powered Social Media for Development in Low- and Middle-Income Countries

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Abstract

Social media powered by AI has become a major means for influencing beliefs and behaviors. Its unprecedented analytical, personalization, and scaling capabilities could transform economic, health, and other development outcomes in low- and middle-income countries (LMICs). However, issues associated with the AI technologies that underlie social media platforms, such as algorithmic bias and misinformation, and emerging risks of AI persuasion and autonomy could undermine LMICs' social and human development goals, particularly those with nascent AI governance and capacities. This commentary examines AI-powered social media's potential to contribute to development in LMICs through social and behavior change, the role of human cognition and cultural influences in mediating AI risks, and how a human-centric approach familiar to international development could help LMICs shape AI-powered social media that supports their values and development goals.

Keywords

artificial intelligence; low- and middle-income countries; international development; social and behavior change; social media

1. Introduction

AI is rapidly transforming digital and human systems. AI-powered systems are revolutionizing healthcare, education, and economic processes (Stanford University Center for Digital Health, 2025). AI advancements also present new possibilities for social and human development in poor and developing countries, as reflected in movements such as AI for Social Good (Tomašev et al., 2020). Efforts that improve development outcomes can, in turn, help promote more inclusive and cohesive societies (OECD, 2011).

At the same time, new AI technologies powering social media platforms may introduce dangerous risks to social cohesion and human agency. This is a dilemma for low- and middle-income countries (LMICs) that want to apply AI for development but have nascent capacities in AI governance and use. Algorithmic bias and misinformation could be particularly dangerous in fragile LMICs experiencing high social and political tensions. Meanwhile, AI persuasion and autonomy are more possible than ever. How human cognition and cultural factors in LMICs interact with these AI capabilities is yet unknown, but the potential loss of human control over advanced AI is a concern for all societies (Bengio et al., 2024).

This commentary examines how AI-powered social media can enable social and human development in LMICs by facilitating positive social and behavior change (SBC). The commentary also explores how current and evolving AI-related risks, such as algorithmic bias, misinformation, and AI persuasion, could adversely affect social cohesion and human agency if factors such as human cognition and traditional influences are lacking. It argues that LMICs' experience in development prepares them to adopt human-centered AI approaches that can shape AI-driven social media to align with their values and development goals.

1.1. Background

While a growing body of literature examines the interplay between AI, social media, and human behavior, much of this work has been concentrated in high-income countries (HICs; Hagerty & Rubinov, 2019). However, LMICs differ from HICs in consequential ways. While LMICs comprise approximately 84% of the global population, they account for only about 36% of the world's gross domestic product (World Bank, 2023). LMICs also experience over 90% of the world's injury-related deaths, including from conflict (World Health Organization, 2024).

In addition, an "AI divide" has emerged where HICs disproportionately benefit from AI advancements while LMICs struggle to keep pace (United Nations Office of the Secretary General's Envoy on Technology & International Labour Organization, 2024). Insufficient computing power, data availability, and AI-skilled workforces hamper developing countries' ability to develop and apply AI effectively (Kshetri, 2020). Among LMIC regions, Sub-Saharan Africa, home to some of the world's poorest countries, consistently ranks low in the Government AI Readiness Index (Oxford Insights, 2024). Moreover, Sub-Saharan Africa lags behind other LMICs in AI-driven social media-based interventions for health and behavior change (Seiler et al., 2022).

Research on social media in LMICs only became prominent after 2011, with early studies focused on political and social issues rather than broader development challenges (Sultana, 2015). In addition, research on social media's influence on behavior change is still emergent (Evans et al., 2022). Moreover, advances in computing power and accelerated AI adoption mark a new era in digital engagement (Bommasani et al., 2021; Floridi & Chiriatti, 2020). These shifts necessitate new analytical insights on AI-powered social media.

As befits the subject, AIs were used to help prepare this article: Perplexity.AI, Bing, Google Scholar, and SciSpace were used for secondary research and citations; Google Gemini, ChatGPT, and Grammarly were utilized for writing suggestions and copyediting.

