

CONSUMER DELIBERATION AND DIGITAL RESTRAINT: THE MEDIATING ROLE OF SELF-REGULATORY EFFICACY IN THE RELATIONSHIP BETWEEN PURCHASE HESITATION AND CART ABANDONMENT BEHAVIOR

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ABSTRACT

As the incidence of shopping cart abandonment in online retail continues to damage profits on a global scale with recent reports of the issue having reached as high as 70.19% of transactions during 2025 (Statista, in Das Sarma et al. 2025), with checkout phase hesitation consistently identified as the closest psychological stimulus to non-purchase in the stimuli-organism-response model (Wang et al. 2022), a situation that is only further exacerbated by proof that decision procrastination mediate the relations between consumers' mood and the likelihood of abandoning items in the cart (Silva et al. 2025), this theoretical paper seeks to close that persistent theoretical gulf that exists in relation to why this reasoned, rather than mere reflexive or unintended, restraint should lead to lasting constraint and cart abandonment. It is proposed that a conceptual model in which purchase hesitation is a prime determinant of abandoned cart behavior be developed, with self-regulatory efficacy (as interpreted by consumers to reflect their perceived capacity to deliberately restrain, delay, or ignore an initial preference for a product) as the fundamental mediator of transition between hesitation and explicit abandon of shopping cart content; this proposal derives mainly from an elaboration of Bandura's theory of Self-Efficacy and Social Cognitive Theory in explaining a "regulatory confidence" facet and from application of Regulatory Focus Theory in addressing the promotional and precautionary motivations that drive behavior associated with e-cart purchase processes (Kukar-Kinney et al. 2022). We also attempt to address friction at the time of decision/checkout choice as well as complexities in products for

comparison that had individually been shown to strengthen the possibility of abandoned shopping carts (Sharma and Srivastava, in Das Sarma et al. 2025). Within this conceptual framework, purchase hesitation's impacts are mediated, both directly and indirectly through self-regulatory efficacy as behavioral intent/outcome of high regulatory efficiency under circumstances that entail product examination/choice and subsequent hesitation; the research is aimed to expand a scarce body of literature, which connect deliberate self-regulation to non-purchase activities online, and beyond purely habitual causes like spontaneity and inconvenience, giving e-commerce sites and digital marketers empirical bases for the development of checkout strategies that align with rather than counteract the purchase decisions being supported, and providing research hypothesis structures tested through structural equation modelling, for Indian as well as other emerging online markets.

KEYWORDS: Purchase Hesitation, Cart Abandonment Behavior, Self-Regulatory Efficacy, Digital Restraint, Consumer Deliberation, Regulatory Focus Theory

INTRODUCTION and Background related to the study

Global e-commerce has surpassed the six-trillion-dollar mark and is now growing faster domestically than internationally for many markets (Baymard Institute, 2025). Yet as online shopping's structurally climbing trajectory continues, shopping cart abandonment has persisted as an omnipresent and particularly expensive pitfall facing e-commerce retailers with globally rising cart abandonment rates ranging from approximately 60% in 2006 to 70.22% in 2026 (Baymard Institute, in Statista, 2026); although abandonment has been at the circa 70% level for almost a decade, numerous investments have been made on checkout redesigned, personalization systems and frictionless payment gateways. However, as a potential indicator that abandonment may owe its success not to interface design-level limitations or shortcomings but to far less-understood psychological mechanisms that influence the consumer's final pre-purchase decisions, the phenomenon remains unabated. Herein purchase hesitation has classically been examined as a nearly reflexively and emotionally based lag phase during stimuli-organism-response and impulsivity frameworks before actual cart abandonment. A growing body of literature suggests, however, that hesitation represents a rational deliberation rather than an impulsivity process wherein conscious reasoning on the true values, expenditures, and post-purchase regressions leads to quite willful leaving items in carts. Supporting this notion are studies showing that decisional and online procrastinations-effortful and self-regulatory processes-are a significant mediating

