
DIGITAL NUDGING AND CONSUMER AUTONOMY IN E-COMMERCE PLATFORMS: EXAMINING CONSUMER PERCEPTIONS, DECISION-MAKING AND ETHICAL CONCERNS

^{*1}Elson Dsouza, ²Sujaya Mendon

¹Research Scholar, Srinivas University, Mangalore – 574146.

²Research Guide, Srinivas University, Mangalore – 574146.

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***Corresponding Author: Elson Dsouza**

Research Scholar, Srinivas University, Mangalore – 574146.

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ABSTRACT

With increased adoption of choice architecture in online environments through defaults, scarcity and social proof cues, personalised recommendations, and interface level nudges to guide consumer choice, a key concern has been this balance between positive nudging that supports the decision-making process, and manipulative nudges that can diminish the consumer's perceived autonomy – and this literature continues to be largely dispersed across the fields of behavioural economics, consumer psychology, information systems and ethics. Accordingly, this paper proposes a conceptual paper that will build theory on the digital nudging phenomenon – understanding how digital nudges influence consumer perceptions, decision making and perceived autonomy – by developing a conceptual synthesis based on a literature review integrating perspectives from nudging, dual-process, self-determination, reactance theory and dark patterns, in response to existing calls for theoretical exploration and conceptual development, that will not only construct an integrative framework for digital nudge effects but also generate testable propositions that bridge the "for good" nudge and "dark" nudge perspectives, inform decision making in practice, stimulate future research on this important research area, and provide managerial and regulatory implications.

KEYWORDS: Digital nudging, consumer autonomy, e-commerce, choice architecture, dark patterns, ethical marketing, conceptual framework

INTRODUCTION and background related to the study

The rapid development of e-commerce, driven by mobile commerce, big data analytics, and artificial intelligence, has created a digital environment in which algorithmic personalization, real-time product recommendations and interface prompt continually influence what people view, compare, and purchase (Schneider et al., 2018; Weinmann et al., 2016). As these forms of digital nudging simply extend the choice architecture model, which methodically changes behaviour predictably without taking away freedom of choice (Thaler & Sunstein, 2008), platforms can now employ defaults, social proof, scarcity messages and anchoring at scale. Meta-analyses show these nudging techniques have modest-to- moderate behavioural effects (Mertens et al., 2022), and technology-mediated nudging has become extremely varied, with dozens of different mechanisms (Caraban et al., 2019). Yet, as Nudge-for-good and dark-nudge perspectives contend, the same mechanisms that help consumers make effective choices can also capitalise on cognitive biases, resulting in blurred boundaries between help and harm (Hansen, 2016; Sunstein, 2016), as shown by a crawl of some 11,000 shopping sites revealing abundant dark patterns like deceptive urgency and undisclosed information (Mathur et al., 2019), by mild and intense dark patterns significantly increasing withdrawal of approval (Luguri & Strahilevitz, 2021), and by the European Commission finding 97% of the most-visited websites and apps among EU citizens employed at least one dark pattern (Lupiez-Villanueva et al., 2022). Despite this increasing concern, scholars examine nudging and dark patterns as siloed strands, with behavioural economists measuring efficacy, IS researchers recording design features, HCI researchers dissecting the mechanisms, and philosophers and lawyers scrutinizing manipulation and autonomy (Susser et al., 2019). Proponents have offered very few comprehensive models that incorporate consumer perceptions, decision-making and ethical judgment within a singular framework underpinned by self-determination theory (Ryan & Deci, 2000) and dual-process theory (Kahneman, 2011), especially for emerging economies such as India, where regulation of dark patterns is a new phenomenon (CCPA, 2023). Accordingly, the objective of this paper is to classify key digital nudging mechanisms in e-commerce settings, elucidate how nudge qualities like transparency and personalization influence perceptions of potential help, potential harm, and trust, analyse perceptions' consequences for decisions and autonomy, appraise ethical implications, and develop an integrated conceptual framework supported by empirically testable propositions that address four research questions: which nudging mechanisms are most common and how do they contrast with dark patterns, how do nudge features impact perceptions, how do perceptions alter decisions and autonomy, and which ethical guidelines

and variables moderate whether nudging benefits or diminishes autonomy? This research design will be innovative by reconciling nudge-for-good and dark nudge perspectives, providing business managers with ethical choice-architectural recommendations that maintains customer trust and loyalty over time, guiding policy-makers as dark-pattern regulation is still emerging in practice (CSPC, 2022; CCPA, 2023), and stimulating further research in diverse countries. This paper proceeds in the following manner: conceptual methodology, theoretical grounding, nudging mechanisms, perceptions, decisions, autonomy, ethics, conceptual framework and propositions, discussion and implications, limitations, future research, and conclusion.

