

Cognitive Saturation: A Qualitative Exploration within the Theory of Saturation

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Abstract

The Theory of Saturation proposed by Manafi (2025, 2026) conceptualizes saturation as a condition that emerges when adaptive capacities are continuously exceeded by emotional, cognitive, institutional, or systemic demands. The theory identifies multiple forms of saturation, including emotional saturation, cognitive saturation, institutional saturation, and systemic saturation, as interconnected conditions affecting individuals, organizations, and broader social structures.

Building on this framework, the present study explores the dimensions of cognitive saturation through qualitative interviews with experts from interdisciplinary backgrounds. The study examines how prolonged exposure to information density, complexity, uncertainty, and continuous mental demands affects cognitive functioning at both individual and systemic levels.

The findings suggest that cognitive saturation develops progressively through four interconnected dimensions: informational overload, cognitive attenuation, cognitive degradation, and executive breakdown. Experts described cognitive saturation as beginning with excessive informational demands, followed by reduced cognitive engagement, deterioration of core cognitive functions, and eventual impairment of executive control processes such as decision-making, prioritization, and self-regulation. The findings further indicate that cognitive saturation extends beyond individual psychology and may also characterize institutions, paradigms, and social systems facing unresolved complexity and adaptive overload.

This study contributes to the emerging Theory of Saturation by providing a multidimensional framework for understanding cognitive saturation in contemporary digital and knowledge-intensive societies.

Keywords: Theory of Saturation, Manafi, Cognitive Saturation, Dimensions

1. Introduction

Contemporary societies are increasingly characterized by accelerating flows of information, expanding technological systems, continuous connectivity, and rising levels of cognitive complexity. Individuals, organizations, and institutions are now expected to process unprecedented volumes of data, rapidly adapt to changing conditions, and make decisions within environments marked by uncertainty, informational density, and constant mental stimulation. While technological and informational expansion has enhanced access to knowledge and communication, it has also intensified pressures on human cognition and adaptive capacity. As a result, concerns regarding overload, attentional fragmentation, mental exhaustion, and declining depth of thought have become central issues across psychology, sociology, organizational studies, media studies, and epistemology.

Within this context, the Theory of Saturation proposed by Manafi offers a broader conceptual framework for understanding how individuals and systems respond when adaptive capacities are persistently exceeded by external demands. The theory conceptualizes saturation as a multidimensional condition emerging across emotional, cognitive, institutional, and systemic domains. Emotional saturation refers to the exhaustion of emotional processing capacities under persistent affective pressures. Institutional saturation describes conditions in which organizations or governance structures lose adaptive flexibility due to excessive complexity, contradiction, or operational demands. Systemic saturation extends this logic to broader social, political, technological, or epistemological systems that become increasingly unable to process, coordinate, or respond effectively to accumulating complexity.

Among these dimensions, cognitive saturation has become particularly significant in contemporary digital and knowledge-intensive societies. Existing research has extensively examined related concepts such as information overload, burnout, decision fatigue, attentional decline, and cognitive stress. However, these approaches often remain fragmented and primarily focused on isolated psychological symptoms rather than broader adaptive processes. Cognitive saturation extends beyond temporary overload by addressing the progressive erosion of cognitive engagement, interpretive capacity, reasoning processes, and executive control under sustained exposure to informational and cognitive demands.

Understanding the dimensions of cognitive saturation is increasingly important because the phenomenon appears to operate simultaneously at multiple levels. At the individual level, prolonged cognitive pressure may reduce attention, memory, analytical reasoning, and decision-making capacity. At collective and institutional levels, similar dynamics may contribute to rigidity, reduced adaptability, weakened collective learning, and failures in strategic thinking. In scientific paradigms, ideological systems, and organizational structures, unresolved complexity and accumulated contradictions may produce conditions resembling stagnation, defensive simplification, or crisis. Consequently, cognitive saturation may represent not only a psychological condition, but also an epistemological and societal challenge affecting how individuals and systems process reality, generate knowledge, and adapt to complexity.

Despite the growing relevance of these issues, the dimensions and processes of cognitive saturation remain underexplored in existing literature. Most studies focus narrowly on overload or stress without examining the broader progression through which cognitive capacities become attenuated, degraded, and ultimately destabilized under prolonged pressure. A clearer conceptualization of cognitive saturation is therefore necessary for understanding the cognitive consequences of contemporary informational environments and their implications for individuals, institutions, and knowledge systems.

