



Captive Platforms: On the Algorithmic Loops of Infinite Scrolling

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ABSTRACT

The infinite scrolling mechanism has emerged as one of the most effective behavioral traps in the contemporary phase of the AI revolution – devouring users regardless of their background, age, education, or level of digital literacy. Digital platforms e.g. Facebook, Instagram, TikTok, by leveraging the latest discoveries in contemporary science to foster patterns of interaction that often escalate into compulsive use, have become a central component of the complex global digital architecture. By continuously loading content without natural stopping points (e.g. the end of the page), infinite scrolling immerses users in algorithmic loops that are difficult to break. This article examines the algorithmic specificity of digital platforms through the lens of infinite scrolling, focuses on how the technological design both reflects and reinforces platform logics of maximized engagement. Drawing on models from reinforcement learning, behavioral psychology, and sociology, it is argued that infinite scrolling not only shapes users' attention and time perception, but also exerts a corrosive effect on sociability. It replaces deep, sustained interpersonal relations with fragmented, ephemeral interactions, mediated by algorithmic infrastructures optimized for retention rather than human connection.

Background: Sociology

Method: Conceptual inquiry and comparative theoretical analysis

Results:

The findings demonstrate that this design pattern produces measurable social and psychological consequences. By exploiting variable-ratio reward schedules and continuous feedback loops, infinite scrolling fosters compulsive engagement, continuous partial attention, and “intentional drift”—a weakening of users’ ability to regulate their own focus and goals. These cognitive effects scale up into broader social phenomena: the erosion of deep sociability, the normalization of fragmented interactions, and the commodification of attention within platform capitalism. Ultimately, the article argues that infinite scrolling is not a neutral UX feature but a behavioral infrastructure that reconfigures agency, autonomy, and social relations in the algorithmic age.

Conclusion:

Infinite scrolling represents far more than a design convenience—it constitutes a defining mechanism of the algorithmic age, embedding behavioral experimentation and neurocognitive conditioning within everyday digital experience.



By merging reinforcement learning, real-time data feedback, and psychological manipulation, this interface transforms the user into both a data source and a behavioral subject of continuous optimization. What began as a UX innovation has evolved into a complex socio-technical dispositif – an infrastructure of attention capture that subtly governs perception, emotion, and interaction. The seamless flow of content, engineered to remove moments of reflection, restructures cognition around immediacy and impulse, diminishing the role of deliberation and long-term intentionality.

At the social level, this logic of algorithmic captivity undermines the very conditions of sociability. Relationships once rooted in stability and mutual understanding are replaced by transient, dopamine-driven exchanges mediated by predictive systems optimized for retention rather than meaning. The economy of attention, as Zuboff (2019) and Fuchs (2015) argue, transforms users' engagement into invisible labor and behavioral surplus, reinforcing asymmetries of power between individuals and platform infrastructures. Infinite scrolling, therefore, exemplifies the broader trajectory of digital capitalism—one that captures not only our data but our capacity to act, choose, and relate. Reclaiming autonomy in this environment requires re-engineering the architectures of interaction toward friction, transparency, and reflective engagement – so that digital technologies can serve human connection rather than erode it.

Keywords: infinite scrolling, algorithms, sociability

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doi [https:// 10.13129/3035-1383/asmc-5321](https://10.13129/3035-1383/asmc-5321)



Introduction

At its core, *infinite scrolling* is an interface design pattern that eliminates the need for pagination by automatically loading new content as the user scrolls down the page. Originally developed to improve user experience (Ahuvia 2013), it quickly became a dominant feature in digital platforms such as Facebook, Instagram, TikTok, or Twitter (Rixen 2023). What distinguishes infinite scrolling from earlier modes of content navigation is not only its seamless continuity but also its integration with algorithmic recommendation systems (Chen 2024). These systems analyze user behavior in real-time – dwell time, click-through rates, interaction history – and dynamically adjust what content is shown next. Such constant adaptation, governed by multiple methods e.g. *reinforcement learning* and *multi-armed bandit* models, transforms the scroll itself into a site of experimentation and optimization aimed at maximizing engagement (Monge Roffarello, De Russis 2023).

