

Decoding Online Shopping Cart Abandonment: An S-O-R Model Perspective On Consumer Decision-Making

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Abstract

This study examines the factors that influence shopping cart abandonment (SCA) in e-commerce, utilizing the Stimulus-Organism-Response (S-O-R) framework. This research aims to shed light on the mental and emotional factors that lead shoppers to leave items in their baskets without making a purchase. The research method used is quantitative, employing a questionnaire distributed via Google Forms to 145 respondents who are e-commerce consumers and have abandoned their online shopping carts. The data were analyzed using Partial Least Squares (SmartPLS 4). The research approach involves validity analysis, reliability, and R-squared hypothesis tests. The analysis results show that the stimuli of Choice Overload and Checkout Complexity significantly affect Emotional Ambivalence and Hesitation at Checkout, which ultimately contribute to SCA Decision. It was found that Hesitation at Checkout had the most decisive influence on SCA. Consumers' choices to leave shopping carts are significantly influenced by psychological elements, such as emotional ambivalence and uncertainty.

Keywords: Shopping cart abandonment, online shopping, stimulus-organism-response, JEL Classification: D91, M31

INTRODUCTION

Community, corporate, and governmental lifestyles have all been transformed by the rise of the internet and digitisation. The ease and speed of the digital economy, backed by ever-improving infrastructure and technology, have altered the supply and demand patterns of many economic players. Following the COVID-19 pandemic, the habit of shopping online has continued and become a new lifestyle in society. The 2020 COVID-19 epidemic has changed people's lives and accelerated the usage of technology. This is evidenced by the continued increase in internet penetration since 2019.

The National Socio-Economic Survey (Susenas) noted that as many as 69.21% of the Indonesian population accessed the internet in 2023 (Badan Pusat Statistik, 2025). The value of e-commerce sales transactions during 2023 is 1,100.87 trillion rupiah. Total operating revenue increased compared to 2022 to 2,295 trillion rupiah. This was driven by a significant increase in revenue from online sales through digital marketplaces/platforms in addition to digital marketplaces/platforms. Thus, the value of e-commerce transactions also increased by 40% compared to 2022 to 1,100.87 trillion rupiah in 2023. In Indonesia, the number of e-commerce enterprises increased by 27%, which aligns with the rise in the value of e-commerce transactions. This growth reflects a positive trend in the digital economy, which aligns with global and regional economic developments. At the ASEAN level, the digital economy continues to grow rapidly, with Indonesia as one of the leading players.

Digital transformation in Indonesia, supported by strong digital infrastructure and pro-business government policies, has become a key driver of national economic growth. Millennials and members of Generation Z, who grew up with the internet and are pretty proficient with technology, are driving the expansion of online shopping. In addition, based on data from We Are Social & Meltwater (2023 in Kredivo & Katadata, 2023) Indonesia's large population is expected to produce a significant number of e-commerce users in 2023, reaching 178.9 million people, or 65% of the total population. As a result, Indonesia now has more internet users per capita than any other Southeast Asian nation.

In Indonesia, several e-commerce platforms dominate the market. In terms of traffic from Indonesian internet users in 2023, Shopee dominated the marketplace sector (SimilarWeb, 2024). The Shopee website had an unprecedented 2.3 billion visitors between January and December 2023, far outpacing its rivals. There was a 41.39% increase in the number of visitors to the Shopee website from the previous year. Tokopedia had around 1.2 billion visitors while Lazada had 762.4 million at the same time. At the same time, 337.4 million people visited the BliBli website, while 168.2 million people visited the Bukalapak website.

However, it is known that many Shopee users add items to their cart until it is full. The maximum quota of goods that can be added to the Shopee basket is approximately 200 products (Kumparan, 2022). Online shopping carts are used by some customers to compare prices, even when they don't plan to make a purchase (Close & Kukar-Kinney, 2010). When customers choose what they want to buy and add it to their shopping cart, but then promptly exit without completing the transaction, the phenomenon is known as 'shopping cart abandonment' (SCA), a term first introduced by Close and Kukar-Kinney (2010). Because it causes major customer irritation, fiercer competition, slower sales, and substantial revenue losses, this problem has become a significant worry for e-tailers (Boychuk, 2023).