2. The Transformative Potential of AI-Driven Social Media for SBC

Influencing positive social and behavior change is an important approach in international development. SBC is helping to achieve the United Nations Sustainable Development Goals, as some goals, such as improved health and food security, require shifts in individual and collective behaviors and norms. AI-powered social media can enhance SBC efforts, provided that its application follows development principles and best practices.

2.1. SBC as a Development Approach

SBC "aims to lower structural barriers that hinder people from adopting positive practices, and hinder societies from becoming more equitable, cohesive and peaceful" (UNICEF, n.d.). SBC draws insights from the social sciences, such as psychology, sociology, and behavioral economics, but must be rooted in the human community it serves. Social norms theory, for example, provides a useful framework for promoting positive health behaviors, but it must account for salient local institutional and cultural factors (Cislaghi & Heise, 2018).

SBC should be guided by development principles and best practices that promote ethical, contextually appropriate, and sustainable processes and outcomes. Although there is no single authoritative source on development principles, several common principles are relevant:

- Do No Harm: A foundational principle originating from humanitarian assistance, Do No Harm mandates that interventions must not cause harm to individuals or communities, even unintentionally (Anderson, 1999). Interventions that risk negative consequences, such as reinforcing harmful stereotypes or exacerbating inequalities, should be redesigned or abandoned.
- Inclusion: Initiatives should reach all relevant populations, including marginalized groups. Inclusive programming accounts for gender, disability, socioeconomic status, and similar factors to ensure meaningful participation.
- Local context: SBC strategies should be tailored to the social, economic, and cultural realities of target communities. Context-specific interventions promote better engagement, acceptance, and sustainable outcomes (Seiler et al., 2022).

In addition, SBC benefits from adopting development best practices, namely:

- Stakeholder engagement: When local communities actively participate in program design and implementation, they are more likely to adopt and sustain positive behaviors (Gillum et al., 2023). Co-creation with local stakeholders also helps interventions align with community needs and knowledge systems.
- Evidence-based: Effective SBC interventions utilize data in their design and implementation as well as in their monitoring, evaluation, and adaptive learning (Gillum et al., 2023; Packard-Winkler et al., 2024).

2.2. SBC and AI-Driven Social Media

While social media should not be the sole means to support SBC, it is a natural option to amplify results. Mahoney and Tang (2024, p. 9) describe social media as "a primary tool for users to gain access to information,

social connection, and entertainment. Thus, it is logical to turn to social media when attempting to inspire behavior change." With the advent of generative AI, development actors have new ways to integrate AI-driven social media into SBC (Coker, 2024). AI capabilities and tools that underlie social media platforms can align with the development principles and best practices that guide effective SBC.

AI-powered social media can promote *inclusion* through scaling and personalization beyond what traditional SBC communication methods can accomplish. In Indonesia, a study on climate change advocacy found that Instagram and WhatsApp effectively facilitated discussions among millennials, increasing their engagement with environmental issues (Zein et al., 2024). At the same time, AI can customize content that resonates with individuals' preferences and needs. For example, UNICEF's U-Report and Internet of Good Things platforms tailor health and education engagement to local needs and demographics, fostering positive behavior change among millions of adolescents and young people in Eastern and Southern Africa (ThinkPlace, 2024). Additionally, social media can help reach marginalized populations. In Guatemala, informational videos delivered in Spanish, K'iche, and Kaqchikel helped to promote Covid-19 vaccine uptake among indigenous communities (Miguel et al., 2022).

Secondly, social media's interactive nature can broaden *stakeholder engagement*. For instance, by digitizing traditional civic engagement mechanisms, such as "letters to the editor," social media platforms expanded opportunities for citizen participation and increased awareness of local issues in developing countries (Jayakanthan, 2021). In the sustainable tourism sector, social media amplifies the voices of marginalized communities, enabling them to share their narratives and advocate for positive change (Bhatt & Dani, 2024). In the case of Ushahidi, developed by activists and technologists in 2007 to map post-election violence in Kenya, the platform itself was transformative. Unlike commercial platforms, which prioritize revenue and algorithm-driven content curation, the Ushahidi open platform serves grassroots communities (Meier, 2012; Okolloh, 2009). By facilitating transparent, user-driven data collection and sharing by users around the world, it enhances participatory governance and disaster response (Burns, 2015).