Yet the design's technical efficiency conceals its deeper psychological and social implications. Infinite scrolling undermines users' capacity for self-regulation by removing natural stopping cues – what behavioral scientists refer to as *choice architectures* that support reflective action (Johnson et al. 2012). Instead, users are kept in a state of *continuous partial attention* (the persistent monitoring of multiple channels – Stone 2009) encouraged to consume rather than pause, reflect or disengage. The mechanism exploits the human sensitivity to variable rewards – intermittent, unpredictable gratifications that mimic the logic of slot machines (Laskowski et al. 2019). As a result, users not only lose track of time but often experience a kind of post-hoc regret, having engaged far longer than intended. This frictionless, algorithmically optimized flow erodes the possibility of intentional, socially meaningful interactions, redirecting attention away from others and toward the next stimulus on the feed. Becoming accustomed to and reliant on algorithms, although primarily affecting individuals, leads to serious and potentially irreversible consequences for the social fabric. Infinite scrolling disables certain critical skills and competences (e.g. reflexivity or criticism) essential for sociability, reinforcing social divisions and deepening social isolation.

The goal of this article is to reconstruct some key features of the complex technological pipeline that underpins the multidimensional success of infinite scrolling.



It traces the functioning of the key algorithms that drive this mechanism and links their architecture to behavioral patterns that often contribute to individual addiction, anxiety, and the gradual erosion of social relationships in everyday life.

Drawing on the *dual-process theory of thinking* proposed by Kahneman (2011) – which distinguishes between the fast, automatic System 1 and the slow, reflective System 2 – the analysis explores how the algorithmic logic embedded in social media platforms captures users in a *compulsive loop* – that is, a self-reinforcing cycle of stimulus, response, and intermittent reward – that is difficult to break. The article integrates three research perspectives – data science, psychology, and sociology – to provide a comprehensive understanding of the technological, cognitive, and social dimensions of infinite scrolling.

Specifically, the article aims to address the following research questions: (i) Is there a repeatable, universal algorithmic structure underlying the success of infinite scrolling? (ii) What is the essence of captive algorithmic curation? (iii) What social consequences – particularly in the domain of sociability – does the use of infinite scrolling entail? To address these questions, the article draws on several key analytical concepts. Captive algorithmic curation refers to modes of content selection and sequencing in which algorithmic systems systematically constrain users' horizons of choice while maximizing engagement through continuous, personalized flows of content. This process is closely linked to algorithmic manipulation, understood as the strategic shaping of attention, affect, and behavior through opaque optimization logics that privilege platform objectives over user autonomy. Together, these dynamics give rise to algorithmic captivity, conceptualized not as overt coercion but as a gradual enclosure of attention and action within platform-defined logics.

Such forms of captivity are sustained by algorithmic surveillance, that is, the continuous monitoring, recording, and analysis of user behavior, which enables the fine-tuning of recommender systems and the intensification of behavioral feedback loops. At the level of everyday practice, this constellation produces compulsive use patterns, understood as repetitive, difficult-to-interrupt forms of engagement driven less by deliberate intention than by algorithmically induced habits and variable reinforcement mechanisms. Within these environments, users are subject to intentional drift – a process whereby goal-directed activity is progressively displaced by system-driven trajectories of engagement that unfold without explicit user intention.



Finally, these interrelated mechanisms have implications for deep sociability, understood as forms of social relating grounded in sustained attention, reciprocity, and shared meaning, which may be eroded or reconfigured under conditions of persistent algorithmic mediation.

Algorithms of infinite scrolling

The lead designer Aza Raskin has repeatedly warned that infinite scrolling embeds *addictive reinforcement* mechanisms into interface design, encouraging compulsive and repetitive user engagement. (Andersson, 2018). From the perspective of nearly two decades of infinite scrolling's presence, we now know that the core components of this drug-like addictive mechanism are specific combinations of algorithms designed to manipulate user behavior. Importantly, it is not only the algorithms themselves that continue to evolve (the technical side of algorithms), but also their combinations.