Accordingly, this study aims to explore the dimensions of cognitive saturation through qualitative interviews with experts from interdisciplinary backgrounds. By examining experiences and interpretations of sustained cognitive pressure across individual and systemic contexts, the study seeks to develop a multidimensional understanding of cognitive saturation and clarify its core processes and manifestations.

2. Literature Review

The rapid expansion of digital technologies, information systems, and knowledge-intensive environments has significantly transformed the cognitive conditions of contemporary life. Individuals and institutions are increasingly required to process large volumes of information, navigate uncertainty, adapt to rapid change, and sustain attention across fragmented and accelerated environments. These transformations have generated growing scholarly interest in overload, cognitive strain, attentional decline, mental fatigue, and adaptive limits. Although the concept of cognitive saturation remains theoretically underdeveloped, several existing theories and research traditions provide important foundations for understanding the phenomenon and its possible dimensions.

One of the most closely related concepts is information overload, which refers to situations in which the amount or complexity of incoming information exceeds an individual's processing capacity. Early work by Alvin Toffler emphasized that accelerated social and technological change could overwhelm human adaptive capacities and produce disorientation, stress, and decision difficulties. Subsequent research in communication studies, organizational psychology, and information science has consistently shown that excessive informational demands contribute to reduced comprehension, attentional fragmentation, stress, impaired decision-making, and cognitive fatigue (Pernagallo & Torrasi, 2022). Information overload theory is particularly relevant because it frames overload not simply as the presence of abundant information, but as a mismatch between informational demands and cognitive processing capacity.

Related to this perspective, John Sweller developed Cognitive Load Theory, which explains how excessive cognitive demands interfere with learning, memory, and problem-solving. The theory distinguishes between intrinsic, extraneous, and germane cognitive loads, arguing that when working memory becomes overloaded, cognitive performance deteriorates (Sweller, 2011, 2023). Although primarily developed in educational psychology, Cognitive Load Theory provides a useful foundation for understanding how

persistent exposure to complexity and information density may impair broader cognitive functioning beyond learning environments.

Research on attention and media environments has also contributed important insights relevant to cognitive saturation. Scholars studying digital media and multitasking have argued that continuous exposure to notifications, fragmented media consumption, and rapid task switching weakens sustained attention and deep cognitive engagement. Nicholas Carr (2010) argued that digital information environments may gradually reshape patterns of thinking by encouraging superficial processing and reducing capacities for reflection and concentration. Similarly, studies on attentional fragmentation suggest that continuous interruptions and multitasking reduce cognitive depth and increase mental fatigue. These perspectives are important because they imply that cognitive strain may not only impair performance temporarily, but may also alter habitual modes of cognition and engagement over time.

Another relevant body of literature concerns decision fatigue and ego depletion. Research in psychology suggests that prolonged decision-making and self-regulation consume limited cognitive resources, eventually reducing the quality of judgment, self-control, and executive functioning (Evans et al., 2016; Inzlicht & Schmeichel, 2012). Although some aspects of ego depletion theory remain debated, the broader literature consistently indicates that sustained cognitive demands can weaken higher-order executive processes responsible for prioritization, planning, and adaptive regulation. These findings may provide insight into how prolonged cognitive pressure contributes to failures in decision-making and cognitive control.

Burnout research also offers important parallels. Traditionally examined within occupational psychology, burnout has been conceptualized as a condition of emotional exhaustion, depersonalization, and reduced personal accomplishment resulting from chronic stress (Maslach & Jackson, 1981). While burnout literature primarily focuses on emotional and occupational dimensions, growing research has increasingly emphasized its cognitive consequences, including reduced concentration, impaired memory, attentional deficits, mental fatigue, and diminished executive functioning (Koutsimani et al., 2021). Recent studies further suggest that burnout is associated not only with subjective experiences of cognitive exhaustion but also with measurable alterations in neural processes underlying executive control, attention regulation, and working memory (Pihlaja et al., 2023). Research additionally indicates that prolonged occupational stress and burnout may impair cognitive flexibility, sustained attention, inhibitory control, and decision-making capacities, contributing to broader forms of cognitive withdrawal and functional decline (Koutsimani & Montgomery, 2022; Föyén et al., 2023). These findings support the argument that chronic overload may progressively weaken higher-order cognitive functioning rather than producing only emotional exhaustion.