The level of SCA has continued to increase since 2014. In 2023, the number of SCAs will reach 70% for the first time since 2013 (Gelder, 2025). One of the primary reasons online shoppers leave products in their carts is due to the checkout process. According to a report from Forster, nearly 80% of consumers in the US and UK stated that they would abandon an online shopping cart if the checkout process were too long or complex. Additionally, more than 20% of consumers cancel their purchases when asked to create a new account (Forster Team, 2019).

A significant obstacle to the expansion of online shopping is the high rate of cart abandonment. When thinking about online shopping, this phenomenon is crucial. Approximately three-quarters of all shopping carts are left unfulfilled before a purchase is made, according to studies (Oliver & Shor, 2003). Often, the initial push created is not enough to drive the completion of the purchase. Until the purchase is complete, the interest will not persist (Rejikumar & Asokan-Ajitha, 2020). A survey by SMARTASSISTANT found that 54% of consumers stop buying because of difficulty in choosing due to the overwhelming number of options. E-commerce has made shopping easier, but with an increasing number of options, consumers can become confused and feel overwhelmed, ultimately abandoning their shopping carts (GlobeNewswire, 2018).

Finding what drives online shoppers to abandon their shopping carts will offer e-commerce an understanding of consumers' behavior regarding SCA. Thus, providing valuable insights to establish strategies to overcome the obstacle and thrive on the opportunity by utilizing their strengths.

LITERATURE REVIEW

Online Shopping Cart Abandonment

Although the Internet and technology offer several advantages to shoppers, online shopping has some inherent drawbacks, such as the abandonment of e-carts known as Shopping Cart Abandonment (Song, 2019). SCA is a phenomenon that primarily applies to the online context (as opposed to brick-and-mortar). Close and Kukar-Kinney (2010) describe this term as a situation where the consumer selects the item they want to buy and adds it to their shopping cart. Still, the consumer immediately leaves without completing the purchase. Forbes (2021) defines SCA as when a customer adds a large quantity of items to their virtual shopping cart but then abandons it before completing the transaction. Customers may be pretty picky and unpredictable. On occasion, they may spend an excessive amount of time browsing before finally completing a purchase, at which point they will leave their cart empty.

According to Ong et al. (2022), the SCA phenomenon occurs when a user adds an item to a cart on an online shopping site but does not complete the payment and transaction. In addition, SCA is defined as the practice of customers gathering information by adding items to their virtual shopping cart before abandoning the cart and without completing the purchase (Rubin et al., 2020). Think of the shopping cart as a multipurpose tool, and customers will put items in it for storage, entertainment, interaction, and information comparison. Then, until either the consumer or the system deletes the item, some or all of the items will remain in the shopping cart (Jiang et al., 2021).

To put it simply, all the definitions that have been given revolve around two main points: (1) choosing the thing to buy and adding it to the virtual shopping cart, and (2) not completing the payment on the checkout page. Thus, it is reasonable to define SCA as the practice of adding items to an online shopping cart and then either removing them or leaving them in the cart without completing the transaction (Gupta et al., 2024).

Several studies have identified several variables that drive SCA behaviour. Huang, Korfiatis, & Chang (2018) discuss the role of conflict, ambivalence, and doubt in SCA. Specifically, when it comes to mobile device purchasing, the research found that these three criteria greatly impact customers' decisions to leave items in their carts. In line with Jiang, Zhang, & Wang (2021) who stated that consumers who face many product choices (Choice Overload) will have difficulty making purchase decisions, leading to hesitation behaviour (Hesitation at checkout) and ultimately leading to the decision to abandon the shopping cart.