Review of relevant literature

The literature on digital nudging is built upon the disciplines of nudge theory and libertarian paternalism, which posited that choice architecture can influence behaviour in a predictable way while preserving choice options and while having no adverse effect on economic incentives (Thaler & Sunstein, 2008), drawing on bounded rationality, heuristics and biases (Kahneman, 2011; Tversky & Kahneman, 1974) and on dual-process reasoning with its recognition of fast, intuitive processes more susceptible to environmental cues than slow, effortful processes (Evans & Stanovich, 2013), which has subsequently been extended online to digital nudging, defined as the deployment of specific design elements in user-interface architecture to influence behaviour in choice contexts (Weinmann et al., 2016), with subsequent categorization of digital nudging interventions including defaults, social proof, scarcity, framing and personalised recommendations (Caraban et al., 2019; Schneider et al., 2018) and meta-analytic findings of reliable effects (though moderated by context) from choice architecture interventions (Mertens et al., 2022), while the literature has also warned that such effectiveness may depend on individual factors and design specifics (Hummel & Maedche, 2019), and in parallel the ethical implications of nudging have come under discussion, as critics have argued that nudges which circumvent rational processes risk undermining autonomy (Hansen, 2016; Sunstein, 2016), with technology-enabled manipulation used to describe covert influence strategies which exploit vulnerabilities and erode citizens' capacity to self-govern (Susser et al., 2019), and with self-determination theory noting the relevance of agency and autonomy support for wellbeing and motivation (Ryan & Deci, 2000), and reactance theory predicting resistance or suspicion towards nudges that threaten consumer choice freedom (Brehm, 1966), which is consistent with the dark patterns literature of overt, deceptive web-interface design strategies like false urgency,

hidden costs and obstructions prevalent on thousands of shopping sites (Mathur et al., 2019), experimental evidence of substantial effects on unintentional consent from aggressive dark patterns (Luguri & Strahilevitz, 2021), and regulatory evidence of widespread use by popular European websites and apps of at least one dark pattern (Lupiez-Villanueva et al., 2022), creating an ongoing debate between benign nudging, unpleasant sludge and malevolent dark patterns, reflected in instruments like the EU Digital Services Act (European Parliament & Council, 2022) and India's guide on dark patterns (Central Consumer Protection Authority [CCPA], 2023), with the resulting literature being siloed across disciplines of behavioural economics, information systems, law and philosophy, which leaves the relationship between consumer perceptions, decision outcomes and ethical considerations underexplored, which necessitates the framework outlined in this paper.

Methodology of the Conceptual Study

This is a conceptual, theory-building study that synthesizes prior empirical findings by developing new theoretical constructs, relationships and propositions, rather than drawing upon primary data (Gilson & Goldberg, 2015; Jaakkola, 2020; Mac Innis, 2011; Meredith, 1993). Following Whetten's (1989) reminder that for a contribution to be genuinely theoretical, it must, at its core, tell the reader what goes in the model, tell the reader how and why it goes in that way, and tell the reader who, where and when it goes there, this paper uses an integrative review logic that is well-adapted to explanatory theories on topics dispersed across the social sciences (Snyder, 2019; Torraco, 2005). The search began with Google Scholar, supplemented by additional academic search engines and databases, and used backward and forward reference searches to identify key sources (Tranfield et al., 2003; Webster & Watson, 2002). Keywords such as "digital nudging", "choice architecture", "dark patterns", "manipulation", "consumer autonomy", "ethical concerns", "e-commerce", "online shopping", "personalization" and "ethics" (combined with AND, OR and truncation operators) were used in a systematic and transparent search string in titles, abstracts and keywords in English in order to locate literature from 2008–2026 on the grounds that it was the year in which Thaler and Sunstein (2008) popularized the term "nudge" in their seminal book (Singh et al., 2018) and up to the present to enable recent major regulatory and policy developments to be integrated, with inclusion of peer-reviewed journal articles, high-quality conference proceedings, bona fide books, authoritative policy publications in specialized databases, and regulation and policy papers from national (European Union, USA, UK, Australia, China, South Korea, India) and international agencies (European Commission, IAB