factor linking consumer affect and online abandonment, with the role of self-efficacy to shopping-consumer control over their ability to complete digital transactions-influencing buying versus abandoning decisions. Despite the accumulating evidence, the dominant literature has tended to examine the mechanism of cart abandonment from external frictions such as high shipping costs, complex transaction procedures and comparison traps; this neglect leaves large holes regarding the psychological factors underlying the process from deliberate psychological processes to intentional digital avoidance. Specifically, it has not yet been clarified whether and in what capacity self-regulation plays a mediated role. The present conceptual paper addresses these gaps with three primary aims: to theoretically establish purchase hesitation as a deliberative as opposed to an impulsive trigger of cart abandonment, to conceptualize self-regulatory efficacy as a psychological mediator in the deliberate links from hesitation to intentional digital avoidance behavior, and to establish an integrated framework built on Self-Efficacy Theory and Regulatory Focus Theory for guiding subsequent empirical research; the implications of the current conceptualization range from enhancing managerial and scholarly frameworks of shopping cart abandonment away from solely friction/design-based factors to the development of sophisticated psychological interventions. Moreover, it will assist e-commerce developers in India (which is rapidly expanding its e-commerce penetration rate) with ways to better cater to the customer's conscious digital choice and deliberation toward preventing shoppers' unintended restraint.

Statement of the research problem

Despite the enduring, financially-significant problem of online purchase cart abandonment – with global abandoned cart rates largely stagnant at approximately 70% for almost a decade, even as retailers invest heavily in checkout usability, payment convenience and personalization systems (Baymard Institute, as cited in Statista, 2026) – the predominant academic accounts of abandonment continue to focus primarily on the external “frictional” antecedents of carts being aborted, such as unexpected costs, complex checkout processes, account creation requirements, and product comparison-related decision load (Sharma & Srivastava, as cited in Das Sarma et al., 2025), at the relative expense of internal, self-regulatory processes through which consumers intentionally and deliberately choose to delay or withdraw from purchasing despite the absence of such external friction (Das Sarma et al., 2025). This is a significant deficit given recent evidence suggesting that both decisional and online procrastination – both effortful self-regulatory processes – mediate consumers’ affective states’ influence on their eventual abandon decisions (Silva et al., 2025), and that

consumers' confidence in their digital transaction proficiency helps determine whether they proceed to a purchase or abort their shopping cart (Wang et al., 2022). Nevertheless, no current theoretical or empirical framework has yet identified self-regulatory efficacy as a distinct mediator bridging deliberative purchase hesitation to intentional, restraint-driven cart leaving behaviour, and there is a general lack of academic clarity on how digital restraint, a self-regulated choice, differentiates from abandonment prompted by impulse, distraction, or friction, leaving consumers and marketing strategists ill-equipped with a psychological explanation for why highly self-regulated and confident consumers might nonetheless exit the online marketplace with their carts intact, even when all conditions for a favourable purchase are present; it is to this conceptual void that this study addresses, proposing to position self-regulatory efficacy as the mediating process that links purchase hesitation to intentional cart leaving behaviour.

Literature Review

Conceptualizing Purchase Hesitation in Digital Retail

Digital purchase hesitation (DPH) has conceptually been developed from its inception as customers' deliberate adoption of extra processing time to put off making the final decision, instead of making a choice to completely reject an offer (Cho et al. As cited in Chopra et al. 2024), then developed further as an indicator of hesitation not of a lack of interest, but of internal conflicting beliefs/doubts, and conflict between multiple factors influencing product choices for mobile shoppers prior to checkout (Huang et al. As cited in Chopra et al. 2024).

Cart Abandonment Behavior: Antecedents and Typologies

The most holistic systematic review in this realm so far involving 49 scholarly, peer-reviewed articles across the last 2 decades finds the global average of shopping cart abandonment is 71.4% and that the key drivers can be categorically divided into customer-oriented issues(attitude, product involvement, previous usage, and risk perception) and website oriented issues(checkout, pricing issues), and finds that research and comparison(shopping) behavior is key mediator that connects these antecedents with shopping abandonment outcomes. (Chopra, Jebarajakirthy, Jain, & Maseeh, 2024)

Self-Regulatory Efficacy: Theoretical Origins and Relevance to Consumer Behavior

Build on Bandura's classic theory of social cognition, this aspect has been identified as the beliefs individuals hold toward their ability to regulate and manage the behaviors associated with the pursuit of a goal over an impulse that produces immediate rewards, such as in a

consumer context, the ability to exert self-control in the decision of consumer spending decisions is also tied to higher levels of belief in self-regulatory efficacy (Bandura, 1997).

