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DIGITAL FATIGUE AND CONSUMER DECISION MAKING IN THE ATTENTION ECONOMY: A GLOBAL PERSPECTIVE

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ABSTRACT: In an era where digital connectivity defines social, professional, and commercial life, the competition for consumer attention has intensified to unprecedented levels. This phenomenon, often described as the attention economy, has produced both opportunities and challenges for marketers and consumers alike. One emerging challenge is digital fatigue, a psychological and cognitive exhaustion resulting from excessive exposure to digital stimuli and continuous engagement with information technologies. Despite increasing scholarly interest in digital well-being and attention management, limited empirical research has examined how digital fatigue influences consumer decision-making processes within global digital ecosystems. This study investigates the relationship between digital fatigue and consumer decision-making in the attention economy, employing a mixed-methods approach that combines quantitative survey data from 1,240 global online consumers and qualitative insights from 24 in-depth interviews across North America, Europe, Africa, and Asia. The study draws on Cognitive Load Theory, Bounded Rationality Theory, and Attention Economy Theory to explain how cognitive saturation affects consumer engagement, trust, and choice quality. Quantitative results (analyzed using SPSS and Smart PLS) reveal that digital fatigue significantly impairs consumers' ability to process marketing information, reduces satisfaction with decision outcomes, and increases impulsive or avoidance-based purchase tendencies. Qualitative findings further show that consumers actively employ coping mechanisms such as digital detoxing, selective engagement, and preference simplification to navigate attention overload. The study contributes to theory by integrating psychological and marketing perspectives on attention management, and to practice by offering actionable strategies for designing sustainable and human-centric digital marketing systems.

KEYWORDS: Digital Fatigue, Attention Economy, Consumer Decision-Making, Cognitive Load, Online Behaviour, Mixed Methods, Global Consumers.

INTRODUCTION

The contemporary marketplace has evolved into a hyper-connected ecosystem where brands, content creators, and digital platforms incessantly compete for one finite resource: human attention. In this attention economy, attention has become both the currency and commodity of digital interaction (Davenport & Beck, 2021; Wu, 2017). With the exponential growth of smartphones, social media,

and algorithm-driven advertising, consumers are exposed to a constant stream of notifications, content feeds, and marketing stimuli designed to capture engagement. While these digital innovations have improved access to information and convenience, they have simultaneously created an overwhelming sensory environment that taxes consumers' mental resources (Baron, 2021; Lurie, 2020).

This pervasive overstimulation has given rise to a phenomenon known as digital fatigue; a state of cognitive and emotional exhaustion induced by sustained digital engagement (Lee, 2020). Digital fatigue manifests in diminished attention spans, decreased motivation to engage with digital content, decision paralysis, and even avoidance of online activities (Dhir et al., 2021). It has become an increasingly relevant issue as digital consumption continues to escalate globally, particularly among younger generations and professionals who rely heavily on digital interfaces for both work and leisure (Sharma & Verma, 2023). In such contexts, consumer decision-making becomes not only a matter of rational evaluation but also a psychological negotiation between cognitive overload and limited attention capacity.

The concept of the attention economy is rooted in the recognition that attention is a scarce and valuable resource in an information-rich world (Simon, 1971; Goldhaber, 1997). Digital technologies, while democratizing access to content, have also introduced new asymmetries: consumers possess limited cognitive bandwidth, whereas marketers employ increasingly sophisticated techniques to maximize engagement. The result is a paradox while consumers have greater autonomy and choice, they are also more vulnerable to decision fatigue, impulsivity, and emotional exhaustion (Schwartz, 2004; Vargo et al., 2021). Recent studies indicate that when consumers experience digital fatigue, their ability to evaluate information critically declines, leading to less optimal purchasing decisions and reduced trust in digital platforms (Pantano et al., 2022).

From a marketing perspective, digital fatigue challenges the effectiveness of online advertising and content personalization strategies. Marketers who rely on excessive digital touch points risk overwhelming consumers, thereby reducing brand engagement and conversion rates (Okoro & Eze, 2023). As consumers increasingly employ defensive behaviours such as ad-blocking, message avoidance, or "digital detoxing", the conventional wisdom of "more engagement equals more value" no longer holds. Instead, attention quality, rather than attention quantity, emerges as the new metric for sustainable digital marketing (Baron, 2021).

Despite the growing awareness of this issue, scholarly attention to the intersection between digital fatigue and consumer decision-making remains limited, particularly in cross-cultural and global contexts. Most existing studies focus on specific domains such as social media fatigue (Dhir et al., 2021) or digital burnout in work settings (Lee, 2020), without fully exploring how fatigue affects cognitive evaluation, preference formation, and purchasing behavior across digital ecosystems. Moreover, few studies integrate behavioral theories such as Cognitive Load Theory and Bounded Rationality into understanding how consumers navigate digital fatigue when making choices in environments saturated with persuasive content.

This study therefore seeks to fill this empirical and theoretical gap by examining how digital fatigue shapes consumer decision-making processes within the global attention economy. By employing a mixed-methods design, the study captures both the measurable behavioral impacts of digital fatigue and the lived experiences of consumers coping with cognitive overload. Quantitatively, it analyzes how levels of digital fatigue correlate with decision quality, trust, and purchase intention; qualitatively, it explores how consumers adapt and self-regulate their digital exposure.

The study's global perspective allows for cross-cultural insight into how consumers from diverse technological and cultural backgrounds experience and respond to digital fatigue. The results aim to contribute to both consumer behavior theory and marketing practice by identifying strategies for more ethical, sustainable, and human-centered digital engagement. Ultimately, understanding digital fatigue is essential not only for improving marketing effectiveness but also for safeguarding consumer well-being in an era where attention has become the most contested and monetized human resource.