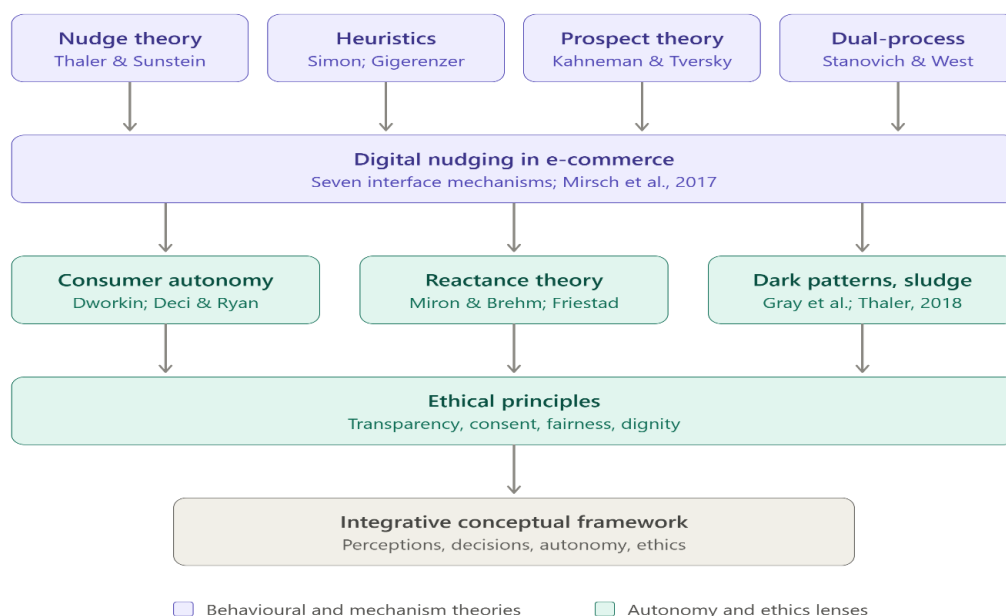
Europe), after all non-peer-reviewed blogs, untheorized opinion articles, duplicates, overtly offline, non-EU/USA health policy-oriented or pseudo-scientific research was excluded and all remaining sources had their titles, abstracts and keywords examined. The full texts of remaining sources were then retrieved and checked for online/e-commerce nudging explanations, explorations of dark patterns, effects on consumer decision-making, influences on consumer autonomy and potential for overcoming or exacerbating ethical issues; sources that did not address one or more of these aspects were discarded. The final set of articles was analysed through iterative coding, and through comparative scrutiny of consistently and inconsistently supported assertions, concepts were inductively abstracted into common themes, and organised in a matrix that is concept rather than author-oriented in its indexing (Braun & Clarke, 2006; Webster & Watson, 2002). These themes (knockout traits of nudges, consumer reactions to nudges, decision and choice effects, effect on individual autonomy and associated ethical considerations) were then linked through dual-process (Kahneman, 2011) and self-determination (Ryan & Deci, 2000) paradigms, and identified mediators and moderators via contrasting of congruent and contradicting findings between sources, resulting in proposition development via logical reasoning, analogy and boundary condition specification to produce testable, clear and parsimonious theoretical constructs and variables (Mac Innis, 2011; Whetten, 1989).

Theoretical Foundations related to the study

The conceptual underpinnings of this work draw on several strands of theoretical and empirical literature. The framework of choice architecture and libertarian paternalism (Thaler & Sunstein, 2003) suggests that choice architects can ethically guide consumers toward choices that benefit welfare without compromising freedom of choice or need for rules or incentives, by defining "a libertarian paternalism that is, a policy that makes use of nudges in a way that leaves enough choice to consumers so that they still maintain their freedom of choice" (p. 6). This notion draws on behavioural economics (Thaler & Sunstein, 2003), with bounded rationality meaning decision makers satisfice under constraints of bounded information, time and cognitive capacity (Simon, 1955), heuristics meaning rapid, frugal, bias-prone heuristics (Gigerenzer & Gaissmaier, 2011), prospect theory meaning reference dependence and loss aversion (Kahneman & Tversky, 1979), dual process theory meaning the contrast between System 1, automatic, effortless cognition, and System 2, reflective, effortful cognition, with nudging being most effective when consumers rely on system 1 (Stanovich & West, 2000), and all of these underpinnings united in digital nudge typology with presenting