Beyond individual psychology, broader sociological and epistemological theories provide additional relevance for understanding cognitive saturation at collective and systemic levels. Thomas Kuhn (1962) argued that scientific paradigms experience periods of stability followed by crises generated by the accumulation of unresolved anomalies. During such periods, existing frameworks increasingly fail to process emerging contradictions, eventually leading to paradigm shifts. Although Kuhn did not use the term cognitive saturation, his theory suggests that systems of knowledge may reach limits in their interpretive and adaptive capacities. Similar ideas appear in theories of institutional rigidity, bureaucratic overload, and societal complexity, where systems become less adaptive as informational and organizational demands intensify (Luhmann, 1995). Contemporary complexity research further suggests that modern institutions increasingly struggle to manage accelerating informational flows, interdependence, and systemic uncertainty, often resulting in reduced adaptability, rigid decision-making, and governance failures under conditions of excessive complexity (Boulton et al., 2015; Van der Wal, 2017). These perspectives support the argument that cognitive saturation may emerge not only within individuals but also within institutions, paradigms, and broader systems of knowledge and governance when adaptive capacities are persistently exceeded.

Theories of complexity and late modernity also contribute to this discussion. Niklas Luhmann (1995) emphasized that modern societies operate through increasingly complex systems that must continuously reduce environmental complexity through selective processing. Similarly, Zygmunt Bauman (2000) described contemporary social life as increasingly fluid, unstable, and cognitively demanding, requiring individuals and institutions to adapt continuously to rapidly changing social conditions. More recent research on late modernity and social acceleration has further argued that accelerating technological change, informational density, and institutional complexity intensify pressures on cognitive adaptation, attention, and decision-making capacities (Rosa, 2013; Han, 2015). These perspectives suggest that modern social systems may generate chronic adaptive pressures that increasingly exceed the processing capacities of both individuals and institutions, contributing to fragmentation, instability, and reduced adaptive coherence.

More recently, the Theory of Saturation proposed by Manafi (2025, 2026) has attempted to integrate these fragmented discussions into a broader conceptual framework. The theory argues that saturation emerges when adaptive capacities are persistently exceeded by emotional, cognitive, institutional, or systemic demands. Rather than viewing overload as a temporary condition, the theory conceptualizes saturation as a progressive process affecting multiple levels of human and social functioning. However, while the theory identifies cognitive saturation as a major dimension of saturation, its internal processes and dimensions remain insufficiently explored.

Despite the relevance of these theoretical traditions, existing literature remains fragmented across psychology, media studies, organizational research, sociology, and

epistemology. Most studies examine isolated symptoms such as overload, distraction, fatigue, or burnout without conceptualizing how prolonged cognitive demands may progressively transform cognitive engagement, reasoning, executive control, and adaptive capacity across multiple levels. Furthermore, limited research has explored how cognitive saturation may extend beyond individual cognition to affect institutions, paradigms, and broader systems of knowledge and governance.

Accordingly, the present study seeks to address this gap by exploring the dimensions of cognitive saturation through qualitative expert interviews. Rather than assuming predefined dimensions, the study aims to investigate how experts describe the processes, manifestations, and consequences of sustained cognitive pressure across individual and systemic contexts. Through this exploratory approach, the research aims to contribute to the conceptual development of cognitive saturation within the broader Theory of Saturation.

3. Method and Results

This study employed a qualitative exploratory research design to investigate the dimensions and processes of cognitive saturation within the broader framework of the Theory of Saturation proposed by Manafi. Given the emerging and theoretically underdeveloped nature of the concept, a qualitative approach was considered appropriate for exploring expert interpretations, experiences, and conceptual understandings of prolonged cognitive and informational pressure across individual and systemic contexts.

The study was conducted between December 2025 and May 2026. Data were collected through semi-structured qualitative interviews with six academics from interdisciplinary fields, including psychology, sociology, and philosophy. Participants were selected based on their academic expertise and familiarity with issues related to cognition, social complexity, institutional processes, information environments, and adaptive behavior in contemporary societies. The interdisciplinary composition of the sample was intended to provide broader conceptual insights into cognitive saturation at psychological, social, institutional, and epistemological levels.

The interviews were guided by six open-ended questions designed to explore how individuals, organizations, and systems respond to continuously increasing informational, cognitive, and interpretive demands. The interview questions examined themes such as informational overload, cognitive exhaustion, attentional fragmentation, changes in reasoning and decision-making, adaptive rigidity, executive dysfunction, and broader systemic consequences of prolonged cognitive pressure. Participants were also asked to reflect on whether sustained exposure to complexity and uncertainty contributes to forms of cognitive withdrawal, degradation, or institutional stagnation.