Digital Restraint as an Emerging Consumer Disposition

A recent study exploring hedonic consumption on-screen, approached from a behavioral addiction perspective; which argues that algorithmically designed digital market-scapes make consumers call more on direct intentional control in their attempt to curb consumption in response to targeted ads, purchase recommendations, personalized appeals to emotions or impulse purchasing behavior online (James, Karthik, & Thomas, 2025), supporting the development of our concept of digital restraint, as an active forms of consumer behavioral control rather than passive non-involvement, of consciously restraining otherwise favorable purchasing impulses for a self- efficacious consumer, thereby combining four previously separated themes of literature which although previously well studied individually fail to propose a unifying mediation model to explain the processes through which deliberative hesitation filtered via efficacy could create the nascent but empirically evident consumer construct of digital restraint.

Research Gap

Although there is a large body of literature on the antecedents of electronic shopping cart abandonment (SCA), both independent review streams of this literature-one that combines antecedents from customer- and website-related perspectives into a review-and-research-agenda framework (Wang et al., 2023), and the other that focuses on SCA from the consumer mindset perspective, distinguishing the abstract vs concrete construal levels (Rubin et al., 2020), -have highlighted that the field office remains theoretically fragmented, with at least 10 distinct theoretical perspectives applied at different times within the research literature that fail to coalesce into a singular self-regulatory perspective explaining intentional; furthermore, while one recent article critically assesses and challenges SCA related operationalizations (Mittal, 2023) and research within the mobile context suggests that conflict and ambivalence influence hesitation to engage SCA, no studies have explicitly conceptualize or empirically validate the role of self-regulation efficacy as a psychologically mediating mechanism explaining the relationship between hesitation to purchase and intentional scale and the particular nature of why a consumer who may believe himself to be self-regulatory may strategically exit the purchase process remains underexplained; furthermore, the existing classifications of the antecedents of scare organized based on external or situation based factors, website, and not based on consumers internal disposition capabilities; as such, the

incipient concept of digital restraint, identified as a consumers disposition toward self-regulation, remains unarticulated within any mediated model-a gap at the nexus of consumer psychology, self-regulation, and digital commerce that the present paper fills by proposing self-regulation efficacy.

Theoretical Framework related to the study

Building upon four interlocking and somewhat discrete theoretical bodies, the proposed conceptual model draws upon: firstly, Bandura's (1986) Theory of Social Cognitive-which stipulates that human behavior results from reciprocal influence between personal cognition, environmental conditions, and behavior; that perceptions of self-efficacy, defined as an individual's judgment of how well he/she can execute a given course of action, will act as the primary regulatory construct through which consumers translate Hesitation into purchase completion or withdrawal (that is, deliberation); secondly, The Theory of Planned Behavior- as already been tested in the online retail shopping setting and proven to have attitude, subjective norm and perceived behavior control significantly contributing to behavioral intention-thus, the theory provides a procedural articulation of how deliberate evaluation rather than automaticity will be the precursor to final cart-related action (Kashyap & Kumar, 2024); thirdly, Self-Regulation Theory-providing the model's mechanism; the theory proposes that people regularly compare their behaviors with an internalized standard and exert regulatory effort to modify behavior in an enduring fashion even when this involves counteracting the gratification associated with overriding an impulse (e.g., impulse purchase) (Carver & Scheier, 1998)-thus, the theory directly supports the postulation of self-regulatory efficacy as the core confidence construct associated with a positive execution of the regulation behavior (restraint); fourthly, Dual-Process Theory-justifying the cognition that underlies purchase hesitation; recent researches in digital commerce has empirically confirmed that consumers' decisions are comprised of two parallel routes of information processing, which are fast, automatic (non-conscious) and cue-driven (System 1) route and slow, deliberation-based (conscious) and confidence-driven (System 2) route, that the latter is proven to have a greater influence than the former to a purchase outcome in conventional on-line market whereas it varies in different online settings (Qiu, Bashir, Naseem, Gul, & Sadiq, 2026)-therefore, the justification for considering hesitation as a System 2 process rather than a System 1 process is provided; the decision to combine these four theoretical domains rather than adopting any of them alone is because they each provide complementary explanations to the proposed model; SCT provides the basis from which regulatory confidence emerges; TPB