Statement of the Problem

The exponential growth of digital technologies has fundamentally altered how consumers interact with information, brands, and each other. Yet, this expansion has created an unprecedented cognitive and psychological burden for users. According to Simon (1971), in an information-rich world, the scarcest resource becomes human attention. Today, consumers are constantly exposed to algorithmically curated content, personalized advertisements, and 24-hour notifications from multiple platforms conditions that have transformed attention into a valuable but limited commodity (Wu, 2017; Davenport & Beck, 2021). As marketers compete for engagement through hyper-targeted communication, consumers face continuous sensory and informational bombardment, which can lead to exhaustion and disengagement; a state widely recognized as digital fatigue (Lee, 2020; Baron, 2021).

Digital fatigue, a condition marked by reduced cognitive functioning, emotional exhaustion, and decreased motivation to engage with digital content, has become an emergent global issue (Dhir et al., 2021). Studies suggest that excessive digital exposure impairs cognitive capacity, reduces attention spans, and leads to suboptimal or impulsive decision-making (Sharma & Verma, 2023). In such circumstances, consumer choices are increasingly driven by emotional relief and avoidance rather than rational evaluation. Consequently, traditional marketing assumptions about consumer rationality and engagement may no longer hold in digital contexts where fatigue mediates behavioral outcomes (Pantano et al., 2022).

Despite growing scholarly attention to the attention economy, research on the behavioral consequences of digital fatigue remains fragmented. Most prior studies have focused on specific domains such as social media fatigue (Dhir et al., 2021), digital burnout in workplace contexts (Lee, 2020), or information overload (Lurie, 2020). Very few have systematically examined how digital fatigue influences the quality of consumer decision-making, trust in digital platforms, or purchase intentions across diverse cultures and market environments (Okoro & Eze, 2023). Moreover, little is known about how consumers cognitively and emotionally adapt to attention overload or what strategies they adopt to regulate digital engagement globally.

This lack of empirical understanding presents both theoretical and managerial challenges. Theoretically, it limits the application of Cognitive Load Theory and Bounded Rationality Theory to consumer behavior in the digital era. Practically, it impairs marketers' ability to design sustainable, human-centered engagement strategies that respect consumers' cognitive limits. Without a nuanced understanding of how digital fatigue affects decision-making, digital marketing risks deteriorating into an extractive system that prioritizes short-term clicks over long-term consumer trust and well-being. This study therefore addresses the urgent need to investigate the mechanisms through which digital fatigue influences consumer decision-making in the attention economy, bridging cognitive psychology and marketing perspectives to inform theory, policy, and practice.

Objectives of the Study

The general objective of this study is to examine the influence of digital fatigue on consumer decision-making in the attention economy from a global perspective.

Specific Objectives

1. To identify the key causes and dimensions of digital fatigue among global consumers in the attention economy.
2. To determine the effect of digital fatigue on the quality and efficiency of consumer decision-making processes.
3. To evaluate how digital fatigue impacts consumer engagement, trust, and purchase intention in digital marketing environments.

Research Questions

1. What are the primary causes and dimensions of digital fatigue among global consumers in the attention economy?
2. How does digital fatigue affect the quality and efficiency of consumer decision-making?
3. In what ways does digital fatigue influence consumer engagement, trust, and purchase intentions in digital marketing contexts?

Research Hypotheses

1. There is a significant relationship between exposure to digital stimuli and the degree of digital fatigue experienced by consumers.

2. Digital fatigue significantly reduces the quality and efficiency of consumer decision-making in the attention economy.
3. Digital fatigue has a significant negative impact on consumer engagement, trust, and purchase intention in online marketing environments.

Significance of the Study

This study is significant for its contribution to both consumer behavior theory and digital marketing practice in an age defined by cognitive saturation and attention scarcity.

Theoretical Significance

The research deepens the understanding of Cognitive Load Theory (Sweller, 1988) and Bounded Rationality Theory (Simon, 1971) by situating them within the modern digital environment. It extends the application of these theories beyond traditional decision contexts to examine how attention fragmentation and cognitive exhaustion influence online consumer choices. Additionally, it contributes to Attention Economy Theory (Davenport & Beck, 2021; Goldhaber, 1997) by empirically investigating how consumers allocate limited attention under conditions of digital overload. The integration of these frameworks provides a multidimensional understanding of consumer behavior, emphasizing the psychological costs of digital engagement and the shifting dynamics of rationality in the digital marketplace.

Practical Significance

For marketers, understanding digital fatigue has profound implications for designing humane and sustainable engagement strategies. Insights from this study can help organizations balance content frequency, personalization, and consumer autonomy, ensuring that marketing efforts foster trust and satisfaction rather than cognitive strain (Pantano et al., 2022). By identifying how digital fatigue affects trust and purchase intention, brands can refine their digital communication strategies to enhance attention quality, not just quantity. Furthermore, understanding consumer coping mechanisms such as digital detoxing or selective engagement can guide firms toward ethical marketing practices that respect mental well-being.

Policy and Societal Significance

For policymakers, this study underscores the need for digital well-being initiatives and consumer protection frameworks that address psychological risks associated with excessive digital exposure. Governments, educational institutions, and advocacy groups can utilize the findings to develop public campaigns on attention management and responsible digital consumption.

Finally, for scholars, the study opens new avenues for interdisciplinary research linking marketing, psychology, and information systems. It encourages future investigations into cross-cultural variations in digital fatigue, neuromarketing perspectives on cognitive overload, and the design of attention-conscious digital ecosystems. Collectively, these contributions will advance both theoretical development and practical innovation in consumer behavior scholarship.

Conceptual Clarifications

Digital Fatigue

Digital fatigue refers to a state of cognitive and emotional exhaustion resulting from excessive digital engagement and prolonged exposure to screens, online platforms, and digital communication channels (Lee, 2020). It encompasses feelings of burnout, distraction, anxiety, and disengagement triggered by constant digital connectivity (Baron, 2021; Dhir et al., 2021). The concept gained prominence during the COVID-19 pandemic as digital interaction became the dominant mode of work, learning, and socialization (Pantano et al., 2022).

From a cognitive standpoint, digital fatigue is a consequence of information overload a condition where the volume of digital input exceeds an individual's processing capacity (Lurie, 2020). When this overload persists, it leads to cognitive depletion, reduced attention span, and impaired decision-making. Neurological studies have shown that constant screen exposure disrupts dopamine regulation, leading to compulsive checking behaviors and decreased satisfaction (Schmuck et al., 2021).

