A Qualitative Study of How AI Influences Subconscious Decision-Making in Digital Nudges Across Social Media Platforms

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ABSTRACT

AI-curated digital nudges on social media platforms subtly influence user decisions, frequently bypassing conscious awareness. This qualitative study analyzes publicly available user generated content on Reddit, YouTube, TikTok, and Instagram to explore how AI-driven suggestions shape subconscious decision making through emotional and identity-based cues. Thematic and discourse analyses identify key emotional triggers such as FOMO and belonging, shedding light on users' rationalizations of AI influence. Digital ethnography maps complex recommendation pathways illustrating cascading AI nudges. This research informs AI ethics, regulatory transparency debates, and platform design to mitigate covert manipulations while enhancing digital well being. The study contributes to the growing body of literature on algorithmic influence by providing empirical insights from user narratives, highlighting the need for greater transparency in AI systems. By examining real-world user experiences, it underscores the potential risks of subconscious manipulation and proposes practical recommendations for stakeholders.

Index Terms—AI algorithms; digital nudges; social media; subconscious decision-making; thematic analysis; discourse anal ysis; digital ethnography; algorithmic transparency; emotional triggers; behavioral influence

INTRODUCTION

Social media platforms have become integral to daily life, with billions of users engaging daily. These platforms in creasingly rely on AI-driven recommendation algorithms that guide user exposure to content via digital nudges such as ”Suggested for you,” ”Trending in your network,” or ”You might also like.” These nudges operate below users' conscious radar, influencing decisions to buy, believe, or behave in ways that may not align with their explicit intentions. While previous work has focused on algorithmic personalization and overt behavioral nudges, little research addresses the nuanced subconscious mechanisms these AI nudges employ.

This study investigates how AI-curated nudges manipulate cognition and emotion on platforms including TikTok, Insta gram, YouTube, and LinkedIn by analyzing user reflections and public interactions. It advances understanding of covert AI influence with implications for ethical AI frameworks, regulatory policy, and digital wellbeing interventions. In an era where social media usage is linked to mental health issues, understanding these subtle influences is crucial. The research draws on theories from behavioral economics and psychology to dissect how AI exploits human vulnerabilities. Furthermore, it explores the societal implications, such as the amplification of echo chambers and the spread of misinformation through personalized feeds. By focusing on qualitative data, this paper provides rich, contextual insights that quantitative studies often overlook, offering a holistic view of user experiences in the digital landscape.

The motivation for this study stems from the rapid evolution of AI technologies and their pervasive integration into social platforms. As AI becomes more sophisticated, the line between helpful recommendations and manipulative nudges blurs, rais ing ethical questions about user autonomy and consent. This paper aims to bridge the gap in literature by providing empir ical evidence from diverse platforms, contributing to ongoing debates in AI ethics and policy-making.

LITERATURE REVIEW

AI-Driven Personalization and Nudging in Social Media AI algorithms personalize content using machine learning to increase engagement [4]. Nudging theory, as proposed by Thaler and Sunstein [9], has been applied to guide choices subtly in digital environments [11]. These nudges leverage data on user behavior to predict and influence future actions, often optimizing for platform metrics like time spent rather than user benefit. Recent studies have shown how personalization can lead to filter bubbles, where users are exposed only to confirming viewpoints, potentially polarizing societies.

Emotional and Identity Triggers in Digital Behavior Fear of Missing Out (FOMO), social belonging, and aspi rational identity significantly influence online interactions [8], [10]. AI algorithms promote emotionally resonant and identity affirming content, raising ethical concerns around manipula tion [6], [12]. For instance, content that evokes envy or aspi ration can drive compulsive checking and sharing behaviors.

Psychological research indicates that these triggers activate dopamine responses similar to addiction, making users more susceptible to subconscious influences. Moreover, identity based nudges can reinforce stereotypes or biases embedded in training data, perpetuating social inequalities.