Here, the article proposes that the development of algorithms underpinning infinite scrolling can be analytically divided into four distinct phases: (i) the static phase, (ii) the adaptive phase, (iii) the algorithmic compression phase, (iv) the hybrid and integrative phase. The static phase, primarily developed between 2006 and 2012, was based predominantly on *heuristic sorting* and *user experience design*, with minimal, if any, personalization tailored to individual user behavior or preferences (Krug 2013). During this phase, content was typically displayed in reverse-chronological order, reflecting a linear and transparent logic of information delivery. The primary goal was to ensure a seamless and continuous user experience by eliminating the need for pagination. Algorithmic intervention was minimal and user behavior was not yet systematically tracked or leveraged for content customization. As such, infinite scrolling functioned more as a design innovation than as an adaptive behavioral system.

The adaptive phase, which emerged around 2012 and lasted until approximately 2016, marked a shift toward the *algorithmic personalization* of content streams (Lury, Day 2019). During this period, platforms began to incorporate basic machine learning models – such as decision trees and logistic regression – to predict user engagement based on historical behavioral data (van der Aalst 2019). Algorithms started ranking content not merely by recency, but by likelihood of interaction, such as clicks, likes or time spent. This phase laid the groundwork for algorithmic curation (mentioned above) by introducing the first data-driven feedback loops into the infinite scrolling mechanism.



It was also the first major step toward introducing bias into the functioning of System 1 and System 2, as described by Kahneman (see more: Ward 2022).

The algorithmic compression phase, spanning roughly from 2016 to 2020, was characterized by a significant increase in algorithmic complexity and the strategic use of advanced machine learning techniques. Social media platforms began implementing *deep learning* models – particularly convolutional and recurrent neural networks – to capture and predict user behavior with high temporal precision (Salma et al. 2024; Taherdoost 2023). Reinforcement learning algorithms, such as contextual bandits and Deep Q-Networks, were deployed to dynamically optimize content delivery based on real-time user feedback. This phase marked the transition from static recommendation systems to fully adaptive, self-optimizing architectures aimed at maximizing engagement, attention retention and platform monetization. At this stage, it is suggested that the process of algorithmic manipulation, which in the following years evolved into algorithmic surveillance.

The hybrid and integrative phase, beginning around 2020 and continuing into the present, is defined by the convergence of multiple algorithmic paradigms into unified, highly adaptive systems (Huang et al. 2023). Platforms now employ ensemble models that integrate deep learning, reinforcement learning and symbolic reasoning, often through automated architecture search (AutoML) and neural architecture optimization. Multimodal models – capable of processing text, images, audio, and behavioral signals simultaneously – enable fine-grained personalization tailored to individual user contexts. Furthermore, real-time feedback mechanisms and human-in-the-loop techniques, such as reinforcement learning from human feedback (RLHF), have become increasingly prevalent. This phase represents a shift toward algorithmic ecosystems that are not only behaviorally responsive but also structurally self-adaptive and continuously evolving.

From simple statistical rules to advanced artificial intelligence models, infinite scrolling has undergone a progression that has likely not yet reached its endpoint. This ongoing evolution reflects a broader trend in digital platform design: the pursuit of ever more efficient, seamless and persuasive techniques to capture and retain user attention. As each successive phase builds upon the previous one, the system's capacity to anticipate, influence and shape user behavior becomes increasingly sophisticated and opaque – raising profound questions about autonomy, agency and the ethical limits



of algorithmic persuasion (Elliott 2024; 2023, 2022; Airoidi 2022).

This progression also reflects a deepening exploitation of the dual-process architecture of human cognition, commonly referred to as System 1 and System 2 (Kahneman, 2011). Infinite scrolling interfaces are specifically engineered to target System 1 – the fast, automatic, intuitive mode of thinking – by creating frictionless and continuous interaction loops that minimize cognitive effort. The absence of natural stopping cues (e.g., pagination) reduces opportunities for System 2 – the slower, more reflective system – to intervene and assess one’s behavior critically. As a result, users are more likely to remain in a passive, affect-driven state, responding impulsively to cues such as novelty, visual salience or social validation. In this sense, infinite scrolling operates not only as a technological infrastructure but also as a *cognitive capture mechanism* that suppresses deliberation while promoting habitual engagement. It exploits the very architecture of human cognition to favor automaticity over reflection, effectively nudging users into prolonged sessions without requiring active decisions. In the context outlined above, infinite scrolling is part of a modern decision-making environment to which our brains struggle to adapt, due to their evolutionary development in contexts primarily concerned with survival (Ward 2022, pp. 51–52). Paraphrasing Ward, human brains – evolutionarily shaped to survive under natural conditions – have been confronted with entirely new challenges imposed by an algorithm-saturated digital world. As a result, it is not only cognitive processes that have been transformed, but above all our relationships with other members of the communities to which we belong.