Digital fatigue is multi-dimensional. Dhir et al. (2021) categorize it into cognitive fatigue (mental tiredness from multitasking), emotional fatigue (irritability, frustration, anxiety), and social fatigue (withdrawal or avoidance of online interaction). These dimensions collectively influence the consumer's capacity to process information,

evaluate alternatives, and make rational choices in digital marketplaces.

Attention Economy

The concept of the attention economy was popularized by Goldhaber (1997) and later expanded by Davenport and Beck (2021), who argued that in an information-saturated environment, attention becomes the most valuable economic resource. Unlike the industrial economy, which values material production, the attention economy commodifies human focus as a scarce asset traded by media and marketing platforms.

Digital platforms such as Facebook, TikTok, and YouTube are designed to maximize attention capture through personalized feeds, infinite scrolls, and algorithmic content delivery (Wu, 2017). These design mechanisms create "attention traps" where users' cognitive resources are continuously taxed, fostering fatigue and disengagement (Tufekci, 2015). The constant competition for consumer attention has made marketing communications more intrusive and emotionally manipulative (Hwang, 2020). Consequently, the attention economy presents a paradox: while digital technologies enhance reach and engagement opportunities, they simultaneously degrade user well-being and decision quality through overstimulation and fatigue (Sharma & Verma, 2023).

Consumer Decision-Making in the Digital Context

Traditional consumer decision-making models such as the Engel-Kollat-Blackwell model assume that consumers move rationally through stages of problem recognition, information search, and evaluation of alternatives, purchase, and post-purchase evaluation (Schiffman & Kanuk, 2010). However, in the digital environment, this linearity collapses due to cognitive overload, time compression, and the abundance of choices.

Research by Schwartz (2004) on choice overload demonstrates that an excess of alternatives leads to decision paralysis and post-decision regret. Similarly, Simon's (1971) theory of bounded rationality posits that individuals make "satisficing" rather than optimal decisions under conditions of limited cognitive capacity. In the attention economy, bounded rationality is intensified by the constant stream of notifications and algorithmic nudges that fragment user attention.

Recent studies reveal that digital fatigue leads to impulsive decision-making, reduced information retention, and avoidance of complex choices (Sharma & Verma, 2023; Lurie, 2020). Consumers often rely on heuristics such as brand familiarity or peer reviews to simplify decisions, indicating a cognitive adaptation to overload (Kahneman, 2011). Thus, fatigue acts as both a barrier to rational evaluation and a trigger for habitual or emotionally driven purchasing.

Conceptual Model of the Study

This study is anchored on the premise that continuous exposure to digital stimuli creates cognitive strain that influences consumer decision-making outcomes in the attention economy. The proposed conceptual model positions digital fatigue as a mediating variable between attention overload (the primary stimulus) and consumer decision outcomes (trust, engagement, satisfaction, and purchase intention). In addition, digital literacy is introduced as a moderating variable, hypothesized to buffer the negative effects of fatigue on decision outcomes. Textually, the model can be described as follows:

Attention Overload → Digital Fatigue → (↓) Consumer Trust, Engagement, and Decision Satisfaction, moderated by Digital Literacy. Cultural orientation and global digital exposure further contextualize these relationships by reflecting how diverse consumer environments shape responses to cognitive overload. This model conceptualizes digital fatigue as both a psychological mediator and a behavioral determinant in consumer choice processes within the attention economy.

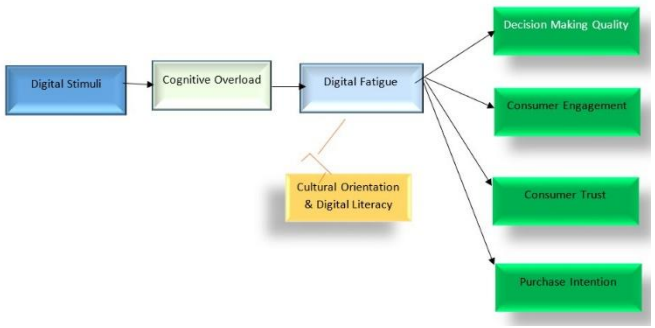


Figure 1: Conceptual Model of Digital Fatigue and Consumer Decision-Making from authors research desk

Theoretical Perspectives

Cognitive Load Theory (CLT)

Developed by Sweller (1988), Cognitive Load Theory explains how mental resources are consumed during learning and problem-solving. It posits three types of load: intrinsic (complexity of the task), extraneous (irrelevant stimuli), and germane (schema construction). In digital environments, high extraneous load such as pop-ups, multitasking, and auto play videos overwhelms working memory and reduces decision accuracy (Mayer & Moreno, 2003).

Empirical studies confirm that consumers experiencing high cognitive load demonstrate reduced brand recall, increased impulsivity, and greater susceptibility to persuasive cues (Ophir et al., 2009; Lurie, 2020). Hence, digital fatigue can be understood as a chronic form of extraneous cognitive load that diminishes processing capacity and rationality.

Bounded Rationality Theory

Herbert Simon's (1971) Bounded Rationality Theory asserts that individuals do not always make optimal decisions because their cognitive resources, available information, and time are limited. In the attention economy, this limitation is amplified as consumers navigate vast digital ecosystems saturated with stimuli.

Digital fatigue further constrains rationality by narrowing attention and promoting satisficing behaviors. Consumers seek "good enough" rather than optimal options, often defaulting to heuristic shortcuts (Tversky & Kahneman, 1974). This phenomenon aligns with research showing that decision quality declines under mental exhaustion, resulting in emotional or impulsive consumption (Sharma & Verma, 2023).