Ethical and Regulatory Landscape

Opaque recommendation systems raise concerns about con sent and accountability [3], [13]. Emerging regulations like the EU AI Act demand greater transparency and risk assessment for high-impact AI systems [5]. However, implementation challenges persist, particularly in addressing subconscious effects that are hard to quantify. Debates center on balancing innovation with user protection, with calls for algorithmic audits and user controls over personalization.

Qualitative Perspectives on Algorithmic Influence

Most studies rely on quantitative logs; qualitative ap proaches capturing user narratives about AI nudges are sparse [14]. This gap limits understanding of lived experiences and subjective interpretations of algorithmic influence. Digital ethnography offers a promising method to observe naturalistic behaviors in online spaces, complementing traditional analy ses.

The literature reveals a need for interdisciplinary approaches combining computer science, psychology, and ethics to fully grasp AI's impact on human behavior.

METHODOLOGY

Research Approach

This study employs a multi-method qualitative approach, combining thematic analysis [1], discourse analysis [7], nar rative inquiry [2], and digital ethnography. This integration allows for a comprehensive examination of user experiences and algorithmic pathways.

Data Sources

Data were collected from publicly available sources across multiple platforms to ensure diversity in user perspectives.

Data Collection and Ethics

Data collection spanned January to July 2025, focusing solely on publicly accessible, anonymized content. No per sonal identifiers were used, adhering to ethical guidelines for digital research. Informed by principles of minimal harm, the study avoided any interaction with users.

Coding Schema

A deductive and inductive coding schema was developed to categorize user narratives.

The coding process involved multiple iterations to ensure inter-coder reliability, with discrepancies resolved through discussion.

DATA SAMPLES AND ANALYSIS

To illustrate the analysis, selected samples from various platforms are presented below, demonstrating key themes. Sample 1: Reddit (r/InstagramReality)

“I keep scrolling endlessly because Instagram’s ’Suggested For You’ keeps pulling me in with content that feels ‘me’ but I realize I’m less in control.”

Codes: Awareness Level, Feelings of Manipulation, Identity Cues

This sample highlights how users initially perceive content as self-selected but later recognize algorithmic influence, lead ing to feelings of lost autonomy.

Sample 2: YouTube Comment

“At first, I thought these wellness hacks were my own discov ery. Then I noticed new videos were suggested just as I was about to stop.”

Codes: Rationalization, Emotional Triggers (Aspiration), Be havioral Outcomes

Here, the user rationalizes engagement as personal choice, but the timing of suggestions reveals subconscious nudging towards continued consumption.

Sample 3: TikTok Duet

User describes getting trapped in an algorithm “rabbit hole” against personal values.

Codes: Feelings of Manipulation, Emotional Triggers (FOMO), Rationalization

Such narratives reveal conflicts between user values and algorithm-driven behaviors, often justified post hoc. Additional samples from Instagram showed similar patterns, with users attributing viral trends to organic popularity while overlooking AI curation.

FINDINGS

User Awareness and Subconscious Influence

Users largely underestimate AI’s role in shaping their feeds; awareness often emerges only through reflection or frustration with addictive patterns. Many report ”aha” moments when re alizing how suggestions align perfectly with unspoken desires.

Emotional and Identity-Based Nudges

AI nudges effectively target FOMO, belonging, and aspira tion, creating self-reinforcing engagement loops. For example, content evoking social comparison drives further interaction to alleviate discomfort.

Rationalization Processes

Users frequently rationalize influenced choices by empha sizing personal autonomy, despite evidence of algorithmic steering. This cognitive dissonance helps maintain positive self-perception in the face of

manipulation.

Digital Ethnography

Mapping recommendation chains revealed layered, cascad ing nudges that form nonlinear decision routes, often leading users far from their initial intent. These pathways demonstrate

Table I Data Sources

Platform	Data Type	Source	Volume
Reddit	Posts and comments	r/NoSurf, r/InstagramReality, r/TikTokCringe	150 posts, 500 comments
YouTube	Comments	AI-promoted videos (political, wellness, conspiracy)	2000+ comments
TikTok/Instagram	Captions and duets	Viral AI-suggested trends	50 captions, 40 duets
YouTube	Recommendation pathways	"Because you watched..." chains	25 mapped paths