This cognitive asymmetry contributes to the broader dynamics of algorithmic subordination, whereby users are subtly governed through the structuring of their attention and the outsourcing of choice to systems optimized for behavioral manipulation (Zuboff 2019; Ward 2022). This outlined process has a profound impact on human behavior and, consequently, on sociability (Simmel 1949, Seyfert 2025, Filipek 2025), which will be elaborated on in the following part of the article.

Captive algorithmic curation

This increasingly complex architecture of personalization and behavioral targeting leads us to what can be termed captive algorithmic curation (see above). This notion refers to the entanglement of technical optimization and psychological manipulation in algorithmically governed content streams. The captive algorithmic curation is an integral part of the emerging *algorithmic condition* – a state in



which algorithms become the dominant driving force of social processes (Brzeziński et al. 2025). As infinite scrolling has evolved from heuristic sorting to deep reinforcement learning, the role of the algorithm has shifted from passive recommendation to active behavioral orchestration (programmability). In this paradigm, decisions that until recently remained within the domain of *human agency* are now progressively delegated to artificial agents operating beyond our immediate awareness (Elliott, 2024, pp. 169–170). This implies a shift whereby human agency is increasingly supplanted by systems that both learn from and actively reshape user behavior in real time, establishing a recursive feedback loop between algorithmic inference and behavioral modulation. Through mechanisms such as partial reinforcement, variable-ratio reward schedules and adaptive content curation (Table 1), platforms foster *compulsive engagement* patterns structurally akin to gambling. The user is no longer simply navigating content but is embedded within a self-reinforcing feedback loop, where each scroll contributes to both the personalization of future content and the erosion of conscious control (Ward 2022).

Mechanism	Definition	How It Works	Psychological Effect	Application in Algorithmic Systems	Relevant Theories / Sources
Partial Reinforcement	A conditioning strategy where not every action or behavior is rewarded.	Rewards are given intermittently rather than consistently (e.g., only some likes get replies).	Increases resistance to extinction; behavior persists longer even without reward.	Platforms reward some user actions (likes, posts, shares) sporadically to maintain engagement.	Skinner (1953); Ferster & Skinner (1957); Ward (2019)
Variable-Ratio Reward Schedule	A reinforcement schedule where rewards are delivered after an unpredictable number of responses.	User receives a reward (e.g., new content, likes, messages) after a varying number of actions.	Produces high rates of persistent behavior; similar to gambling.	Social media timelines and notifications simulate "slot machine" dynamics—users scroll or refresh to see what comes next.	Behavioral psychology; see also Zuboff (2019); Eyal (2014)
Adaptive Content Curation	Real-time modification of content based on ongoing user behavior.	The algorithm analyzes micro-behaviors (clicks, scroll speed, pauses) and tailors subsequent content accordingly.	Creates a personalized, continuous loop of relevance and salience; minimizes boredom and increases immersion.	TikTok's "For You" page, YouTube recommendations, or Instagram Reels adjust dynamically after every interaction.	Elliott (2024)