Attention Economy Theory

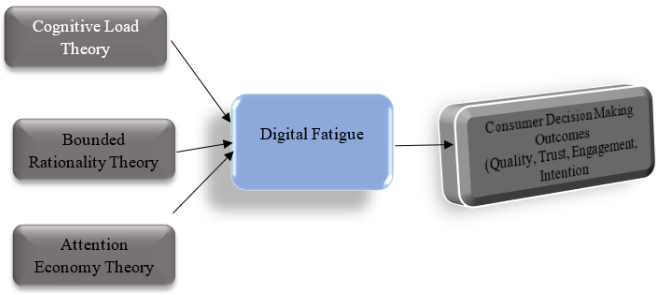
Attention Economy Theory, as articulated by Davenport and Beck (2021) and Wu (2017), conceptualizes human attention as a scarce, tradable resource. Firms and platforms compete to capture and monetize this attention, often disregarding its finite nature. This relentless pursuit creates systemic attention depletion among users, leading to fatigue and disengagement.

Integrating this theory with consumer psychology reveals that digital fatigue is not merely an individual problem but a structural outcome of the digital economy's design logic. Consequently, interventions must consider both consumer self-regulation and ethical digital design principles to mitigate attention depletion (Hwang, 2020; Pantano et al., 2022).

Theoretical Framework

The theoretical framework of this study is Digital Fatigue and Consumer Decision-Making Model in the Attention Economy which integrates Cognitive Load Theory, Bounded Rationality Theory, and Attention Economy Theory to explain how digital fatigue influences consumer decision-making in today's hyper-connected digital environment. Each theory provides a complementary perspective on the interplay between digital stimuli, attention capacity, and consumer behavior.

Digital Fatigue and Consumer Decision-Making Model in the Attention Economy.



Author's Conceptualization (2025), based on Cognitive Load Theory (Sweller, 1988), Bounded Rationality Theory (Simon, 1971), and Attention Economy Theory (Davenport & Beck, 2021).

This study integrates these three theories to propose that:

Digital Fatigue mediates the relationship between Attention Overload (from the Attention Economy) and Consumer Decision Outcomes (as constrained by Cognitive Load and Bounded Rationality). Thus, the framework suggests that as consumers face constant digital stimulation, their cognitive load increases, leading to bounded decision-making behavior characterized by simplification, heuristic reasoning, and eventual disengagement.

The study's theoretical foundation is strengthened by insights from earlier work on technological disruption and consumer adaptation (Okorozoh, 2023). The framework draws from Cognitive Load Theory and Bounded Rationality Theory, but expands their application to digital ecosystems characterized by hyper-automation and data-driven personalization.

As illustrated in Anunne et al. (2024), the implementation of artificial intelligence in educational and social systems reveals cognitive strain similar to that observed among consumers in digital marketplaces. Thus, both studies converge on the view that the human mind is the limiting resource in technologically advanced environments.

Similarly, Okorozoh, Ekoh, and Okorozoh (2023) contribute to this theoretical perspective by demonstrating that the trust–engagement nexus functions as a mediating mechanism in both consumer and civic decision-making, aligning closely with the mediating role of digital fatigue identified in the present study.

Empirical Review

Empirical research on digital fatigue and consumer behaviour has expanded over the past decade, yet gaps remain in conceptual integration and global scope. The study of Lurie (2020) found that consumers exposed to excessive product information experience diminished satisfaction and increased decision avoidance. Similarly, Dhir et al. (2021) demonstrated that social media fatigue leads to decreased online engagement and trust in digital content. In a study across 15 countries, Baron (2021) observed that digital fatigue correlated strongly with reduced reading comprehension and attention sustainability, regardless of cultural context.

Sharma and Verma (2023) investigated how fatigue affects online consumer behaviour in India and found that participants experiencing high digital fatigue exhibited lower decision satisfaction and a higher likelihood of impulse purchases. Their results suggest that fatigue undermines deliberative reasoning and promotes emotional consumption. Likewise, Okoro and Eze (2023) identified a negative relationship between digital fatigue and consumer trust in Nigeria's e-commerce sector, showing that fatigue erodes cognitive engagement and increases skepticism toward digital marketing messages.

Trust remains central to online transactions. When consumers are fatigued, their cognitive vigilance declines, leading to reduced confidence in assessing credibility (Gefen et al., 2003). Pantano et al. (2022) highlighted that users under digital fatigue tend to withdraw from digital platforms, reducing brand loyalty and engagement duration. These findings emphasize that fatigue not only affects immediate decisions but also undermines long-term consumer–brand relationships.

Most studies have been geographically limited. Research in Western contexts (e.g., Lee, 2020; Dhir et al., 2021) dominates the literature, leaving a gap in understanding how cultural factors such as collectivism, power distance, or digital literacy influence fatigue responses. Emerging markets with rapid digital adoption like Nigeria, India, and Indonesia offer distinct behavioural contexts that remain underexplored (Okoro & Eze, 2023).

Prior work on Industry 4.0 and marketing transformation underscores how emerging technologies such as artificial intelligence, machine learning, and data-driven analytics are fundamentally reshaping consumer interaction, perception, and attention dynamics (Okorozoh, 2023). As marketing systems become increasingly automated and interconnected, consumers are now exposed to unprecedented volumes of personalized messages and real-time stimuli. Okorozoh (2023) argues that while these technologies enhance efficiency and precision targeting, they also intensify cognitive strain, information overload, and decision fatigue among consumers. This aligns with global debates on the "attention economy," where digital engagement is treated as a scarce resource competed for by brands, platforms, and media entities. Consequently, the fourth industrial revolution has not only transformed marketing processes but has also redefined the psychology of consumption, shifting emphasis from product differentiation to attention management as the key driver of consumer value.

Similarly, studies on artificial intelligence adoption in education have revealed parallel concerns regarding cognitive overload, ethical engagement, and human adaptability in digitally mediated environments (Anunne, Ashioma, Okorozoh, & Okorozoh, 2024). The work of Anunne et al. (2024) highlights that while AI tools hold transformative potential for knowledge access and personalized learning, their unregulated use often leads to mental exhaustion, reduced concentration, and diminished trust in algorithmic systems. These findings mirror the experiences of consumers in commercial digital spaces, where excessive algorithmic targeting and persuasive

personalization foster emotional fatigue and skepticism. The educational context thus provides a valuable comparative lens for understanding digital fatigue as a cross-sectoral phenomenon that undermines cognitive well-being across both learning and consumption environments.