All interviews were analyzed using thematic qualitative analysis. Recurring concepts, patterns, and interpretive themes were identified through repeated examination of participant responses. The analysis focused on identifying common dimensions, processes, and manifestations associated with cognitive saturation across individual and systemic contexts. Through this interpretive process, four major interconnected dimensions emerged from the data: informational overload, cognitive attenuation, cognitive degradation, and executive breakdown. These dimensions formed the basis for the proposed multidimensional model of cognitive saturation presented in this study.

The questions were as follow:

Q1. How would you describe the experiences of individuals, organizations, or knowledge systems when they are exposed to continuously increasing volumes of information, complexity, uncertainty, and mental demands in contemporary environments, and how do these conditions affect their ability to process, interpret, and respond to reality?

Q2. What signs indicate that cognitive, informational, or interpretive demands have exceeded the processing capacity of individuals or systems, and at what point does productive thinking transform into confusion, rigidity, disengagement, or dysfunctional overload?

Q3. How do patterns of thinking, reasoning, and mental engagement change under prolonged exposure to intense cognitive demands, and do such conditions lead to reduced depth of analysis, reliance on simplified heuristics, avoidance of complexity, or forms of cognitive withdrawal at individual or systemic levels?

Q4. How do sustained cognitive pressures affect core cognitive capacities such as attention, memory, clarity of thought, analytical reasoning, learning, and problem-solving, and in what ways do these pressures contribute to fragmentation or deterioration in cognitive functioning?

Q5. How do prolonged cognitive demands influence decision-making, prioritization, planning, self-regulation, and adaptive flexibility, and do these pressures produce forms of executive breakdown such as decision paralysis, impulsive reactions, rigid adherence to existing frameworks, or failures in cognitive control?

Q6. Based on these experiences and processes, how would you define the broader condition that emerges when cognitive and interpretive demands consistently exceed the adaptive capacities of individuals, institutions, paradigms, or social systems, and what are the main dimensions, stages, or consequences of this phenomenon commonly described here as cognitive saturation?

Table1. Summary of the Interviews

Question	Summary of Expert Responses	Emerging Dimension
Q1. Experiences of Expanding Cognitive Demands	Experts described contemporary environments as cognitively dense, accelerated, and fragmented. Individuals increasingly experience continuous information exposure, multitasking, interpretive fatigue, and pressure to rapidly process complex realities. At systemic levels, organizations and knowledge structures were described as struggling with excessive complexity, contradictory information, and reduced capacity for coherent sense-making. Several experts noted that scientific, institutional, and ideological systems often become overwhelmed when anomalies accumulate faster than they can be integrated.	Informational Overload
Q2. Thresholds and Indicators of Cognitive Saturation	Experts identified cognitive saturation through symptoms such as mental exhaustion, confusion, disengagement, irritability, reduced comprehension, and difficulty maintaining sustained attention. At collective and institutional levels, experts highlighted rigidity, defensive simplification, bureaucratic inertia, and polarization as indicators of exceeded cognitive capacity. Many experts emphasized that saturation begins when complexity surpasses adaptive processing capacity, transforming productive cognition into dysfunction.	Informational Overload
Q3. Changes in Thinking and Cognitive Engagement	Most experts observed that prolonged cognitive pressure gradually reduces depth of thinking and reflective engagement. Individuals increasingly rely on heuristics, routines, and simplified interpretations to manage excessive demands. Experts also noted forms of cognitive withdrawal, emotional distancing, reduced curiosity, and avoidance of complexity. At systemic levels, prolonged unresolved contradictions were associated with ideological rigidity, repetitive discourse, stagnation, and paradigm exhaustion similar to pre-crisis phases described in paradigm shift theories.	Cognitive Attenuation
Q4. Effects on Core Cognitive Capacities	Experts consistently reported deterioration in attention span, working memory, analytical reasoning, concentration, and clarity of thought under sustained cognitive pressure. Fragmentation of attention and reduced ability to synthesize information were frequently emphasized. At institutional and collective levels, experts described declining adaptability, weakened long-term strategic thinking, and impaired collective learning capacities when systems operate under continuous informational strain.	Cognitive Degradation
Q5. Executive Function and Adaptive Regulation	Experts observed that sustained cognitive saturation significantly weakens executive functioning. Individuals often struggle with prioritization, planning, decision-making, and self-regulation, leading either to paralysis or impulsive reactions. At organizational and systemic levels, experts identified rigid adherence to outdated frameworks, short-termism, defensive decision-making, and failures of adaptive governance as major consequences of excessive cognitive pressure.	Executive Breakdown
Q6. Defining Cognitive Saturation as a Multilevel Phenomenon	Experts generally defined cognitive saturation as a condition in which informational, interpretive, and adaptive demands exceed the processing capacities of individuals or systems over prolonged periods. They described the phenomenon as multidimensional, involving psychological, organizational, epistemological, technological, and societal dimensions. Many experts viewed cognitive saturation not merely as overload, but as a progressive process moving from informational excess toward cognitive attenuation, cognitive degradation, and eventually executive breakdown. Some experts further argued that cognitive saturation may represent a defining condition of contemporary digital societies and a precursor to institutional crisis or paradigm transformation.	Integrated Model of Cognitive Saturation