Table Ii Coding Schema

Code	Description	Example Quote
Awareness Level	Conscious/unconscious AI nudge recognition	"I didn't realize how often I clicked suggested videos."
Emotional Triggers	FOMO, belonging, aspiration	"These videos make me feel like I belong."
Identity Cues	Social or self-identity affirmation	"Content resonates with who I am."
Rationalization	Post-decision explanations	"I thought I chose this on my own."
Feelings of Manipulation	Statements about addiction or control	"It's addicting; the algorithm knows me too well."
Behavioral Outcomes	Actions influenced by AI nudges	Purchasing, sharing, belief changes

how initial subtle suggestions compound into significant be havioral shifts.

Overall, the findings illustrate the pervasive yet invisible nature of AI influence, with implications for individual agency in digital spaces.

DISCUSSION

AI-driven nudges function as ”whispering algorithms,” sub tly shaping cognition via emotional and identity signals. While enhancing engagement, they raise serious concerns about autonomy, addiction, and mental health. The findings align with Zuboff’s surveillance capitalism thesis [12], where user data fuels predictive products that manipulate behavior for profit.

This study extends existing literature by providing quali tative depth to quantitative metrics of engagement. It high lights how subconscious influences exacerbate issues like misinformation spread and polarization. Ethically, the opacity of these systems challenges informed consent, necessitating transparency measures

beyond current frameworks.

Limitations include reliance on self-reported data, which may not capture fully subconscious processes. Future research could integrate neuroscientific methods to validate these find ings.

IMPLICATIONS

Policy and Regulation

Regulators should prioritize addressing subconscious nudg ing and “dark patterns” within AI governance frameworks, such as mandating impact assessments for recommendation systems.

Platform Design

Platforms could implement features like visualization of rec ommendation logic and adjustable friction points to mitigate addiction, empowering users with greater control.

Mental Health

Promoting digital literacy on AI nudges through awareness campaigns can help users recognize and resist manipulative influences, fostering healthier online habits.

These implications offer actionable pathways for stakehold ers to balance technological benefits with user wellbeing.

CONCLUSION AND FUTURE RESEARCH

This pioneering qualitative study illuminates the subcon scious influence of AI on social media user behavior, revealing mechanisms of emotional and identity-based manipulation. It invites interdisciplinary collaboration and proposes novel frameworks like a “Subconscious AI Nudging Index” to quan tify and mitigate risks.

Future work could expand to experimental designs or neurocognitive studies to measure physiological responses to nudges. Longitudinal research tracking user behavior over time would further elucidate long-term effects. Ultimately, this research advocates for ethical AI that prioritizes human flourishing over engagement metrics.

AUTHOR CONTRIBUTIONS

Conceptualization, R.M.; Data curation, R.M.; Formal anal ysis, R.M.; Writing—original draft, R.M.; Writing—review & editing, R.M. All authors approved the final manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

Tableii Coding Schema Table

Theme	Sub-Themes	Description	Example
Awareness Level	Conscious/Subconsci ous	Recognition or lack thereof of AI nudges	"I'm not aware when suggestions control me."
Emotional	FOMO, Belonging,	Feelings triggered to	"Trending makes me anxious

Triggers	Aspiration	increase engagement	to miss out."
Identity Cues	Social, Self Identity	Content affirming identities	"This content feels like me."
Rationalization	Post hoc explanation	Users explaining AI-driven decisions	"I thought it was my free will."
Manipulation	Addiction, Control	Descriptions of algorithmic trap	"I feel addicted to scrolling."
Behavioral Outcomes	Buying, Sharing, Believing	Decisions changed by AI influence	"I bought something after the video."

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APPENDIX A

CODING SCHEMA TABLE

APPENDIX B

DATA SAMPLES (ANONYMIZED EXTRACTS)

• Reddit (r/NoSurf): “TikTok’s suggested videos felt like whispers pulling me back despite trying to quit.”

• YouTube comment: “One video led to many more; I lost track of how I was being influenced.”

• TikTok caption: “This viral challenge appeared suddenly and now I’m hooked without realizing why.”