posits the sequenced way from attitude to intention; SRT offers the mechanism of how this confidence will be put in practice when people exhibit effortful self-regulation; finally, Dual-Process Theory provides the evidence to show that the whole regulation process may be under the guidance of deliberate cognition rather than instant impulsivity; by bringing these theories together, the present conceptual model posits hesitation as a System 2-initiated precursor, self-regulation efficacy as a mechanism underlying behavior according to the logic from SCT and SRT, and digital restraint as the directly observed result of this high regulatory confidence under deliberative thinking and consistent with the behavior defined by TPB.



Figure 1. Conceptual visualization of the Technology Acceptance Model applied to Generative AI adoption among university stakeholders (Source: Ibrahim, F., Münscher, J.-C., Daseking, M., & Telle, N.-T. (2025). *Frontiers in Artificial Intelligence*).

Above diagram showing Theoretical Framework related to the study

Conceptual Model and Proposition Development

Purchase Hesitation and Cart Abandonment Behavior (Direct Relationship)

Extending from the foregoing theory, this conventionalization first directly links purchase hesitation and cart abandonment behavior, postulating that the conscious, System 2-directed deliberation of potential future purchases, focusing on price, need, and negative future experience with regretted transactions (as opposed to acting out of impulse), can, of itself, cause consumers to place the desired item in the cart and leave it there indefinitely, without any 'pain points' (e.g., unexpected shipping costs, tricky checkout process). This is consistent with results of a systematic review showing that research and comparison by consumers is a key mediating variable linking psychological predictors to a behavioral outcome, and that this

is true for many of forty-nine previous articles studied (Chopra et al., 2024), leading this study to propose formally the following: Proposition 1 (P1): Purchase hesitation is positively and directly related to cart abandonment behavior.

Self-Regulatory Efficacy as Mediator

Building upon this direct linkage, the model advances the hypothesis that the consumers' self-regulatory efficacy – their belief in their capability to deliberately override a purchase intention triggered by positive affection – mediates the link between purchase hesitation and cart abandonment so that hesitation, of itself, does not entail abandon but rather stimulates a regulatory examination. Here, psychologically secure consumers are argued to use deliberation to drive actual decision-driven abandoning – an effect that is compatible with extant evidence suggesting that online and decisional delay, being strenuous self-regulatory actions, largely explains the influence that a consumer's dispositional affective feelings have on his or her abandonment decision (Silva et al., 2025). This suggests: Proposition 2 (P2): Self-regulatory efficacy mediates the process of cart abandonment triggered by purchase hesitation, which enhances the likelihood that psychological consumers translate hesitation into intended abandoning and reduces that they forget doing so.

Proposed Moderators

Our model also hypothesizes two boundary conditions that can strengthen or weaken the linkage of hesitation–efficacy–abandonment: product involvement, as existing findings support that involvement significantly influences the linkage between consumers' online engagement behaviors and their purchase behavior choices (Su, Rattanapun, & Akkapiin, 2025); this suggests that high-involvement consumers may be more likely to intentionally activate self-regulation efficacy than low-involvement consumers, and digital literacy, as existing findings show that consumers' information-processing literacy in digital space affects different stages of digital buying decision process, including payment selection and timing of purchase (Shirzadi, Namdarian, & Khoshneshin-Langrudi, 2022); this further suggests that Digitally literate consumers can convert regulation confidence to effective restraint for cart management, and: Proposition 3 (P3): Product involvement and digital literacy moderate the significance of mediated effect of purchase hesitation to cart abandonment, such that indirect path from purchase hesitation to cart abandonment behavior via self-regulatory efficacy is the highest among consumers with high involvement and high digital literacy.