In this study, it was explored how the sorting of items in the online shopping cart affects SCA behaviour. The study found that item ordering can influence consumers' perception of value and urgency of purchase, which in turn affects their decision to complete a transaction or abandon a shopping cart. Furthermore, Sundjaja et al (2024) identified the determinants of SCA among e-commerce consumers in Indonesia. The findings show that factors such as the complexity of the checkout process, limited payment options, and trust in e-commerce platforms play an important role in consumers' decisions to abandon shopping carts. Complexity checkout is the most significant variable in driving SCA. According to the results, many customers give up on purchases they were about to make when they encounter problems.

Choice Overload

Information overload refers to a condition in which a person is exposed to an enormous volume of information through various media channels, beyond the capacity they can process (Ong et al., 2022). When a person's cognitive resources are overwhelmed by the complexity of a decision issue, the result is Choice Overload, also known as overchoice (Jacob & Joseph, 2023; Simon, 1995; Toffler, 1970). When a person's cognitive resources are overwhelmed by the complexity of a decision issue, the result is Choice Overload, also known as over-choice.

The concept of choice overload is often characterised by having more options than desired. Consumers suffer from choice overload when they are presented with an overwhelming number of options. Avoiding the phenomenon of choice is the result of psychological conflicts caused by having too many options. These conflicts manifest as uncertainty, worry, and an unwillingness to make a decision. Attributable, in part, to the abundance of choice possibilities, decision complexity is high (Jacob & Joseph, 2023). According to some, compared to single-brand shops, multi-brand stores might increase excessive cognitive load due to their broader selection of possibilities (Rahnamae & Berger, 2013). Under the influence of information and a huge number of choices, consumers experience negative emotions, such as dissatisfaction, anxiety, and procrastination, in purchasing decisions. The over-choice effect describes this scenario. Information overload has occurred as a result of the proliferation of product options. A Choice Overload effect occurs when customers are faced with an excessive number of options while shopping for a product (Scheibehenne et al., 2010).

When it comes to Choice Overload, on the other hand, consumer actions can be captured by factors like the likelihood of delaying the choice, the likelihood of reversing previously made choices, the preference for more choices, and the nature of the choices that are ultimately chosen. Choice delaying, switching, less desire for more options, and more preference for readily defensible decisions are all indicators of higher levels of choice overload in this setting (Chernev et al., 2015). According to research by Sarma, Sarkar & Sarkar (2024), customers give up on their purchases because they find it too difficult to make a selection among so many options, which in turn increases cognitive fatigue. Now that internet shopping carts can hold more items, customers may put hundreds of things in them. Thus, they are faced with several products, which will make it difficult for them to make decisions and ultimately lead to abandoned shopping carts.

H1: Choice Overload has a positive effect on Hesitation at checkout

H2: Choice Overload has a positive effect on Emotional Ambivalence

Checkout Complexity

Consumers often encounter payment processing issues when attempting to complete an online purchase, according to Yusuf et al. (2021). This could be due to a lack of clear instructions from the store on how to pay, an inadequate selection of payment methods (such as bank transfers), or an inability to use any payment method other than bank transfer. The buyer's motivation to finish the sale will be diminished due to these obstacles, leading to a rise in SCA as a result of the transaction not being completed. Previous research indicates that transactional difficulties cause customers to abandon online purchases in the later stages (Rajamma et al., 2009). Vendors should aim for the smoothest checkout process possible in light of these findings (Yusuf et al., 2021). One of these is developing a method that enables users to input data in a familiar format, which lowers SCA and enhances the user experience in general.

The completion of customer transactions may suffer from convoluted payment procedures. The complexity of the checkout process is making customers more hesitant to complete purchases (Sundjaja et al., 2024). Mishra, Malhotra, and Tiwari (2021) examined the effect of cognitive conflict moderation on the relationship between value awareness and online SCA. The results demonstrate that a major contributing factor to SCA is complex checkouts. When customers are dissatisfied with an item, they frequently leave it in their shopping cart.