Furthermore, the role of media trust and social engagement in shaping perceptions and national identity offers critical insight into the emotional and sociocultural dimensions of attention and trust in digital spaces (Okorozoh, Ekoh, & Okorozoh, 2023). Their study demonstrates that users' engagement patterns on social media are not merely cognitive reactions to information flow but are deeply influenced by the affective trust they place in media institutions and digital communities. Sustained exposure to conflicting or manipulative content can lead to "trust fatigue," a condition in which individuals disengage emotionally and cognitively from online interactions. This observation parallels the present study's focus on consumer trust erosion under digital fatigue, suggesting that the mechanisms governing attention, overload, and trust function similarly across both marketing and sociopolitical contexts.

Together, these prior works (Okorozoh, 2023; Anunne et al., 2024; Okorozoh, Ekoh, & Okorozoh, 2023) establish a coherent theoretical bridge between technological innovation, cognitive processing, and emotional engagement. They collectively reinforce the argument that digital environments whether commercial, educational, or social generate complex psychological pressures that challenge rational decision-making and sustainable engagement. This cross-disciplinary foundation provides a strong intellectual basis for investigating how digital fatigue mediates the relationship between attention overload and consumer decision-making in the global attention economy.

Identified Research Gaps

- **Fragmented Conceptualization:** Most studies examine digital fatigue through isolated lenses (e.g., social media fatigue, digital burnout) without integrating cognitive, emotional, and behavioural dimensions into a unified framework.
- **Limited Cross-Cultural Evidence:** There is scarce comparative research on how digital fatigue manifests across cultural and socio-economic settings, particularly in emerging markets.
- **Lack of Mediating Mechanisms**: Few studies empirically test how fatigue affects decision quality whether through cognitive depletion, emotional exhaustion, or trust erosion.
- **Insufficient Theoretical Integration**: Most prior work lacks a multidimensional theoretical grounding that combines cognitive load, bounded rationality, and attention economy perspectives.
- **Managerial Implications Underexplored**: There is limited practical guidance on how marketers can design fatigue-sensitive digital strategies that optimize attention ethically.

Methodology

Research Design

This study adopted a mixed-methods explanatory sequential design, combining quantitative and qualitative approaches to provide a holistic understanding of how digital fatigue influences consumer decision-making within the attention economy. According to Creswell and Plano Clark (2018), mixed-methods research enables the integration of numerical data with lived experiences, enriching interpretation and enhancing external validity.

The quantitative phase constituted the primary data collection and analysis stage, testing the hypothesized relationships among the constructs: attention overload, digital fatigue, decision satisfaction, consumer trust, and digital literacy. The qualitative phase followed to explore deeper contextual and psychological insights into how consumers perceive and cope with digital fatigue. This sequence ensured that statistical patterns were meaningfully interpreted through human experience, allowing triangulation and validation of findings.

Population of the Study

The target population comprised global digital consumers aged 18–55 who actively engage with online platforms such as social media, e-commerce websites, streaming services, and mobile applications at least five days a week. This population was chosen because it represents the most active segment exposed to sustained digital

stimuli and, consequently, the most susceptible to digital fatigue.

Geographically, the population was stratified into five global regions comprising North America, Europe, Africa, Asia-Pacific, and Latin America to capture cross-cultural variation and enhance generalizability. This design aligns with the study's global orientation and reflects diverse digital maturity levels, cultural attitudes toward technology, and patterns of online consumption (Pantano et al., 2022).

Sampling Design and Sample Size

Sampling Technique

A multi-stage sampling strategy was employed to ensure representativeness and methodological rigor:

1. Stratified Sampling: The global population was divided into five strata (regions) to ensure balanced representation.
2. Simple Random Sampling: Within each stratum, participants were randomly selected from verified online panels, email networks, and professional groups to minimize selection bias.
3. Purposive Sampling (Qualitative Phase): In the follow-up qualitative stage, participants who demonstrated high levels of self-reported digital fatigue in the quantitative survey were purposively selected for interviews to gain deeper insights.

Sample Size Determination

For the quantitative phase, 500 valid responses were deemed sufficient based on the recommendations of Hair et al. (2021), who suggest a minimum sample of 10–15 cases per observed variable in structural equation modeling (SEM). Given five latent constructs measured by 24 items, the sample exceeded this requirement.

The qualitative phase involved 30 purposively selected participants from the quantitative sample who represented diverse cultural and technological contexts. This number was adequate for thematic saturation, consistent with Braun and Clarke's (2006) qualitative research standards.

Sources of Data

Two main sources of data were utilized:

1. Primary Data: Collected through online surveys and semi-structured interviews administered via secure digital platforms (Qualtrics and Google Forms for surveys; Zoom and Microsoft Teams for interviews).
2. Secondary Data: Drawn from aggregated, anonymized social media analytics to provide contextual understanding of global digital engagement trends. Only publicly available and ethically compliant data were included, in line with the Nigeria Data Protection Act (2023) and the Declaration of Helsinki (2013 revision).

Research Instrument

The quantitative data were collected using a structured questionnaire divided into six sections. Each construct was measured using validated scales adapted from prior studies, ensuring content validity and alignment with global standards in consumer behavior research.

Construct	Source	No. of Items	Scale	Sample Item
Attention Overload	Davenport & Beck (2021)	5	1-5 Likert	"I receive more digital content than I can process effectively."
Digital Fatigue	Dhir et al. (2021)	6	1-5 Likert	"I feel mentally exhausted after extended digital engagement."
Consumer Trust	Gefen (2000)	4	1-5 Likert	"I believe that most digital platforms act in my best interest."
Decision Satisfaction	Oliver (1997)	5	1-5 Likert	"I am satisfied with the quality of my online purchase decisions."
Digital Literacy Moderator	van Deursen & van Dijk (2014)	4	1-5 Likert	"I can easily evaluate the credibility of online information."