evidence of defaults relying on inertia and implied endorsement (Johnson & Goldstein, 2003), cues of scarcity boosting perceived value and prompting action (Aggarwal et al., 2011), social proof (Cialdini & Goldstein, 2004), anchoring (Furnham & Boo, 2011), framing (Tversky & Kahneman, 1981), personalised suggestions (Xiao & Benbasat, 2007), and progress cues (Nunes & Drze, 2006), operating through consumers' decision processes. Because these types of nudging operate on consumers' minds and behaviours, they raise issues of consumer autonomy, which philosophy believes to mean self-rule in line with reasoned endorsement of one's own motivations (Dworkin, 1988). Self-determination theory regards the thwarting of autonomy as one of three basic psychological needs that sustains intrinsic motivation and wellbeing (Deci & Ryan, 2000), reactance theory attributes it to the motivation to resist threats to one's freedom of choice (Miron & Brehm, 2006), and marketing theory from the persuasion knowledge model to nudging suggests that because this free-rider effect gives consumers knowledge of the persuader's strategies, they can resist persuasion by discounting its influence (Friestad & Wright, 1994), with the problem of whether nudging crosses the manipulation line being overcome in recent work on dark patterns (Gray et al., 2018), sludge (Thaler, 2018) and philosophical accounts of manipulation as covert influence that exploits weakness while bypassing rational agency (Hansen & Jespersen, 2013). Because all of these issues can apply in an age of big data and personalised recommender engines, ethical issues surrounding transparency, autonomous decision-making, informed consent, distributional fairness, protection of children, the elderly and vulnerable groups (Baker et al., 2005), and preservation of human dignity can be settled by principles for trustworthy and reliable algorithmic decision systems (Floridi et al., 2018; Martin, 2019). In sum, these diverse streams illustrate a patchwork foundation in which behavioural economics explains the efficacy of nudging, dual process theory specifies when nudging is most effective, autonomy theories clarify why nudging is ethically significant, and ethics frameworks for persuasive design guide appropriate usage, yet very few models investigate how perceived manipulation, perceived control, decision outcomes and ethical reactions interplay in an integrated e-commerce model, why external moderators such as culture, age, and digital literacy interact with nudging, how nudging can be enhanced through transforming transparency into consumer control, or how to harness personalization to empower consumers rather than undermine them, and this is what this paper aims to provide. Prospect theory sits mainly on the nudge characteristics → consumer perceptions path. It explains the psychological mechanism through which the cues operate, particularly when consumers process them intuitively (System 1). It also helps explain the autonomy and ethics

concern: a nudge that is truthful and transparent can use loss framing legitimately, but one that fabricates scarcity or inflates the reference price (a dark pattern) exploits the bias to bypass deliberate evaluation. This links to the manipulation boundary discussed in Hansen and Jespersen (2013) and Gray et al. (2018). Also Prospect theory sits mainly on the nudge characteristics → consumer perceptions path. It explains the psychological mechanism through which the cues operate, particularly when consumers process them intuitively (System 1). It also helps explain the autonomy and ethics concern: a nudge that is truthful and transparent can use loss framing legitimately, but one that fabricates scarcity or inflates the reference price (a dark pattern) exploits the bias to bypass deliberate evaluation. This links to the manipulation boundary discussed in Hansen and Jespersen (2013) and Gray et al. (2018).

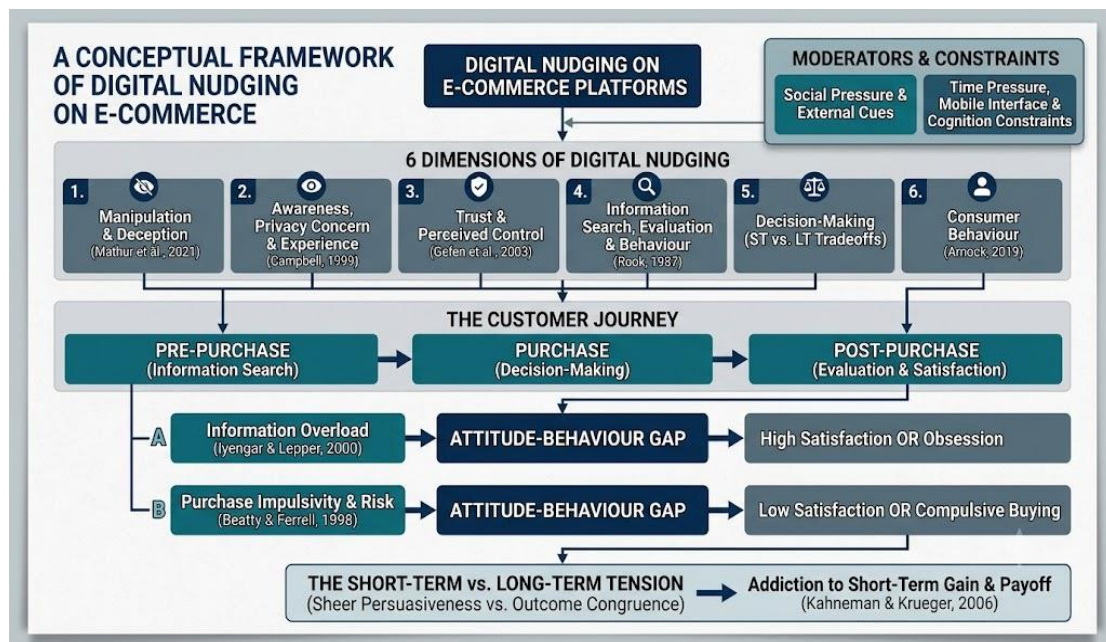


Above diagram showing Theoretical Foundations related to the study (Extant review of literature)