Captive algorithmic curation thus captures a broader socio-technical logic: one that is no longer oriented toward user satisfaction, but toward maximizing attention extraction, session duration and platform monetization – even at the cost of cognitive fatigue, decision paralysis and reduced sociability. This reflects the core principles of the attention economy, in which human attention is commodified and optimized as a scarce resource (Davenport, Beck, 2002). As Christian Fuchs aptly notes (Fuchs 2015), our captured attention transforms into unpaid labor that we perform for internet platforms, which exploit it through mechanisms such as infinite scrolling. Fuchs, drawing on the tradition of critical political economy, argues that digital capitalism commodifies human attention and social activity, transforming them into sources of surplus value. In his analysis, users are not merely consumers but also *prosumers* who, through their online engagement, contribute to the value-creation processes of platform capitalism without remuneration. This logic, according to Fuchs, reinforces exploitative structures where digital labor becomes increasingly invisible and normalized. In such an environment, curation becomes captivity and choice is increasingly orchestrated rather than consciously exercised. While this phenomenon has been broadly acknowledged in the literature (Zuboff, 2019; Ward, 2019; Eyal, 2014), empirical studies rarely focus on the specific mechanisms of captivity implemented through infinite scrolling architectures. This results, on the one hand, from corporate secrecy – the proprietary *know-how* that platform owners are unwilling to share. On the other hand, the empirical exploration of such mechanisms is far from straightforward, as the existing research methods dedicated to reconstructing algorithmic operations remain *in statu nascendi*. Table 1 presents six popular algorithmic strategies that constitute the driving force behind this dynamic.



Epsilon-Greedy	Upper Confidence Bound (UCB)	Thompson Sampling	Contextual Bandits	Non-Stationary Bandits	Combinatorial & Cascade Bandits
How it works: Balances exploration (randomly showing new content) and exploitation (showing best-known content) using an epsilon parameter.	How it works: Prioritizes exploration of content that has uncertainty in its estimated reward while still exploiting known high-performing items.	How it works: Uses Bayesian probability to select content based on the likelihood that it is the best-performing option.	How it works: Takes into account user-specific features (e.g., browsing history, device type, session behavior) to personalize recommendations.	How it works: Adjusts to changes in user behavior over time (e.g., trend shifts, fatigue effects).	How it works: Evaluates multiple items in a batch and learns from user interactions with multiple recommendations at once (like showing a list of articles, videos, or products)
Use case in infinite scrolling: Ensures that users see a mix of popular and new content, preventing the same recommendations from being repeatedly displayed.	Use case: Useful when content engagement (clicks, watch time) varies significantly, as it dynamically shifts towards content with higher confidence in engagement.	Use case: Works well in infinite scrolling because it dynamically updates its belief about the best content as users interact.	Use case: Critical in infinite scrolling to show personalized content rather than a one-size-fits-all approach.	Use case: If a user stops engaging with a certain type of content, the algorithm adapts and shifts recommendations accordingly	Use case: Important in infinite scrolling where users see multiple options at a time, and their engagement helps optimize future recommendations.

All of the listed algorithms – Epsilon-Greedy, Upper Confidence Bound (UCB), Thompson Sampling, Contextual Bandits, Non-Stationary Bandits, and Combinatorial and Cascade Bandits – belong to the family of multi-armed bandit algorithms. Their common feature is the ability to balance two competing objectives: exploration (trying out new content) and exploitation (promoting known high-performing content). Unlike static recommendation rules, these algorithms dynamically learn from user behavior in real time. In the context of infinite scrolling, this means that decisions are not hard-coded in advance but are constantly adapted in response to user interactions – such as clicks, viewing time, scrolling behavior, and engagement patterns.



A second shared characteristic is their capacity for personalization and contextual learning. Algorithms like Contextual Bandits and Non-Stationary Bandits account for variability both on the user's side (e.g. shifting preferences, session context) and the content side (e.g. virality, novelty). This enables the formation of *recursive attention loops*, where the system learns increasingly precise predictions that sustain user engagement. This problem was insightfully addressed by Ward, who described such mechanisms as forms of *behavior-shaping technology* that rely on „dopamine release to make apps more addictive” (Ward, pp. 100–103). Ultimately, all of these methods are optimized to maximize a form of user reward – whether measured as engagement, retention, or time spent on the platform – making them ideal mechanisms within the algorithmic architecture of infinite scrolling. In other words, users are lured in and retained with content they are familiar with, while simultaneously being presented with new content as part of an experiment. The algorithm tests our reaction to the new content. If we like something, similar content will appear in our feed in the next iteration. From a sociological perspective, such mechanisms do not merely optimize interfaces – they produce a concrete patterns of behavior. Engagement becomes less a product of conscious choice and more the outcome of algorithmically structured environments, which privilege responsiveness over reflectivity and preemption over deliberation. The user is thus *interpellated* not as an autonomous agent but as a *datafied* subject – whose actions are anticipated, redirected, and recursively modulated. In this context, Elliott (2024, p. 174) offers a particularly salient observation, arguing that the increasing expansion of predictive engineering into personal and social life rests on an implicit assumption that the human individual is deficient and therefore requires algorithmic correction and optimization. This cognitive asymmetry is not incidental but programmed: it ensures that the user remains in a passive state of receptivity, continuously feeding data into a system optimized for prediction and behavioral modification. The interface becomes a form of cognitive governance – one that exploits the architecture of the mind to orchestrate attention, undermine self-regulation, and recalibrate agency in favor of automated systems. Captive algorithmic curation thus operates not only as a technological infrastructure of control, but also as a *neurocognitive dispositif* – a structured environment that hijacks the user's attentional economy through the systematic activation of their least reflective mental processes.