4. Discussion

The findings of this study suggest that cognitive saturation is a multidimensional condition emerging when cognitive, informational, and interpretive demands continuously exceed the adaptive processing capacities of individuals or systems. Based on the expert interviews, cognitive saturation does not appear as a singular event, but rather as a progressive process involving several interconnected dimensions that evolve under sustained exposure to complexity, information density, and continuous mental demands.

One of the most consistently identified dimensions was informational overload. Experts described contemporary environments as characterized by excessive volumes of information, accelerated communication flows, constant task switching, and increasing cognitive complexity. Participants emphasized that individuals are no longer exposed merely to “large amounts” of information, but to environments in which the speed, simultaneity, and density of incoming stimuli exceed normal cognitive processing capacities. This condition creates persistent pressure on attention and interpretation, producing mental fatigue and reduced capacity for meaningful synthesis. Experts also extended this condition beyond individuals, arguing that organizations, institutions, and knowledge systems increasingly struggle to absorb and respond to rapidly accumulating information and unresolved complexity. Informational overload therefore emerged as the foundational condition of cognitive saturation, representing the point at which incoming informational demands exceed manageable cognitive capacity.

A second dimension identified in the interviews was cognitive attenuation, which participants described as a gradual reduction in the depth and quality of cognitive engagement. Experts observed that prolonged exposure to excessive cognitive demands often produces adaptive withdrawal responses rather than continuous active engagement. Individuals begin to rely more heavily on simplified heuristics, repetitive routines, surface-level processing, and defensive simplifications in order to preserve limited cognitive resources. Several participants emphasized that this dimension is frequently overlooked in existing literature because cognitive functioning may appear externally active while internally becoming increasingly shallow. Experts further noted that cognitive attenuation can emerge collectively within organizations, ideological systems, or scientific paradigms, where prolonged exposure to unresolved contradictions leads to stagnation, symbolic repetition, and avoidance of complexity. In this sense, attenuation represents not simply exhaustion, but an adaptive reduction in cognitive depth in response to chronic overload.

The interviews also revealed a more severe dimension described here as cognitive degradation. Participants explained that sustained cognitive saturation eventually begins to impair core cognitive functions themselves. Experts repeatedly referred to fragmentation of attention, deterioration of working memory, reduced analytical reasoning, diminished concentration, and declining clarity of thought as major consequences of prolonged overload. Unlike temporary distraction or cognitive disruption, degradation reflects a deeper deterioration in the functional quality of cognition. Several experts linked this process to the inability to maintain coherent reasoning across increasingly fragmented informational environments. At broader systemic levels, participants suggested that similar forms of degradation may appear in institutions or knowledge systems through declining adaptive capacity, weakened

collective learning, and reduced ability to generate coherent long-term responses to emerging challenges.

A final dimension identified by the participants was executive breakdown, referring to the weakening or collapse of higher-order cognitive control processes responsible for directing cognition and behavior. Experts described how prolonged cognitive saturation impairs prioritization, planning, strategic thinking, self-regulation, and decision-making capacities. Individuals experiencing sustained cognitive pressure were often described as oscillating between decision paralysis and impulsive reactions, reflecting diminished executive control over cognitive processes. At organizational and systemic levels, executive breakdown appeared through rigid adherence to outdated frameworks, bureaucratic inertia, reactive short-termism, and inability to revise assumptions despite changing realities. Participants argued that when cognitive saturation reaches this stage, systems become increasingly defensive and resistant to adaptation, often preserving existing structures even when they are no longer functional.