Conceptual Analysis

Theoretically, the research paper hypothesizes that digital nudging on e-commerce platforms can be categorized on the dimensions of: - manipulation and deception, where the nudge is unnoticeable and pressurizing towards those with less power or manipulation when it consciously doesn't match consumer's own goals (Mathur et al., 2021); - awareness, privacy concern and prior experience, which mediate consumer's evaluation of nudges between a positive perception of nudges as helpful and a negative perception of nudges as manipulative (Campbell, 1999; Dinev & Hart, 2006); - trust and perceived control, where trust in the

platform is based on perceived competence, benevolence and integrity (Gefen et al., 2003), and perceived control or the feeling of being manipulated can come from the mismatch between expectations and outcomes (Oliver, 1980); - information search, evaluation, and behaviour, where nudges can lead to impulsive purchases as a sudden, hedonic urge (Rook, 1987), decision fatigue as overload in choice scenarios with limited time (Pignatiello et al., 2020), and decision-making avoidance by overwhelming choice (Iyengar & Lepper, 2000); - decision-making, where the effect of nudges on choices is mediated by whether the result aligns with a consumer's goal, suggesting a strategic long term versus short term tradeoff; and - consumer behaviour, which can be affected by nudges leading to short term behavioural change in the form of impulse buying and long term change by creating a culture of consumption (Arnock, 2019); Because the relative independence of these factors should be applied cautiously, this framework would best be tested empirically with elements of social pressure and external cues to capture the complexity of natural consumer behaviours, and because the dimensions suggested here are often difficult to disentangle (Wieringa et al., 2020), I estimate that consumer perceptions traverse several stages of the customer journey, including pre-purchase, purchase and post-purchase. These perceptions can influence the search for and evaluation of information, as well as the purchase decision and post-purchase stage, where they can elicit patterns of behaviour that accelerate purchases and/or engender a dichotomy between information evaluation and subsequent satisfaction, like a short-term/or long-term tension between sheer persuasiveness and outcome congruence. The consequences of these perceptions on the customer journey are still difficult to predict, because of the potential moderating effects of purchase context and the likelihood that decisions are made under cognition-threatening, time pressure and mobile interface constraints (Pignatiello et al., 2020), the attitude-behaviour gap here can induce low levels of satisfaction or compulsive buying; and - ultimately, because of the addiction to short-term gain and payoff of the short-term/or long-term tradeoff (Kahneman & Krueger, 2006), this state is bound to be high and high.