Additionally, AI can facilitate *data-informed* decisions. AI models can support situational planning, for instance, by predicting disease outbreaks using environmental data (Dhami, 2023). AI tools can also analyze large datasets to uncover patterns in behavior, preferences, and barriers specific to target populations. Platforms such as Dimagi use LLMs to identify trends in health communication, allowing for data-informed health interventions tailored to youth (Bay Area Global Health Alliance, 2024). Moreover, AI enables monitoring and adaptation of SBC interventions. For example, technology-supported monitoring and data analysis helped a campaign in rural India to improve maternal and child nutrition, identify gaps, and make timely corrective actions (Chakraborty et al., 2019).

Finally, in resource-constrained LMICs, AI-powered social media could promote *efficiency* by offering a cost-effective means to support SBC initiatives. AI can automate repetitive tasks, analyze vast datasets, scale interventions, and provide timely responses, reducing operational costs (Bay Area Global Health Alliance, 2024). However, evidence such as cost-benefit analyses specific to LMICs' socioeconomic contexts is still lacking.

3. Potential Risks of AI-Driven Social Media in LMICs

Significant risks associated with AI may give pause to the use of AI-powered social media in LMICs, even for development goals. Issues in HICs, such as algorithmic bias and misinformation, are also relevant in LMICs. These risks could even jeopardize stability and human life in fragile LMICs.

3.1. Data Privacy and Protection

Weak or non-existent data protection regulations and enforcement in many LMICs make users vulnerable to data privacy violations or misuse. Nonconsensual data collection and surveillance in LMICs highlight some ethical problems with using AI-powered social media. One meta-review of studies on social media for health behavior change found that none of the studies had noted the methods used to protect participants from interference or data theft "despite the sharing of data with a third-party service being a requisite of participation eligibility" (Seiler et al., 2022, pp. 9–10).

3.2. Algorithmic Bias

Algorithmic bias arises when AI systems generate outcomes from poorly designed mathematical models or models trained on non-representative data. Biased models can reinforce dominant narratives, marginalizing underrepresented groups and exacerbating social inequities (O'Neil, 2016). Algorithmic bias could be particularly harmful in fragile LMICs by exposing users to inflammatory or biased content in already polarized environments. For instance, in Myanmar, Facebook's AI-driven recommendation algorithm reportedly exacerbated ethnic tensions by amplifying divisive content, contributing to violence against the Rohingya minority (Mozur, 2018).

3.3. Misinformation

False or misleading information generated by AIs is more sophisticated and difficult to detect than ever before. Thanks to LLMs, AI misinformation can mimic "the attributes of existing information assessment guidelines, thus giving false impressions of their veracity" (Zhou et al., 2023, p. 14). Moreover, unlike traditional misinformation, which spreads more slowly and can be fact-checked through established media channels, social media misinformation can go viral instantly, making it more difficult to contain and correct (Wardle & Derakhshan, 2017).

AI-generated misinformation can be exploited by repressive governments, unscrupulous corporations, or foreign adversaries to serve their interests (USAID, 2018). Bradshaw and Howard (2019, p. 15) found that in 75% of the countries they studied, "cyber troops" used disinformation and media manipulation to mislead users. Misinformation can also undermine public health and development efforts. During the Covid-19 pandemic, social media platforms were used to amplify harmful misinformation, which contributed to avoidable deaths and hospitalizations in several countries (Islam et al., 2020).

4. Emerging Risks From Advanced AI

Accessible AI, such as generative AI, may give the impression that AI is just a tool. However, this view obscures an evolving power asymmetry between humans and AI. Advanced AI capabilities in persuasion and autonomous action may seriously endanger social stability and human agency (Bengio et al., 2024). The AI control problem is particularly worrisome in LMICs with nascent AI governance and capacities.