H3: Checkout Complexity has a positive effect on Hesitation at checkout

H4: Checkout Complexity has a positive effect on Emotional Ambivalence

Hesitation at Checkout

Doubt at checkout was defined by Cho et al. (2006) as 'delaying or suspending a product purchase, consumers need additional time to process before they make a product purchase on the internet.' The ability to pause before purchasing after considering an item is known as 'doubt at checkout' (Ong et al., 2022). Researchers have tried to identify why many consumers abandon their online shopping carts. Huang, Korfiatis, & Chang (2018) investigated the psychological factors that contribute to SCA by measuring the strong influence of payment hesitancy. Internal conflicts, which arise from differences between the desire to buy and other obstacles (such as price or need), significantly increase the likelihood of an SCA decision. Ambivalence, or a feeling of indecision between available options, leads to uncertainty that also contributes to SCA.

Similarly, Yuan et al. (2020) found that customers who are uncertain of 'whether to buy' are more likely to back out of their transaction. This research found that customers are more likely to leave their carts empty if they have payment worries. In simple terms, it can be said that consumers end the transaction most likely because they are hesitant. Hesitancy is the leading cause of online SCA, according to research by Wang et al. (2022). Whereas, shoppers prone to second-guessing themselves are more likely to leave empty-handed.

H6: Hesitation at Checkout has a positive effect on Shopping Cart Abandonment

Emotional Ambivalence

A customer's desire to acquire a product is not always translated into a purchase. People may have an intense need to purchase goods. Nevertheless, individuals may encounter obstacles while trying to finalise a transaction and, in extreme cases, may even give up entirely. According to Azimi, Milne & Miller (2020), purchasing decisions can be abandoned due to the existence of 'competition between inappropriate responses' in individuals. Conflict inside and a subsequent shift in behaviour towards approach or avoidance could arise when both positive and negative inclinations exist at the same time. Some have hypothesised that valence is responsible for the distinction between approach motivation and avoidance: A good or desirable occurrence or possibility influences or directs behaviour in approach motivation, while a negative or unwanted event or possibility directs behaviour in avoidance motivation (Elliot & Thrash, 2002). When people make a purchase, their sentiments, attitudes, and beliefs are very important factors. According to research, the shopping experience is a kaleidoscope of psychological notions with contrasting valences. Ambivalence is characterised by persons displaying complicated and improper emotions and attitudes as a consequence of contradictory conditions (Firfiray & Gomez-Mejia, 2021).

Emotional Ambivalence, as defined by Huang, Korfiatis, & Chang (2018), is a feeling of avoidance when buying that may be caused by cognition or emotion. According to the research, customers who are on the fence about a purchase are less likely to complete it after adding it to their cart. A person's actions may be influenced by their ideas and views, which can have both positive and negative effects on their emotions. This state is known as emotional ambivalence. When people are feeling down, they may not think clearly or make the best decisions. Avoiding these situations is one approach to keeping bad feelings at bay. Additionally, Emotional Ambivalence is linked to discomfort and hesitation (van Harreveld et al., 2009). A study by Ong et al. (2022) explored the factors that influenced SCA during the COVID-19 pandemic. The findings show that Emotional Ambivalence plays a role, where someone with Emotional Ambivalence will tend to abandon their online shopping cart (Ong et al., 2022). By the results of previous studies, it can be said that Emotional Ambivalence thus increases the likelihood of SCA.