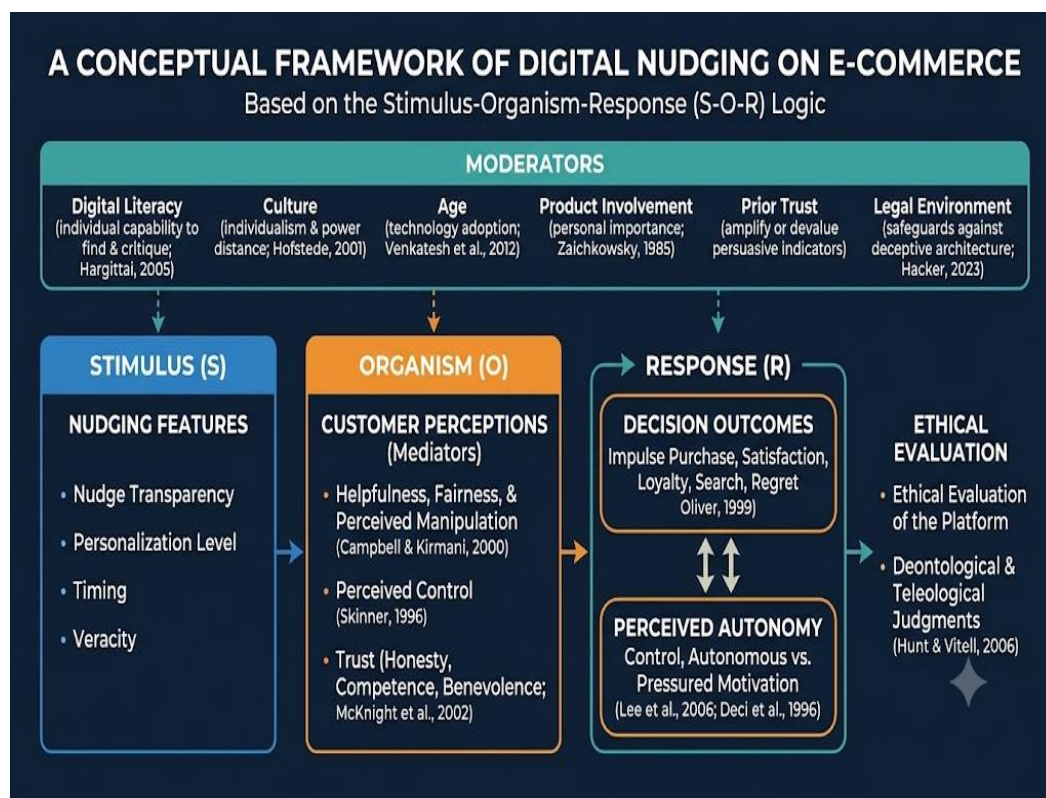


Above diagram showing the Conceptual Analysis related to the study

Conceptual Framework

The model is based on the stimulus-organism-response logic, which details the process through which stimuli influence the internal state of an organism before triggering a behaviour response (Jacoby, 2002), and thus nudging features are considered stimuli, nudge transparency, personalization level, timing and veracity as stimuli, customer perceptions as organismic states, and decision outcomes, perceived autonomy and ethical evaluation as responses (Jacoby, 2002), so that nudging features shape consumer perceptions of helpfulness, fairness and manipulation (Campbell & Kirmani, 2000), perceived manipulation (Campbell & Kirmani, 2000) (coming when consumers become aware of an influence attempt that they believe to be unfair (Campbell & Kirmani, 2000)), perceived control (Skinner, 1996) (referring to individual belief that one has the ability to trigger the sought after outcome), and trust (McKnight et al., 2002) (which can be broken down to beliefs in the honesty, competence and good intention of the vendor), as mediators transmitting effects of nudges on decision outcomes (Baron & Kenny, 1986) (such as impulse purchase, satisfaction, loyalty, search, and regret (Oliver, 1999)), which are reciprocally connected with perceived autonomy (concentrating on the experience of greater control (Lee et al., 2006) (reviving and strengthening autonomous motivation while repeatedly fostering pressured outcomes dilutes it (Deci et al., 1996))), influencing ethical evaluation of the platform through deontological and teleological judgments (Hunt & Vitell, 2006), and moderators including digital literacy (requiring the individual capability to find, critique and derive benefit from online

information (Hargittai, 2005)), culture (such as individualism and power distance (Hofstede, 2001)), age (one of the factors influencing technology adoption in consumers (Venkatesh et al., 2012)), product involvement (which relates to personal importance and deeper engagement (Zaichkowsky, 1985)), trust (which can amplify or devalue the tendency towards persuasive indicators), and the legal environment (where legal safeguards limit deceptive choice architecture (Hacker, 2023)), and thus the visual model operationalizes nudging features on the left of the diagram, perceptions in the centre, outcomes and perceived autonomy in a bidirectional relationship, ethical perception on the right, and moderators above the function paths they influence, from which propositions follow. Explaining how the framework's feedback loops connect its components. The framework operates as a layered model. Nudge characteristics (transparency, personalization intensity, truthfulness, reversibility) form the starting point, determining whether consumers interpret an interface cue as supportive guidance or covert pressure. These interpretations shape decision outcomes, including regret and loyalty, which then feed back into perceived autonomy through repeated experience. Autonomy, in turn, informs judgments of platform fairness and accountability. Moderators decide the strength of each link, while mediators explain the mechanism. The model is dynamic rather than linear, emphasizing cumulative consumer experiences, testable boundary conditions and ethical design guidance.



Above diagram showing Conceptual Framework related to the study

Development of Propositions

With the conceptual model established, the following six propositions for the relationships among nudge features, perceptions, outcomes, autonomy and ethics are derived from the literature.

Proposition 1: P1. Transparent nudges, who disclose the purpose and nature of the algorithm to the user, will be positively related to perceptions of fairness and trust. The reasoning is that disclosure acts as a signal that algorithms will be respectful and honest (Colquitt, 2001), facilitates understanding of algorithmic effects (Shin & Park, 2019), and enhances locus of control over being manipulated by algorithms (Kim et al., 2019); this last rationale is consistent with evidence that explaining how users perceive a personalised message improves responses when it reveals legit data collection (Kim et al., 2019).

Proposition 2: P2. Opaque, personalised nudges will be positively related to perceived manipulation because personalised, social media-driven advertising and content triggers reactance and perceptions of being tricked when consumers cannot see how their data are used (van Doorn & Hoekstra, 2013; White et al., 2008) and because data collection allows influence to be targeted at user vulnerabilities (Mills, 2022).