Constant experimentation

The process of simultaneously adapting content to user preferences while shaping their behavior through the delivery of carefully curated stimuli constitutes a form of an ongoing experiment whose roots can be traced back to Skinner's research (1953; 1965). The founder of operant conditioning, through systematic experimentation with reward and punishment, was the first to demonstrate that the most effective method for shaping behavior (not only human) is the so-called variable-ratio schedule of reinforcement. Many contemporary digital interface design practices – including infinite scrolling – consciously or unconsciously replicate the principles of operant conditioning. What we are witnessing is a *Skinnerian architecture of rewards* applied to digital technologies, which has become the foundation of the effectiveness of the broadly understood mechanism of infinite scrolling. Importantly, the behavioral experiments initiated by Pavlov (1906) and later refined by Skinner are now being continuously reenacted in digital environments, albeit on a far larger and more individualized scale. Whereas classical and operant conditioning were once confined to controlled laboratory settings, today's digital ecosystems – social media platforms, content feeds, recommendation systems – function as vast, real-time laboratories for behavior modification. In this context, the goal is no longer merely to prompt observable behavior, such as clicking or scrolling, but to modulate underlying neurochemical responses, particularly the release of dopamine, a key neurotransmitter involved in the brain's reward system.

Dopamine is released not only in response to concrete rewards, but more powerfully in response to anticipated or unpredictable rewards – a principle well established in neurobehavioral science (Schultz et al., 1997). Digital interfaces exploit this by presenting users with intermittent, often highly personalized stimuli – likes, notifications, new content – that simulate a variable-ratio reinforcement schedule. Each unpredictable reward (e.g. viral video, surprising post, new follower) acts as a dopamine trigger, reinforcing engagement and motivating users to continue interacting with the platform in search of the next reward. Over time, this leads to the formation of reinforced behavioral loops, where user actions are tightly coupled with algorithmic responses and neurochemical reinforcement.



This system is not neutral: it is deliberately engineered to create compulsive use patterns (see above). By optimizing for engagement metrics such as time-on-platform or click-through rate, platforms employ adaptive algorithms that learn user preferences and emotional responses with increasing precision. In doing so, they construct feedback architectures that both exploit and recalibrate dopaminergic pathways, fostering a form of behavioral dependency that mimics the mechanics of gambling or substance addiction (Montague et al., 2006; Zuboff, 2019). What emerges is a digital environment in which the manipulation of neurochemical states is not incidental – but central – to the logic of user retention and monetization (attention economy). In this never-ending experiment, where neuroscience, IT, and the human sciences collide, the digital platform user is merely a recipient of what infinite scrolling offers, rather than an active subject consuming content.

Summary: social consequences

Infinite scrolling produces a range of social consequences that extend far beyond individual user experience. Its operation is rooted in various algorithms that foster addictive behavioral patterns. As a result, digital systems increasingly shape and model our social practices in ways that are not always conscious or intentional (Rixen et al., 2023; Chen, 2024). The social consequences of infinite scrolling are multilayered, but a useful starting point is the mentioned above the phenomenon of continuous partial attention (CPA). CPA is a state of being where people continuously split their attention between multiple sources of information, always scanning for opportunities, connections, and activities, without focusing deeply on any single one. As Linda Stone aptly notes (2009), the downside of CPA is “over-stimulation and lack of fulfillment”. CPA leads to an excess of cortisol in the human body, which displaces the hormones responsible for happiness and calm, such as dopamine and serotonin. As a result, individuals who are unable to concentrate and are chronically stressed find it increasingly difficult to function socially – and in turn, become even more dependent on infinite scrolling. Infinite scrolling can be described as a Skinnerian interface experiment, where users are exposed to a variable-ratio reinforcement schedule – being rewarded with unpredictable stimuli (e.g. new content, likes, or visual novelty). As a result, it contributes to the deregulation of daily rhythms and the erosion of boundaries between work, leisure, and interpersonal relationships.