4.1. AI Persuasion

Future AIs could shape individual behavior so imperceptibly that their influence will be difficult to mitigate. LLMs can already apply users' psychological profiles and personal data to engage in microtargeted persuasion that alters views and actions (Bommasani et al., 2021; Salvi et al., 2024). Trust and emotional bonds created between humans and anthropomorphized AIs, such as social chatbots, could be leveraged by the AIs to enact persuasive strategies over their users (Burtell & Woodside, 2023; Hendrycks et al., 2023).

4.2. Autonomous AI

Technological advancements are evolving AI into an autonomous agent capable of influencing behaviors, shaping ideologies, and pursuing goals with minimal human oversight (Helbing, 2021; Hendrycks et al., 2023). This shift from tool to agent has raised existential fears even among AI pioneers that human control over AI could be lost and never recoverable once it is lost (Bengio et al., 2024).

4.3. Loss of Consensus Reality

Advanced AI raises concerns about the potential erosion of human consensus reality—the shared understanding of facts and truth that underpins social cohesion and collective decision-making. In fragile societies, its erosion could hinder collective action, making it harder to mobilize communities around shared challenges (Sunstein, 2017). But the loss of a shared understanding of truth and cooperative capacity could undermine efforts to address existential threats posed by AI itself (Hendrycks et al., 2023).

5. Human Cognitive and Cultural Factors

Examining the societal benefits and risks of AI-powered social media would be incomplete without considering human factors. Human cognition and cultural influences are long-studied topics in communication and technology. The latter is especially relevant in LMICs, where traditional cultural norms and practices often prevail.

5.1. Human Cognition

Human cognition plays a significant role in determining how individuals resist or succumb to AI-driven misinformation. However, individuals differ in cognitive abilities and behaviors. Kim and Grunig (2021) posit that some individuals may engage in *cognitive progression* by actively exploring different perspectives before reaching a conclusion. Conversely, others are more vulnerable to misinformation due to a human tendency

of *cognitive retrogression* or *backward reasoning*, where individuals quickly form conclusions and then selectively seek information to justify pre-existing beliefs.

An alternative theory views high fluid intelligence (ability to reason) as a strong predictor of individuals' ability to distinguish between human and AI-generated content (Chein et al., 2024). Hutmacher et al. (2024) suggest that higher fluid intelligence plays a significant role in helping people adjust to corrected misinformation, while the need for cognition (engaging in effortful thinking) does not, although the findings have yet to be tested in contexts involving strong political or personal beliefs.

5.2. Culture and Community

In LMICs, theories about human cognition benefit from considering the role of cultural and community influences. Hagerty and Rubinov (2019, p. 11) discourage the idea of new technologies being "brought" to a place, for the perspective that they instead collide with it, and what happens will vary by culture. In rural areas, cultural values can influence the diffusion and adoption of innovations such as social media (Piccioni, 2010, as cited in Lekhanya, 2013). Furthermore, family, friends, and perceived experts can influence individual adoption decisions. One study in Tunisia, for example, demonstrated that observability (the degree to which an innovation's benefits are visible to others) and social influence (the extent to which important individuals in one's social circle use a technology) were salient in convincing livestock breeders to adopt SMS-based extension services (Dhehibi et al., 2023).

6. Navigating the Promise and Risks of AI-Powered Social Media

LMICs' AI-related development challenges may provide some insulation from AI risks and allow them to apply lessons from the mistakes of first adopters. However, LMICs cannot count on insulation in the long term. In Africa's case, despite multiple challenges, there is growing adoption of AI, particularly amongst its youth (Statista, 2023, as cited in Day, 2024). This rapid uptake echoes Africa's past technological leapfrogging in the adoption of mobile phones and mobile money services, despite infrastructure limitations (Aker & Mbiti, 2010).