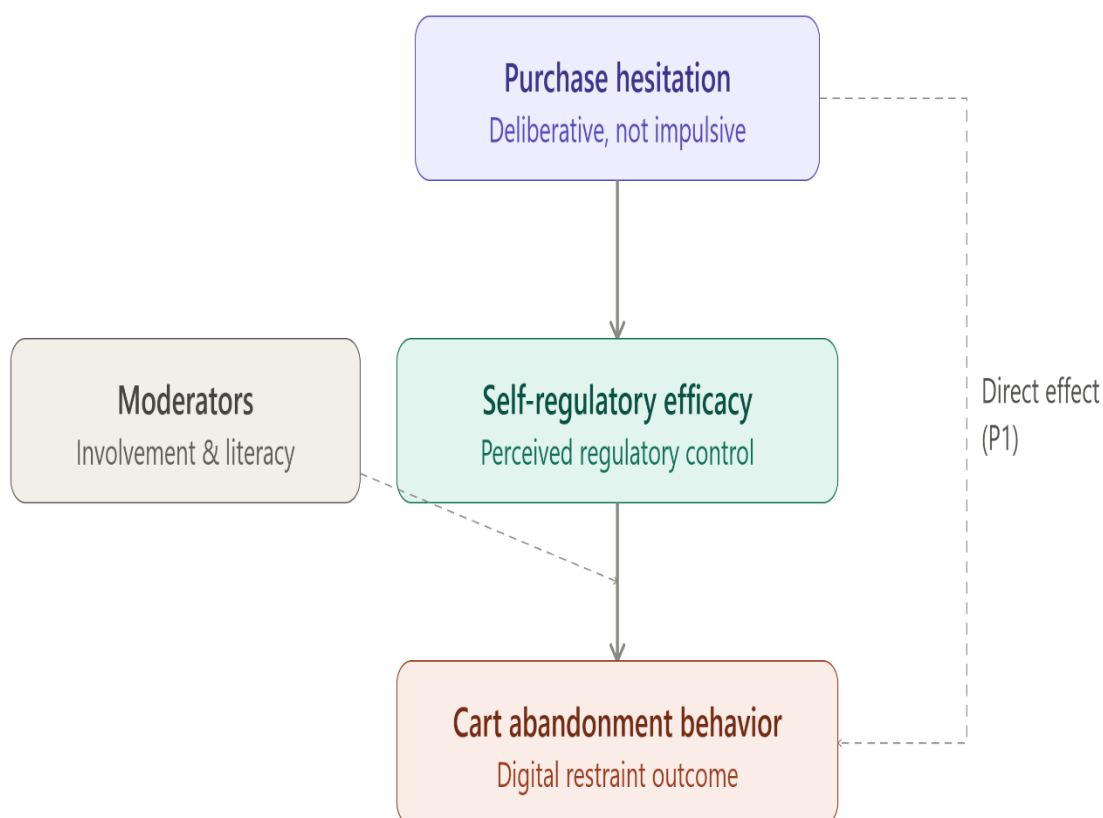
The diagram below depicts Proposition 1 as the direct path, Proposition 2 as the mediated path through self-regulatory efficacy, and Proposition 3 as the moderating influence of product involvement and digital literacy on the mediator-outcome link.

Purchase hesitation, as used in this line of research, refers to a consumer's voluntary decision to slow down or pause before completing a transaction — not a rejection of the product, but a deliberate insertion of extra processing time into the decision sequence. A few things distinguish it as a construct worth studying on its own:

It's cognitive, not just emotional. Early formulations framed hesitation as consumers consciously extending their evaluation window to reduce uncertainty before committing (Cho et al., as cited in Chopra et al., 2024). That's different from impulsivity's opposite — it's not "lack of desire," it's "active deliberation."

It often stems from internal conflict, not external friction. Work on mobile shopping found hesitation frequently arises from ambivalence — consumers weighing genuinely competing attributes (price vs. quality, need vs. want) rather than being blocked by a bad checkout flow (Huang et al., as cited in Chopra et al., 2024). This is the key distinction your paper's framework rests on: hesitation as a System 2, deliberative phenomenon rather than a System 1 impulsive lapse.

It's measurably linked to confidence, not just doubt. Wang et al. (2022) found that consumers' self-efficacy in navigating digital transactions shapes whether hesitation resolves into purchase or exit — which is part of why your model treats hesitation as the *trigger* and self-regulatory efficacy as the *mechanism* that determines which way it resolves.