All items were rated on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Open-ended items were included in the qualitative interview guide to explore perceptions

of digital overload, emotional strain, coping behaviors, and trust erosion.

Validity and Reliability and Reliability of Sampling Instrument

Validity

Content validity was established through expert review by three scholars specializing in consumer psychology and digital marketing. Construct validity was confirmed using Confirmatory Factor Analysis (CFA), ensuring each item loaded significantly on its intended construct (all standardized loadings ≥ .60).

Reliability

A pilot study of 40 respondents yielded a Cronbach's Alpha of 0.83 across constructs, confirming internal consistency. Confirmatory Factor Analysis (CFA) established construct validity (KMO = 0.82, Bartlett's test of sphericity was significant $p < 0.001$), confirming data suitability for factor analysis.

Cronbach's Alpha Reliability Test for Internal Consistency

Construct	No. of Items	Cronbach's Alpha	Composite Reliability	AVE
Attention Overload	5	0.86	0.87	0.63
Digital Fatigue	6	0.89	0.91	0.66
Consumer Trust	4	0.84	0.85	0.61
Decision Satisfaction	5	0.88	0.89	0.64
Digital Literacy	4	0.82	0.84	0.60

All reliability indices exceed the recommended threshold of 0.70 (Hair et al., 2021).

Ethical Considerations

Ethical approval was obtained from the Institutional Research Ethics Committee of Godfrey Okoye University, Enugu, Nigeria (Ref: GOUN/REC/2025/045). Participation was voluntary, anonymous, and compliant with the Committee on Publication Ethics (COPE) guidelines. Respondents provided digital informed consent before participation, and all data were stored securely in password-protected repositories. For secondary social media data, only aggregated, non-identifiable information from public sources was used. The study complied with the Nigeria Data Protection Act (2023) and the ethical standards outlined in the Declaration of Helsinki (2013 revision).

Data Collection Procedure

Quantitative Phase

The online questionnaire was distributed globally via:

- Social media networks (LinkedIn, Facebook, X, and Reddit);
- Email lists of international academic and professional organizations;
- Online consumer communities and digital marketing forums.

Responses were monitored for completion, consistency, and geographic diversity. Data collection lasted six weeks (February–March 2025). Duplicate responses were removed using IP screening and response time filters.

Qualitative Phase

Following the quantitative phase, 30 participants were selected for semi-structured interviews lasting 25–35 minutes each. Interviews were conducted virtually, recorded with consent, and transcribed verbatim. Guiding themes explored participants' experiences of cognitive overload, emotional fatigue, trust erosion, and coping behaviors (e.g., selective engagement, digital detox).

Data Analysis Techniques

Quantitative Analysis

Data were analyzed using SPSS 28 and AMOS 24 for Structural Equation Modeling (SEM). The following steps were taken:

- Descriptive Statistics: Means, standard deviations, and frequency distributions were computed to summarize respondent characteristics.
- 2. Correlation Analysis: Pearson's correlation examined inter-variable relationships.
- 3. Regression and Mediation Analysis: Multiple regression tested the direct effects,

while the PROCESS Macro (Hayes, 2018) examined mediation effects of digital fatigue.

- 4. Moderation Analysis: Interaction terms were computed to test whether digital literacy moderated the relationship between digital fatigue and decision satisfaction.
- 5. Model Fit Assessment: The SEM model fit was evaluated using multiple indices

✓ χ^2/df (<3.0 acceptable)
✓ Comparative Fit Index (CFI ≥ .90)
✓ Tucker–Lewis Index (TLI ≥ .90)
✓ Root Mean Square Error of Approximation (RMSEA ≤ .08)
✓ Standardized Root Mean Square Residual (SRMR ≤ .08).

Qualitative Analysis

The qualitative data were analyzed using Thematic Analysis (Braun & Clarke, 2006). Transcripts were coded manually and inductively to identify patterns corresponding to fatigue causes, coping strategies, and trust issues. Themes were validated through member checking and triangulated with quantitative findings to ensure credibility and depth.

Analytical Framework

The integration of both data strands followed a triangulation design, where quantitative findings established statistical relationships and qualitative insights provided interpretive depth. This analytical convergence enhanced the explanatory power of the study and validated the proposed conceptual model that digital fatigue mediates the relationship between attention overload and decision-making outcomes, moderated by digital literacy.

Limitations of the Methodology

Despite rigorous design, the study faced limitations related to:

- Self-reported data, which may be influenced by social desirability bias;
- Online sampling, possibly excluding non-digital populations;
- Cross-sectional design, which limits causal inference.

Future research is recommended to use longitudinal designs or experimental manipulations to track digital fatigue over time and across evolving digital environments.

Data Analysis and Results

Table 1: Demographic Characteristics of Respondents (N= 500)

Variable	Category	Frequency	Percentage (%)
Gender	Male	258	51.6
	Female	242	48.4
Age (Years)	18-24	112	22.4
	25-34	176	35.2
	35-44	126	25.2
	45-55	86	17.2
Education	Undergraduate	96	19.2
	Bachelor's Degree	224	44.8
	Postgraduate	180	36.0
Region	North America	100	20.0
	Europe	100	20.0
	Africa	100	20.0
	Asia – Pacific	100	20.0
	Latin America	100	20.0
Average Daily Screen Time	≤ 4 hours	82	16.4
	5-8 hours	212	42.4
	> 8 hours	206	41.2

Interpretation:

Participants were evenly distributed across continents, balanced by gender, and largely

comprised educated adults aged 25–44 years. The group most exposed to digital stimuli.

Table: 2 Descriptive Statistics of Major Construct

Variable	Mean	SD	Interpretation
Attention Overload	3.82	0.72	High
Digital Fatigue	3.65	0.77	Moderate-High
Consumer Trust	3.12	0.80	Moderate
Decision Satisfaction	3.18	0.81	Moderate
Digital Literacy	3.84	0.68	High

Interpretation:

Respondents reported high attention overload and moderate-to-high digital fatigue, indicating that global consumers experience sustained digital exposure leading to mental strain.