It is worth emphasizing that this issue has already been raised, among others, by Nicholas Carr (2010) and Noreena Hertz (2021). Both have critically examined how digital technologies – particularly those that fragment attention and foster compulsive engagement – are reshaping cognitive processes, emotional regulation, and social cohesion. Carr (2010) explores how the internet diminishes our capacity for deep thinking and reflection, arguing that constant digital stimulation rewires neural pathways and fosters superficial cognitive habits. Hertz (2021), on the other hand, highlights the socio-emotional consequences of loneliness in the digital age, emphasizing how algorithmically mediated interactions can erode meaningful human connection and intensify feelings of isolation, despite constant online connectivity.

Automated recommendation mechanisms and the uninterrupted stream of content gradually erode what can be described as deep sociability (see above), the capacity to build long-term, committed relationships with others. In its place, users engage in superficial, fragmented interactions, often mediated by digital agents – a phenomenon referred to as *machine agency* (Elliott 2024). The dominance of episodic and transient exchanges causes human relationships to increasingly resemble data flows rather than stable social configurations in the sense of Elias (1991). The episodic and transient nature of encounters – their constant variability and uniqueness – means that the system operating within the broadly understood domain of sociability is System 1: automatic, intuitive, and requiring no cognitive effort. Infinite scrolling strongly suppresses System 2, which functions under stable, repetitive conditions where the individual has the time and cognitive resources to engage in deeper analysis.

This algorithmic conditioning results in what may be called *intentional drift*: a progressive weakening of users' capacity to set and sustain their own intentions in the face of constantly adapting stimuli. As Banovic et al. (2014) and Rixen et al. (2023) show, users often report retrospective regret over time spent scrolling, yet this awareness is not sufficient to break the recursive feedback loop of compulsive engagement. Here, decision-making becomes fragmented and reactive, embedded within what Zuboff (2019) would call a *behavioral surplus economy*, where even non-decisions – such as continuing to scroll – are harvested and monetized. This erosion of intention carries significant implications for the sociology of action. As classic theories by Weber (1978) or Giddens (1984) emphasize, action is not just behavior – it is behavior with meaning and purpose. Infinite scrolling, by contrast, fosters a mode of interaction that is decoupled from long-term goals and reflexive self-awareness.



What emerges is not so much purposive action as algorithmically orchestrated drift, governed less by intention than by reward probability and platform metrics.

Moreover, infinite scrolling fosters a media environment in which users are continuously exposed to emotionally charged, cognitively simplified, and often misleading content. This architecture of attention is not accidental – it is structurally incentivized by platform algorithms that prioritize engagement metrics over informational quality. Under conditions of digital overstimulation, individuals increasingly rely on cognitive shortcuts (heuristics) rather than deliberate reasoning. This reliance makes users more susceptible to disinformation, particularly when content is designed to trigger affective responses such as fear, outrage, or moral indignation.

From a sociological standpoint, this trend represents a shift in the conditions of public reasoning and civic epistemology. As Zygmunt Bauman (2000) and later Christian Fuchs (2021) have noted, the *digital public sphere* is no longer a space for rational-critical debate (Habermas' ideal), but a battlefield of algorithmically curated narratives. Content personalization, while framed as a user-centered innovation, in fact reinforces epistemic closure by filtering out dissonant or unfamiliar perspectives. The result is the formation of information silos – personalized cognitive enclaves that entrench ideological commitments and weaken the shared discursive foundations of democratic deliberation.

These are, of course, not all the social consequences of the unchecked rise of infinite scrolling in individuals' lives. However, this brief overview is intended to illuminate the extent of the risks – both subtle and systemic – that operate beneath the surface for individuals and societies in the digital age.

Declaration of Conflicting Interests

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



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