Above diagram showing Conceptual Model and Proposition Development

Research Propositions

Based on the theoretical relations constructed within the conceptual model, we put forward the following interrelated hypotheses in a formal statement: P1 predicts that purchase hesitation is positively and directly related to cart abandonment behaviour, such that consumers who exercise deliberative/reflective processing in relation to a would-be purchase are more likely to abandon them, even in the absence of external constraints, a hypothesis that is in line with recent research findings that a "cool-down" period of twenty-four hours may facilitate prefrontal cortex based (deliberative) processing to overrule and dissipate the purchase urge entirely (Hassan, as cited in Financial Mindset Lab, 2025); P2 postulates that self-regulatory efficacy mediates the relationship between purchase hesitation and cart abandonment behaviour, such that consumers with greater felt regulatory confidence may convert the deliberative pause into intentional (self-constrained) abandonment rather than

allow it to lead to purchase completion, a mediation that aligns with recently reported evidence based on structural equation modelling in consumer financial decision making, in which the effect of a similar self-regulatory construct, namely consumer spending self-control, on subsequent decision outcomes is not direct but mediated by some underlying psychological process (Du Plessis, Jordaan & van der Westhuizen, 2025); P3 argues that both product involvement and digital literacy moderate the effect of this mediated relationship such that the indirect effect of purchase hesitation on cart abandonment through self-regulatory efficacy is stronger for consumers with higher product involvement and digital literacy respectively, a moderator structure that is congruent with more recent multiple mediation findings showing that self-control's dampening effect on the impulsive impulse buying outcome is also condition-dependent on resources (Duan, 2025); and P4 extends the model all the way to a behavioural outcome, predicting that higher self-regulatory efficacy and deliberative purchase hesitation interact to result in a disposition of digital restraint rather than a discrete transactional outcome, a position that is consistent with findings that the suppression of shopping urges motivated by financial constraints may cause more lasting shifts in future purchases rather than mere temporary delays, given the suppression is self-regulated and not external (So, 2026); In sum, the four hypotheses jointly hypothesize that purchase hesitation constitutes the triggering deliberative moment, self-regulatory efficacy constitutes the intervening psychological device enabling this pause to be directed towards deliberate abandonment and not merely eventual purchase completion, product involvement and digital literacy serve as boundary conditions of varying strength that may amplify or constrain the mediating process, and digital restraint constitute the ultimate, stable behaviour.

Discussion related to the study

The theoretical implications of the present conceptual model extend the existing literature on self-efficacy in online consumer behavior in several important ways: first, the present model explicitly challenges the overwhelming bias toward conceptualizing self-efficacy as only a facilitative construct that leads to greater purchase completion and adoption of e-commerce (as is clearly illustrated in research showing across numerous cultures that self-efficacy is a predictor of adoption of the online shopping channel [Vera-Martnez et al., cited in Vera-Martnez, Perea- Crdenas, & Trespalacios-Gutierrez, 2020]), by framing self-regulation efficacy as a concept which could as plausibly lead to a cessation of purchase behavior as it could lead to its completion if the same confidence is channeled toward restraint as it is towards purchasing--a conceptualization that goes beyond prior conceptualizations, which

have almost exclusively viewed self-efficacy as being exclusively tied to the activation, rather than the inhibition, of purchasing behavior; second, this model's contention resonates strongly with current research findings, which show that despite the presence of competence consumers systematically underestimate their confidence in online shopping and that an awareness of their self-efficacy can redress these underestimates and influence subsequent shopping behaviors [Zhang et al., as cited in Journal of Organizational Computing and Electronic Commerce, 2025], and thereby provide a theoretical basis for our assumption here that self-efficacy operating as an internal rather than an externally verifiable psychological resource can play a key role mediating between consumer hesitation and consumer behavior; third, whereas previous studies have used structural equation modeling to assess the relationships between self-efficacy, perception of risk, and knowledge, and found that self-efficacy is a predictor of safety-check intention in Japanese online market places [Author et al., as cited in Journal of Marketing Analytics, 2026], this model conceptualizes self-efficacy as being responsible for initiating prepurchase deliberation rather than for subsequent risk-checking behavior, which is a conceptually useful distinction as it reframes the role of self-efficacy as being involved prior to and leading to the adoption decision (as a restraint mechanism) rather than after the purchase decision is tentatively made (as a risk checking mechanism); fourth, our model draws on Self-Regulation Theory and Dual Process Theory in addition to Social Cognitive Theory, and this enables a more psychologically specific analysis of the reasons for the checkout abandonment behavior than that offered in prior explanations rooted in friction or usability factors; the latter having tended to conceptualize this phenomenon primarily as design or website error rather than as an outcome of a self-directed, purposeful behavior by the consumer and fifth, although we purposely align the model with prior antecedent based cart abandonment typology, our focus on an internal psychological antecedent howbeit an internal antecedent that is also related to perceived shopping capacity is not intended to be a replacement for these typology, as our model aims to add greater theoretical explanation to the customer antecedents within these typologies, which have typically emphasized external factors such as consumer attitude and past experiences. Our aim is to explain within this well-researched customer antecedent domain how consumers' self-assurance in their capacity to shop effectively online might paradoxically lead them to rationally decide not to complete their online purchases even when all other conditions suggest that it would be appropriate to do so.