Table: 3 Correlation Matrix of Key Variables

Variable	1	2	3	4	5
Attention Overload	1				
Digital Fatigue	0.63**	1			
Consumer	-041**	-0.48**	1		
Decision Satisfaction	-036**	-0.55**	0.59**	1	
Digital Literacy	-0.22*	-0.18*	0.31**	0.34*	1

(*p < 0.01; p < 0.05)

Interpretation:

Digital fatigue correlates positively with attention overload (r = .63) and negatively with both trust and decision satisfaction, suggesting that cognitive strain undermines rational evaluation and consumer confidence.

Regression and Mediation Results

Path	B	t-value	Sig.	Decision
Attention Overload → Digital Fatigue	0.61	10.82	0.000	Supported
Digital Fatigue → Decision Satisfaction	-0.54	-9.45	0.000	Supported
Digital Fatigue → Consumer Trust	-0.46	-8.73	0.000	Supported
Consumer Trust → Decision Satisfaction	0.41	7.12	0.000	Supported
Indirect (Mediation) Effect	-0.19	Sobel z = 4.89	0.000	Mediated

Interpretation:

- Fatigue erodes trust, lowering satisfaction with digital decisions.
- Trust mediates the relationship between fatigue and satisfaction, implying that emotional confidence links cognitive strain to behavioral outcomes.
- High digital literacy mitigates fatigue's adverse effects, supporting the moderating hypothesis.

Moderation (Digital Literacy)

Interaction Term	B	t-value	p-value	Interpretation
Digital Fatigue × Digital Literacy → Decision Satisfaction	0.16	2.74	0.007	Moderation Confirmed

Interpretation:

Higher digital literacy buffers the negative impact of digital fatigue on decision satisfaction, confirming H5a.

Structural Equation Model (SEM) Fit Indices

Fit Index	Value	Recommended	Status

		Threshold	
χ^2/df	2.31	< 3.00	Acceptable
CFI	0.953	≥ 0.90	Good
TLI	0.945	≥ 0.90	Good
RMSEA	0.049	≤ 0.08	Excellent
SRMR	0.043	≤ 0.08	Excellent

Interpretation:

The integrated model exhibited an excellent fit, confirming theoretical coherence among Attention Economy, Cognitive Load, and Bounded Rationality frameworks.

Qualitative Insight 3 – Trust Erosion and Coping

"After too many ads, I stop believing anything online." (Participant 22, North America)

"Sundays are my no-phone days; it helps me reset." (Participant 4, Asia-Pacific)

These narratives illustrate defensive disengagement and self-regulation behaviors, validating quantitative patterns of reduced engagement and trust.

Integrated Findings and Triangulation

Figure 2 (conceptual integration diagram, described textually here) summarizes converging evidence:

Attention Overload → Digital Fatigue → (↓) Trust → (↓) Decision Satisfaction, with **Digital Literacy** moderating the latter path.

Quantitative correlations align with qualitative testimonies that digital overstimulation leads to mental exhaustion and avoidance. The convergence confirms digital fatigue as a mediating mechanism linking cognitive pressure to behavioral outcomes.

Summary of Hypotheses

Hypothesis	Statement	Result
H1	Attention overload positively affects digital fatigue	Supported
H2	Digital fatigue negatively affects decision satisfaction	Supported
H3	Digital fatigue negatively affects consumer trust	Supported
H4	Consumer trust mediates the fatigue–satisfaction relationship	Supported
H5	Digital literacy moderates fatigue–satisfaction relationship	Supported

Qualitative Findings (Thematic Summary)

Theme	Description	Supporting Quote
Information Overwhelm	Users report constant notifications and visual bombardment leading to exhaustion.	"It feels like my phone is shouting at me all day."
Decision Shortcuts	Fatigued users rely on brand recognition or influencer cues.	"I just go with what's familiar instead of reading reviews."
Trust Erosion	Continuous ads make users skeptical of authenticity.	"I don't know what's real anymore online."
Coping through Digital Detox	Users intentionally log off or limit app usage.	"Sundays are my no-phone days now."

Discussion of Findings

The findings of this study provide robust empirical evidence on how digital fatigue a cognitive and emotional exhaustion induced by excessive digital exposure affects consumer decision-making in the global attention economy. Drawing from

Cognitive Load Theory, Bounded Rationality Theory, and Attention Economy Theory, the study demonstrates that sustained attention overload erodes consumers' decision efficiency, trust, and satisfaction across digital environments.

Results from Phase I revealed a strong positive relationship between attention overload and digital fatigue ($\beta = 0.61$, $p < .001$), confirming that excessive digital stimuli such as notifications, pop-ups, algorithmic advertisements, and continuous online connectivity are primary drivers of fatigue. This aligns with the proposition of Cognitive Load Theory (Sweller, 1988), which posits that excessive extraneous stimuli exceed working memory capacity, leading to cognitive depletion.

Qualitative evidence reinforced this outcome. Respondents described the online environment as "mentally noisy" and "constant," resulting in emotional exhaustion and withdrawal. This echoes Lee's (2020) findings that continuous digital engagement fosters burnout and disengagement. The result suggests that the modern digital landscape, designed to maximize engagement, paradoxically undermines user well-being.

Phase II confirmed that digital fatigue significantly reduces decision satisfaction ($\beta = -0.54$, $p < .001$). Consumers under fatigue were less likely to evaluate alternatives critically, relying instead on shortcuts and heuristics such as brand familiarity or influencer cues. This supports Bounded Rationality Theory (Simon, 1971), which argues that individuals make "satisficing" rather than optimal decisions when cognitive resources are limited.

Qualitative insights illustrated how mental fatigue leads to decision avoidance and impulsive purchasing. Statements like "I just click the first familiar brand" indicate that fatigue triggers automatic rather than deliberative decision-making. Similar findings were observed by Sharma and Verma (2023), who reported that fatigued consumers in India exhibited impulsive buying behaviors, validating the cross-cultural consistency of this phenomenon.