H5: Emotional Ambivalence has a positive effect on Hesitation at checkout

H7: Emotional Ambivalence has a positive effect on Shopping Cart Abandonment

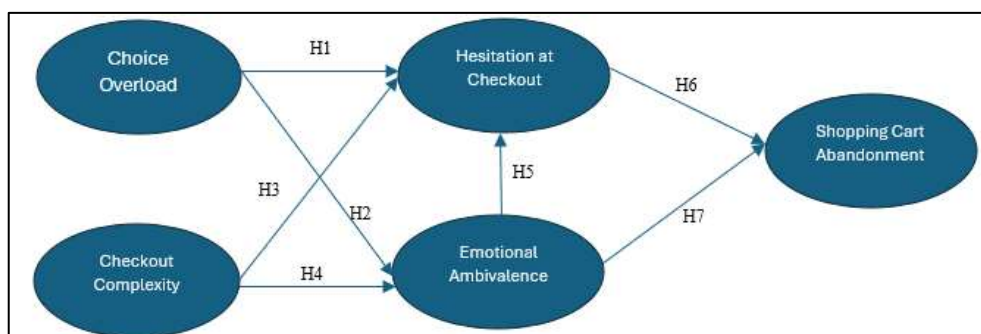


Figure 1. Conceptual Framework

METHODS

The population in this study is all e-commerce consumers who have abandoned online shopping carts and who live in Greater Jakarta. In order to determine the right number of samples and be able to represent the entire population in answering the problem formulation, it is necessary to determine the sample size to be used in the research. According to Hair et al., (2011) that the ideal sample size is between 100 and 200 respondents so that it can be analyzed using the Structural Equation Model, the respondents collected in this study are a total of 145 respondents. The criteria used as a research sample are:

1. Respondents have an E-commerce application.
2. Respondents have done Cart Abandonment tendencies.

The sampling technique used in this study is purposive sampling. This technique allows for a representative sampling of the specified respondent criteria. The scale used in the study is the Likert scale. The Likert Scale usually consists of a series of respondents' choices expressing a degree of agreement or disagreement with an item of statement or question. The Likert Scale is in the form of five answer choices consisting of: Strongly Disagree (STS), Disagree (TS), Hesitate (R), Agree (S), and Strongly Agree (SS). The reason the researcher uses the Likert scale with five answer options is that there is a choice for respondents to choose neutral or hesitant, which can accommodate those who do not agree or disagree (Hertanto, 2017).

This study uses descriptive analysis to show the characteristics or description of the respondents' demographics. The Structural Equation Modeling (SEM) statistical analysis method is then used with the help of the SmartPLS 4.0 application. PLS testing consists of two main stages, namely the measurement model used to test validity and reliability, and the structural model that serves to test causality through hypothesis testing and prediction models.

The survey method is carried out online by distributing questionnaires using Google Forms through several social media platforms, namely WhatsApp and Instagram.

The Stimulus-Organism-Response (S-O-R) model framework is used to describe the environmental stimulation process that affects consumer activities to produce SCA reactions. In recent years, the S-O-R model has been used in a number of studies on consumer decision-making in retail settings (Xu et al., 2020). The theory was first put forth by Mehrabian and Russel in 1974, and Jacoby updated it in 2002. Our knowledge of how different environmental stimuli test an organism's emotional and cognitive cores and affect its decision-making reactions has advanced significantly since then (Zafar et al., 2020). Emotional Ambivalence and Hesitation at Checkout are perceived as organisms (O), Shopping Cart Abandonment behaviour is a response (R), and external factors (Choice Overload and Checkout Complexity) are stimulants related to the environment. The study investigates the interplay between personal and external factors, which leads to online shoppers' refusal to finish a transaction.

RESULTS

This study involved 145 respondents with diverse demographic characteristics. Based on gender, the majority of respondents were women (57.9%), while the other 42.1% were men. This data suggests women were more involved than men, possibly offering a different perspective on online shopping behavior and cart abandonment decisions.

In terms of age group, the distribution of respondents showed that most of them were in the age range over 50 years old (34.5%), followed by the age group of 20-30 years (29.0%), 31-40 years (16.6%), 41-50 years (15.9%), and less than 20 years old (4.1%). The dominance of respondents from the age groups

above 50 years and 20–30 years indicates that online shopping behavior is not only a trend among young people, but also significant among older individuals.

Based on domicile, respondents from the Greater Jakarta area dominated with 63.4%, while 36.6% of other respondents came from outside Greater Jakarta. This shows the high penetration of e-commerce in urban areas, which generally have wider access to digital platforms and more adequate delivery services.

Based on employment status, most of the respondents were private workers (45.5%), followed by civil servants (PNS) (34.5%), as well as other professional groups such as entrepreneurs (8.3%), students/students (2.1%), and several other job categories with a smaller percentage. The dominance of private workers and civil servants in this study indicates that individuals with fixed incomes have a higher tendency to shop online.