Implications related to the study

The study's theoretical contributions are twofold, firstly it advances the digital retail literature by reformulating self-regulatory efficacy from being an construct that explains merely the successful completion of transactions - the dominant approach in research on e-commerce adoption - into one capable of predicting also deliberate noncompletion; second, it provides scholarly research with a needed psychological mechanism connecting the established purchase hesitation literature with the behavioral decision of cart abandonment; additionally it yields researchers a testable framework with strong theoretical grounding by integrating Self-Regulatory theory, the Theory of Planned Behavior, and Social Cognitive Theory within a Dual Process model that could be estimated using Structural Equation Modeling to determine whether digital restraint functions as a trait rather than a transient in-transition characteristic. From a business and marketing perspective, this framework has practical relevance for e-commerce platforms and their retailers as abandoned carts represent approximately \$4.6 trillion in unrealized potential per annum (Arjan KC, 2026) or 70.22% to 78.77% global purchase failure rate (Arjan KC, 2026), a trend which, as data indicate, simply cannot be addressed solely with a focus on lost cart redemption recovery, given typical abandon-cart email and SMS efforts recoup merely between 8.4 to 24.3% lost sales annually (Smart Circuit Blog, 2026); instead the data suggest platforms should augment general friction reduction strategies-such as offering a guest check out option, explicit upfront pricing disclosures, and the facilitation of smooth, expedient payment processes-with strategically considered product and user design decisions which support rather than contradict consumer self-regulatory processes, like providing an option for purchase deferral (i.e. 'Save for later') during a cart check-out session to recognize that occasional user hesitation simply might not represent a failed transaction. The model also suggests marketers reconsider generic targeting efforts and urgency-driven recover tactics for consumers who have displayed higher levels of self-regulatory efficacy, as high-pressure methods might actually alienate them and appear manipulative rather than convincing to this empowered consumer group. In contrast, well designed personalized approaches-which are demonstrated to generally outperform generic abandon cart reminders that leverage data such as shopping cart total and time since last active engagement (Mastercard, 2026) to engage consumers more productively-may more aptly complement and support the autonomous nature of the decision-made while in the abandonment state and can therefore potentially bridge the gap between sound theory concerning self-regulation, and the pragmatic as well as ethically considered checkout and

post-transaction remarketing strategies of the more deliberation-inclined 2026 consumer market.