Proposition 3: P3. Perceived manipulation will be negatively related to perceived autonomy, because deception and coercion threaten experiences of autonomy due to bypassing, overriding or disempowering the reflectiveness of agency (Sunstein, 2015); this is also consistent with findings that external controls suppress autonomous motives whereas autonomy-supportive controls enhance them (Patall et al., 2008).

Proposition 4: P4. Perceived autonomy will mediate the negative relationship between nudging and loyalty, because loyalty (a long-term affinity for someone, characterized by a firm intention to buy in the future (Dick & Basu, 1994)) grows out of trusting, committed rather than coercive relationships (Morgan & Hunt, 1994), and this mediating effect should be tested through estimation of the indirect effect (Zhao et al., 2010).

Proposition 5: P5. Digital literacy will moderate the effect of nudging on decision-making outcomes because consumers vary in the skills and experiences that enable them to evaluate, resist or manipulate cues in information-rich environments (van Deursen & van Dijk, 2014), so a nudge's influence should be weaker at higher levels of literacy, which should be testable with interaction effects (Aiken & West, 1991).

Proposition 6: P6. Ethical design of choice, e.g., opt-in but easily opt-out, will increase satisfaction and mitigate regret because choice architecture can guide but not coerce, so that withdrawal is possible even if preferences are not changed (Johnson et al., 2012), regret

increases when decisions are hard to reverse (Inman & Zeelenberg, 2002; Zeelenberg & Pieters, 2007), and consent regimes such as the GDPR rest on freely given, specific and unambiguous consent (European Parliament & Council of the European Union, 2016). Collectively, these six propositions can be tested through multiple methodologies, using cross-sectional and longitudinal survey data, structural equation models and controlled experiments in different cultures and platforms.

DISCUSSION RELATED TO THE STUDY

This proposed framework both builds upon and aligns with the current literature. In the effectiveness literature, effectiveness and legitimacy have been discussed in two separate debates, with early empirical and normative ethical findings examining whether nudging people through non-rational mechanisms is autonomy-preserving (Bovens, 2009; Schmidt & Engelen, 2020). The framework reveals that the answer is contingent on how nudging features are perceived: transparency and truthfulness are associated with trust and fairness while covert, personalised influence is associated with manipulation perception. This mirrors long calls to formalize digital nudging with explicit ethical principles (Lembcke et al., 2019; Meske & Amojó, 2020) and to ground it in nuanced behavioural economics (Tversky & Kahneman, 1974). It also echoes the importance of transparency in recommender systems, which can alleviate overload and facilitate better choices but may also induce manipulative outcomes and platform prioritization over customer interests (Jesse & Jannach, 2021). This helps to bridge the "nudge for good" and the "dark nudge" schools of thought as the same nudge mechanism may be benign if it benefits the general consumer base but can be destructive when it benefits targeted platforms or advertisers. While experimental evidence demonstrates that a well-designed nudge can help consumers avoid incompatible choices (Esposito et al., 2017), problematising the evolution of dark pattern design and repeated nudge exposure illuminates the trap of fine line. Finally, while advances in behavioural economics ensure that the effectiveness literature remains robust, it is unlikely to be culturally invariant (Henrich et al., 2010). Influence dimensions such as individualism and uncertainty avoidance impact preferences and attributions (Hofstede et al., 2010), with the strong orientation toward authority and social influence among Indian consumers (Singh et al., 2008) reinforced by the authoritative role of social norm-based smart home advertising. Given lower averages in digital literacy (Todenhofer et al., 2021) and higher risk of digital fraud (IT and Communications, 2018), this makes Indian consumers especially likely to be taken in by a single high-discount purchase anchor, and potentially less likely to detect the

effects of repeated nudging. The fact that the draft legislation (Ministry of Law and Justice, 2019, 2023) not only enhances India-specific consumer rights but also enhances consumer awareness seems promising. Considering this context-sensitivity, the effectiveness and the normative effect of the propositional paths should be further validated across different online platforms and cultures before generalizing.