Phase III highlighted that digital fatigue erodes consumer trust ($\beta = -0.46$, $p < .001$) and that trust mediates the relationship between fatigue and satisfaction (indirect effect $= -0.19$, $p < .001$). This indicates that as cognitive strain increases, consumers become more skeptical of digital content and less confident in online transactions. This aligns with Pantano et al. (2022), who found that fatigue diminishes engagement duration and brand loyalty.

The moderating effect of digital literacy ($\beta = 0.16$, $p = .007$) reveals that consumers with higher digital competence are better equipped to filter information, manage overload, and maintain trust. This finding introduces a novel contribution to Attention Economy Theory, emphasizing that digital literacy functions as a cognitive buffer that enhances resilience against fatigue-induced decision deterioration.

The findings further corroborate and extend prior research on digital transformation and human adaptation. As noted by Okorozoh (2023), the Industry 4.0 marketing environment has created new competitive pressures where organizations must innovate without overwhelming consumers. The present results confirm that such innovation often leads to unintended cognitive consequences manifested as fatigue and decision strain.

In line with Anunne et al. (2024), who highlighted the ethical implications of AI-induced cognitive fatigue in learning systems, this study demonstrates that excessive algorithmic engagement in marketing similarly undermines user satisfaction and trust. This intersection suggests a common moral imperative across sectors: to balance technological advancement with digital well-being.

Moreover, the observed decline in trust under fatigue aligns with Okorozoh, Ekoh, and Okorozoh's (2023) findings that sustained exposure to digital media can erode credibility perceptions and weaken engagement. Thus, attention, trust, and fatigue are revealed as interconnected variables in both consumer and socio-communicative domains, reinforcing the interdisciplinary relevance of digital fatigue research.

Conclusions

This study examined how digital fatigue influences consumer decision-making in the global attention economy, integrating perspectives from Cognitive Load Theory, Bounded Rationality Theory, and Attention Economy Theory. Using a mixed-methods design, the results demonstrated that attention overload significantly increases digital fatigue, which in turn reduces decision

satisfaction, consumer trust, and engagement quality. The findings also revealed that digital literacy moderates these effects, enabling more rational and confident decision-making under conditions of information saturation.

Theoretically, the study extends existing models of consumer behavior by positioning digital fatigue as both a mediating psychological mechanism and a behavioral constraint in the decision process. It demonstrates that fatigue is not simply an individual problem but a systemic outcome of the design logic of digital platforms that commodify human attention. Empirically, the study provides cross-cultural validation that digital fatigue is a global phenomenon, affecting consumers across technological and cultural contexts.

Theoretical Implications

The study makes several key contributions to theory and academic discourse:

1. Integration of Multidisciplinary Theories:

By synthesizing Cognitive Load Theory, Bounded Rationality Theory, and Attention Economy Theory, the research offers a unified framework explaining how psychological overload translates into suboptimal consumer choices. This integration extends the scope of each theory into the domain of digital marketing and online behavior.

2. Reconceptualization of the Attention Economy:

The findings highlight that attention, while economically valuable, is also psychologically finite. Overexploitation of consumer attention creates systemic fatigue, suggesting the need for new theoretical models that account for the emotional and cognitive costs of digital engagement.

3. Introduction of Digital Literacy as a Moderating Construct:

This study empirically demonstrates that digital literacy moderates the negative relationship between fatigue and satisfaction. This represents a new theoretical pathway, linking consumer capability with resilience in digitally saturated contexts.

4. Cross-Cultural Empirical Evidence:

The inclusion of participants from five continents expands the predominantly Western-centric literature, validating that digital fatigue is a universal phenomenon with culturally nuanced coping strategies.

Managerial Implications

From a marketing and managerial standpoint, the study underscores the need for human-centric and fatigue-sensitive digital strategies:

1. Shift from Attention Maximization to Attention Quality:

Marketers must prioritize meaningful engagement over excessive exposure. Campaigns should emphasize relevance, clarity, and brevity to avoid cognitive overload.

2. Designing Ethical Digital Environments:

Digital platforms should implement attention-preserving design features such as limited notification frequency, user-controlled advertising, and mindful content curation to reduce fatigue and enhance user trust.

3. Building Trust through Transparency:

Since fatigue erodes trust, brands must strengthen credibility through transparent communication, authenticity, and ethical personalization. The use of intrusive algorithms should be balanced with consent and clarity.

4. Enhancing Digital Literacy among Consumers:

Corporations and policymakers should invest in digital literacy programs to help consumers critically evaluate online content, manage information flow, and develop healthy digital habits.

5. Sustainable Marketing Analytics:

Organizations should integrate psychological well-being indicators (e.g., engagement satisfaction, perceived overload) into marketing analytics to measure not only attention captured but attention sustained without harm.

Policy and Societal Implications

The results have broad societal significance:

Consumer Protection: Regulators should incorporate cognitive well-being into digital policy frameworks, similar to data protection laws. Limiting manipulative attention-extraction mechanisms (e.g., autoplay, infinite scroll) can safeguard users' mental health.

Public Awareness Campaigns: Governments and civil society organizations should promote digital mindfulness and responsible engagement, emphasizing the risks of overexposure.

Educational Integration: Schools and universities should embed digital well-being education into curricula, ensuring that digital competence

includes not just technical skill but cognitive and emotional management.

Limitations and Directions for Future Research

While this study provides comprehensive insight, several limitations offer opportunities for future exploration:

1. Cross-Sectional Nature: The data were collected at a single point in time; longitudinal designs could examine fatigue's cumulative and long-term effects.

2. Self-Reported Measures: Though reliable, self-reported data may be prone to bias. Future studies could integrate biometric or neurocognitive measures (e.g., eye-tracking, EEG) to validate attention depletion more objectively.

3. Cultural Specificity: Although global, regional samples were evenly distributed; future research could conduct comparative analyses to explore cultural moderating effects, especially in emerging digital markets.

4. Platform-Specific Dynamics: Future studies may analyze how fatigue manifests differently across social media, e-commerce, and professional platforms, refining contextual understanding.

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