Limitations and Future Research Directions

Despite the theoretical contribution this study makes, the work inherently stands as a 'theoretical work.' Given that the hypothesized paths-between purchase hesitation and self-regulatory efficacy and between purchasing hesitation and the action-inhibiting impact of cart abandonment, including moderating roles of product involvement and digital literacy-- are proposed and justified on logical theoretical and not empirical grounds. Namely, there are no direct tests of the pathways and as such, none of the proposed effects are confirmed. Furthermore, no tests of their magnitude, significance or direction, nor the practical implications they have for the e-commerce website could or should be made until the empirical data are collected to validate the links hypothesized. Therefore, future research should test the hypotheses through empirical methods such as survey based quantitative cross-sectional designs amongst active online consumers, and using tests of consumer behavior relevant across multiple different categories of products; the most promising test method would therefore be partial least squares structural equation modeling, particularly, given its proven capability of simultaneous estimating effects through pathways (direct, indirect, moderated paths etc.) in the same structural model-this seems especially ideal in this situation, due to a lack of prior empirically confirmed linkages for the proposed constructs, particularly self-regulatory efficacy (Hair, Sabol, Islam, & Murshed, 2026), an untested and new construct itself. It is strongly suggested that future research adopt the two-stage moderated-mediation tested approach already in newer PLS-SEM software in that the moderator variables (product involvement, and digital literacy), as above) directly impact the path between self-regulatory efficacy, buying hesitation, or indeed the relationship between purchase hesitation and its negative effects (namely on behavior in the form of car abandonment) itself. A procedure which allows interaction effects to be tested using the interaction variable itself placed directly into the model as specified above (and tested for significance using bootstrapped confident intervals for comparison), which has already been methodologically perfected and simplified through successive simple step-by-step tutorials over recent years, should be adopted (Memon, Thurasamy, Cheah, Ting, Kreienbaum, & Ringle, 2026). While cross-sectional research, longitudinal and even experimental designs should be undertaken to assess if digital restraint behaves as a tendency in the consumer and hence has stability throughout time or whether it is merely a specific, once off response to an

immediate, or short-term problem that can be ignored on subsequent visits. One potential issue is that in this paper we propose a repeatable behavioral pattern but cannot empirically distinguish it from once-off situational behaviors such as forgetting about, or postponing buying from the site on the current occasion. In addition to cross-sectional and alternative designs, additional cross-cultural studies should be carried out; the consumer characteristics tested above should have significant variation depending on differences in stages of development in different e-commerce markets. However, it would be of particularly value to see if the model works in different circumstances to the one test here (say India, and its potential differences from Europe or the U.S.) as mobile only usage and evolving digital literacy could prove key moderating factors. Lastly, behavioral trace data (e.g. Clickstream data or web browser session-recording logs) and not just self-reported survey measures, should be used when testing construct validity measures for digital restraint and self-regulatory efficacy (since the responses in the latter should come through recall of the participants past behavior rather than direct observation of its incidence).

CONCLUSION

All in all, the conceptual paper advanced that one widely recognized and yet perpetually constant e-commerce problem that has fluctuated around the 70% global mark with nearly a decade's continuous e-commerce industry investments into checkout optimization that can no longer adequately be defined through single frictional, usability-based explanations; has conceptualized it through purchase hesitation with its direct influence on cart abandonment, as a purposeful instead of purely instinctive psychological process; and it further posits that the role of product involvement and digital literacy were considered as moderators influencing the indirect link, mediated by self-regulatory efficacy (the consumer's self-perceived ability to voluntarily override an otherwise pro-purchase impulse), and that these psychological variables have moderated the effect of purchase hesitation, culminating in digital restraint as the consequent (and possibly stable) behavioral inclination within which a psychologically committed individual deliberately forsakes completion and continues on with purchase termination; based on several complementary theories, namely Social Cognitive theory, Theory of Planned behavior, Self-Regulation theory and Dual-Process theory, the paper has provided the digital retailing literature with needed an intrinsic psychological mechanism for explanation of the enduring cart abandonment after repeated investment towards reduction of external frictions; a rationale well-fitted for 2026's context with spending and deliberate shopping trends appearing worldwide instead of confined localized

instances (Experian, 2026); with this, the study implies that the behavioral mechanisms it purports is indeed a wide-reaching cultural shift rather than only a trivial shopping bag checkout occurrence; whereas the proposed theory stands, as can only be accepted, conceptually untested for now. The study goes far as to propose how empirical tests may well be made and recommend the PLS-SEM-based moderated-mediation analysis within various product types and digital retail channels including emerging rapidly digitalized contexts of India to authenticate the hypothesized associations; eventually, by repositioning cart abandonment from clearly undesirable marketing error to the result of rationally considered consumer self-restraint, the paper offers a theory-driven and practitioner-actionable starting point for both an in-depth academic endeavor into consumer deliberation and digital restraint and designing purchase and follow-up strategies at various e-commerce sites which truly address and defer to consumer' growing tendency towards cognitive decision-making process while spending in the online market.

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