6.1. AI Governance

HICs and LMICs alike are investing in AI while formulating frameworks to govern its use (OECD, n.d.). The African Union's Continental AI Strategy provides a roadmap for its members. In Latin America, Brazil is trailblazing responsible AI. Additionally, international initiatives, such as the AI Governance Alliance, convene governments, businesses, and civil society to cooperate on responsible AI policies. However, more support for LMIC leadership in AI governance is needed. LMICs remain underrepresented in global AI policy discussions, limiting their ability to shape and implement governance frameworks that reflect their socioeconomic realities (UNESCO, 2022). Furthermore, alliances with Big Tech risk reinforcing the corporate capture of AI governance (Iazzolino & Stremlau, 2024).

6.2. A Human-Centered Approach

LMICs' experience with development approaches such as SBC provides a valuable foundation for AI governance. Human-centered AI, such as Human-in-the-Loop or even the more expansive society-in-the-loop concept, emphasizes AI that serves human needs (Rahwan, 2018). Their guiding philosophies mirror international development principles and best practices, such as Do No Harm and stakeholder engagement. Moreover, development goals—such as building more inclusive societies—reinforce the purpose of AI as a tool for human empowerment and social progress rather than merely technological advancement (Floridi et al., 2020).

Concrete measures that draw on human-centered principles could help LMICs navigate AI-powered social media.

First, global AI governance frameworks should reflect LMIC concerns. For instance, UNESCO's (2022) *Recommendations on AI Ethics* offers a global framework aligned with international development principles. However, adopting global frameworks is insufficient; governance should be co-developed with communities, conducted in native languages, and aligned with local norms and governance structures to ensure that AI-driven interventions do not exacerbate social divisions and are accepted by communities (Dhami, 2023; Floridi et al., 2020).

Secondly, LMIC engagement in the design of AI technologies and digital architectures is important for shaping the AI-powered social media platforms used in their countries. Integrating local knowledge and values in their development could better account for local user needs and avoid problems such as algorithmic bias (Baig et al., 2024; Hagerty & Rubinov, 2019). Several initiatives echo Ushahidi's example. Masakhane—a pan-African natural language processing collective—is integrating underrepresented African languages into AI models. In India, the Apti Institute is designing social media platforms oriented around societal needs.

Thirdly, AI's advancing capabilities make human resistance to AI misinformation and persuasion an imperative. Digital literacy interventions that support cognitive abilities and explain AI techniques can help build this resistance (List et al., 2024; Shin & Akhtar, 2024). In many LMICs, support from trusted community leaders could encourage broad participation in AI literacy initiatives.

Additionally, access to AI expertise is needed to help communities remedy technological errors that could have devastating real-world consequences. In the UK postal scandal that centered on 1990s automation technology, the discovery that a software error explained "missing" funds came too late to help the falsely accused people who were imprisoned, financially ruined, or committed suicide (Barlett-Imadegawa, 2024). As most laypeople lack the expertise to understand AI decision-making, AI-literate ombudsmen could help them with their concerns, much like how patient advocates help individuals navigate healthcare systems.

Finally, LMIC-focused research is invaluable. Research contextualized to LMICs' socioeconomic realities and traditional cultural influences is urgently needed to provide the evidence and insights that should inform decision-making so that AI-powered social media supports and does not undermine LMICs' values and development goals. Furthermore, the research agenda could support broader learning whereby findings from LMICs contribute to the global AI governance discourse.

7. Conclusion

AI-powered social media holds significant potential for promoting transformative social and behavioral change in LMICs if aligned with development principles and best practices. However, LMICs' careful navigation of AI risks, such as algorithmic bias and misinformation, as well as evolving AI capabilities in persuasion and autonomy, is imperative to guard against possible harmful societal and individual effects. LMICs' experience with development provides a valuable foundation for adopting human-centered AI approaches that support indigenous leadership and capacities in AI governance, socially oriented AI technologies, resilient human cognition through AI literacy, and citizen empowerment. Additionally, new research on AI-driven social media in the context of LMICs' distinct socioeconomic and cultural environments is essential to ensure that this powerful tool does not erode but enhances social cohesion and human agency.

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Conflict of Interests

The author declares no conflicts of interest.

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