Implications related to the study

Theoretically this would contribute, by creating an integrated testable model which incorporates behaviour economics, self-determination and ethics approaches, elucidates not only which relationships exist but also why and when they do, thus providing the sort of Theorising that goes beyond the descriptive to inform revision of how construct should be conceptualized (Corley & Gioia, 2011). Managerially the author(s) see that the platform perspective indicates that platforms should make ethical choice architecture in the way they implement nudges by assessing each nudge against principles such as fairness, openness, respect and fit with the user's own goals by (a) providing in plain language the underlying motivation for each recommendation/message and explaining how, with reference to a user's data, it is derived, (b) treating responsible stewardship of user data as a source of trust rather than compliance overhead and establishing routine audit procedures for interfaces and algorithms that include documenting design decisions, testing for predictable harm and correcting it before launch (Raji et al., 2020). The author(s) observe that for policymakers and regulators this study implies that consumer protection law should classify manipulative interface design as an unfair commercial practice an argument European authors have made by importing dark pattern practices into the pre-existing body of consumer protection law (Leiser & Caruana, 2021); guidelines should specify which dark patterns should be banned in line with international work on dark commercial practices (OECD, 2022); and data protection should abandon notice-and-consent – a set of facilitators that simply cannot be made to work in the face of cognitive biases and thus is an injustice to designing effective online information gathering systems (Solove, 2013) instead focusing on safeguards that mitigate the effects of these biases (Waldman, 2020) so that rules, audits and enforcement create a web that discourages online deception, while at a macroeconomic level digital wellbeing, described as a healthy dynamic condition comprised of people's digital experiences over time and contexts (Vanden Abeele, 2021), depends on attention- and choice-respecting design, not on manipulation, while democratizing power over technology is less a matter of choice since

choice is available than of practice where it is also empowered through education, accessible redress and interface design that supports reflection (Shankar et al., 2006).

Limitations and Future Research Directions

Limitations, future directions and implications for theory This research is conceptual in nature: propositions based on literature synthesis are untested in primary data, and represent the author's choice and interpretation of sources, so should be read as a tentative framework rather than evidence of effects (Weick, 1995). Empirically, the hypothesis-testing models should be refined and validated in further cross-sectional research with structural equation modelling (preferably partial least squares where the intention is prediction and theory development (Hair et al., 2019)); controlling for common method bias in self-report data (Podsakoff et al., 2003); supplemented by sequential online field experiments and A/B tests that measure the causal effects of nudges on live platforms (Kohavi et al., 2009); and supplemented by qualitative interviews analysed using systematic inductive procedures that explain how consumers understand and resist nudges (Gioia et al., 2013). Other avenues of research should compare cross-platform differences (marketplaces, quick-commerce and fintechs), and cross-cultural differences in markets including India, to test for measurement invariance before differences in constructs are compared across nations (Steenkamp & Baumgartner, 1998). Longitudinal designs tracking the same individuals over repeated exposures are needed to examine the reciprocal relationship between decision results and perceived autonomy over time (Ployhart & Vandenberg, 2010). Future research must also address issues emerging in the field, especially AI hyper personalisation (Huang & Rust, 2021; Matz et al., 2017) where algorithms adapt persuasive appeals in real time based on individual characteristics; voice commerce (Mari et al., 2020) where screenless conversational interfaces remove most basis for comparison and reflection; and generative AI nudges (Matz et al., 2024), which generate bespoke persuasive messages at scale while also raising new issues about transparency, authorship and accountability (Dwivedi et al., 2023). Fortunately, the European Union's Artificial Intelligence Act has already banned "AI systems that deploy manipulative or deceptive techniques" (European Parliament & Council of the European Union, 2024), so operationalizing and testing the framework across methods, contexts and devices will be both a challenge and a contribution for scholars, platforms and regulators.

CONCLUSION

In sum, this paper has demonstrated that digital nudging is now an established – and becoming more sophisticated – aspect of online retail, drawing upon a growing canon of research from the behavioural sciences, the real world consequences of which are significant but dependent on situational and individual factors (Beshears & Kosowsky, 2020), and that the same toolkit of user interface elements may help consumers realise their goals or – when relying on secrecy, hidden options and misleading framing – become dark patterns that benefit the site to the detriment of the shopper (Kollmer & Eckhardt, 2023), so that the primary take-away from the analysis is that the moral status of a nudge is not determined by its technical design but rather its reception by consumers, the reason the proposed framework travels from characteristics of nudges, including transparency, personalisation and truthful information, to perceptions that facilitate their effects, namely helpfulness, fairness, manipulation, control and trust, to consumer decision consequences including impulse buying, satisfaction, regret and loyalty, which are reciprocally related to perceived autonomy, described as the feeling that one is behaving out of one's own choice and endorsing one's own actions (Ryan & Deci, 2017), to finally a moral judgement of the retail platform, while those connections are moderated by digital literacy, culture, age, product involvement, trust and the regulatory framework, thus the central contribution of the paper is to unite the three streams of behavioural economics, psychology of autonomy and marketing ethics which have largely functioned in silos into a testable model consisting of six propositions, providing the bridge between the 'nudge-for-good' and the 'dark-nudge' schools of thought and responding to calls for a broadened focus of choice arch.

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