Taken together, the findings suggest that cognitive saturation is not reducible to simple informational overload or temporary mental fatigue. Rather, it appears to involve a progressive multidimensional process beginning with excessive informational demands, followed by reductions in cognitive engagement, deterioration of core cognitive functions, and eventual breakdown of executive regulation. The interviews further indicate that cognitive saturation operates across multiple levels simultaneously, affecting individuals, organizations, paradigms, and broader social systems. These findings support the argument that cognitive saturation may represent an emerging condition of contemporary digital and knowledge-based societies characterized by accelerating complexity, continuous informational exposure, and diminishing adaptive capacity. Figure 1 demonstrates the dimensions of cognitive saturation.

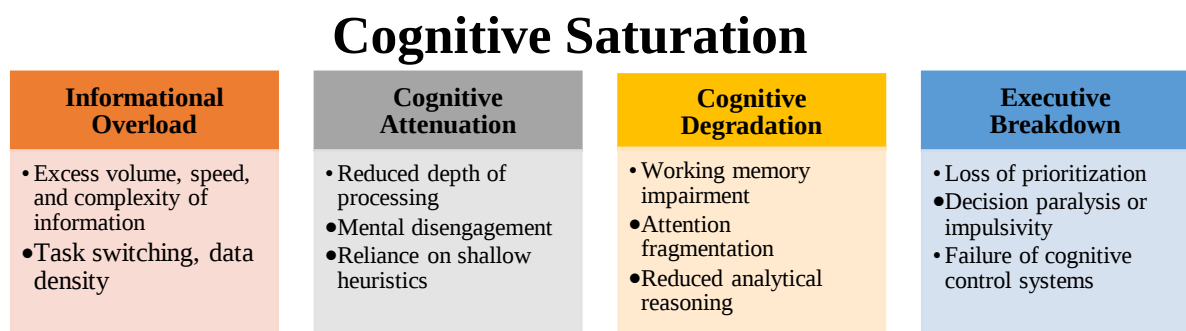


Figure 1. Cognitive Saturation's Dimension

5. Conclusion

This study explored the emerging concept of cognitive saturation within the broader framework of the Theory of Saturation proposed by Manafi. Drawing on qualitative expert interviews, the findings suggest that cognitive saturation is not limited to temporary overload or mental fatigue, but represents a broader multidimensional condition that develops when cognitive and interpretive demands continuously exceed adaptive capacities.

The study identified several interconnected processes associated with cognitive saturation, including excessive informational demands, reduced depth of cognitive engagement, deterioration of core cognitive functions, and weakening of executive regulation. Importantly, the findings indicate that cognitive saturation operates not only at the individual level, but also within organizations, institutional structures, paradigms, and broader social systems facing unresolved complexity and continuous informational pressure.

By examining cognitive saturation as a progressive and systemic phenomenon, this study contributes to the theoretical development of the Theory of Saturation and expands existing discussions on overload, cognition, and adaptation in contemporary digital societies. The findings further suggest that cognitive saturation may become an increasingly important framework for understanding the cognitive consequences of accelerated informational environments and rising societal complexity.

Future studies may expand the concept of cognitive saturation beyond the individual level by examining its structural, societal, and civilizational dimensions. One important direction is to investigate whether cognitive saturation can be understood as a defining structural condition of late modernity, digital societies, and knowledge economies characterized by continuous information acceleration, complexity, and uncertainty.

Further research may also explore how cognitive saturation varies across individuals, professions, cultures, institutions, and political systems, as different social and organizational contexts may shape both exposure to cognitive demands and adaptive responses to them. Comparative studies across occupational, cultural, and institutional settings could provide deeper insight into the variability of the phenomenon.

Another important area concerns the role of technology, artificial intelligence, digital media environments, and algorithmically accelerated information flows in intensifying cognitive saturation. Future work may examine how technological systems contribute to informational overload, fragmentation of attention, reduced cognitive depth, and changing forms of human and collective reasoning.

Historical and epistemological investigations may further explore whether periods preceding major paradigm shifts, institutional crises, or civilizational transformations exhibited characteristics of cognitive saturation. In this context, future studies may draw on examples from scientific revolutions, ideological crises, or societal collapses to examine how unresolved complexity and accumulated anomalies contribute to systemic cognitive exhaustion.

Additional research is also needed to identify mechanisms that may reduce or reverse cognitive saturation at both individual and systemic levels. Such mechanisms may include reflective practices, simplification processes, decentralization of decision-making, institutional redesign, cognitive recovery strategies, or paradigm transformation.

Finally, future scholarship may examine whether cognitive saturation is emerging as one of the defining conditions of contemporary society and assess its broader implications for knowledge production, governance, social cohesion, human cognition, and adaptive capacity in increasingly complex environments.

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