In terms of monthly income, the majority of respondents had an income in the range of 10–30 million Rupiah (29.7%), followed by the group with an income of 5–10 million Rupiah (28.3%), less than 5 million Rupiah (25.5%), and more than 30 million Rupiah (16.6%). This income distribution shows that middle-income groups are more dominant in online shopping behavior, while lower- and higher-income groups show more varied patterns in purchasing decisions.

Regarding e-commerce platform preferences, the majority of respondents use Shopee (69.7%) as their main platform, followed by Tokopedia (26.2%), while other platforms, such as Lazada and Bukalapak, have a much smaller percentage. This finding is in line with the trend of Shopee's dominance as one of the largest e-commerce platforms in Indonesia. In addition, most respondents also shop through various platforms such as Shopee, Tokopedia, and Lazada, and some use the official websites of certain brands.

In terms of the most frequently purchased product categories online, the fashion category (23.4%) is the most dominant, followed by fashion and cosmetics combinations (11.0%), food and beverages (7.6%), and various other categories such as electronics and health products. These results show that fashion products have a higher appeal than other categories in online shopping.

In terms of the frequency of online shopping in the past month, the majority of respondents shopped in the range of 1-2 times (49.0%), followed by 3-5 times (35.9%), 5-10 times (9.0%), and only 6.2% made purchases more than 10 times in a month. This indicates that the majority of consumers have a fairly regular shopping pattern, but not in a frequency that is too high.

Shopping cart abandonment behavior is a phenomenon in this study. As many as 91.7% of respondents stated that they had put products in their shopping cart without completing a purchase, while only 8.3% had never experienced this. The frequency of abandoning shopping carts also varied, with 31.7% of respondents doing it often, 28.3% doing it occasionally, 18.6% infrequently, 10.3% very often, and 11.0% very rarely.

In addition, regarding the reason why consumers do not complete the payment immediately, many stated that they often forget to checkout after putting the product in the shopping cart. As many as 29.7% of respondents often experience this, while another 29.7% do it occasionally, 25.5% rarely experience it, 4.8% forget to check out very often, and only 10.3% never experience it.

In terms of the length of time it takes to finally checkout after leaving the shopping cart, most respondents complete their transaction in less than 3 days (37.2%), followed by a range of 4 days to 1 week (17.2%), 2 weeks to 1 month (15.2%), and 1 week to 2 weeks (13.8%). However, as many as 13.1% of respondents stated that they never return to complete a transaction after abandoning their shopping cart, indicating that certain factors can drive consumers to cancel their transactions. In general, the majority of e-commerce consumers have a high tendency to abandon their shopping carts before completing a transaction. Several reasons were put forward such as forgetting to checkout, the duration of time needed to make a decision, and other external and emotional factors.

Convergent Validity and Discriminatory Validity

1. Convergent Validity

Based on the results of the estimates shown in Table 1. All indicators have a loading factor value above 0.70, with a range between 0.746 and 0.924. This shows that each indicator has a strong enough contribution in explaining the latent variables being measured. Thus, the entire indicator can be said to be valid and nothing is eliminated from the model. Therefore, the construct in this study has met the criteria of convergent validity.

Table 1. Outer Loadings

| | Checkout Complexity | Choice Overload | Emotional Ambivalence | Hesitation at Checkout | Shopping Cart Abandonment |
|-----|---------------------|-----------------|-----------------------|------------------------|---------------------------|
| CC1 | 0.801 | | | | |
| CC2 | 0.746 | | | | |
| CC3 | 0.811 | | | | |
| CC4 | 0.832 | | | | |
| CC5 | 0.768 | | | | |
| CO1 | | 0.806 | | | |
| CO2 | | 0.779 | | | |
| CO3 | | 0.771 | | | |
| CO4 | | 0.778 | | | |
| CO5 | | 0.792 | | | |
| CO6 | | 0.773 | | | |
| EA1 | | | 0.876 | | |
| EA2 | | | 0.816 | | |
| EA3 | | | 0.772 | | |
| EA4 | | | 0.897 | | |
| EA5 | | | 0.783 | | |
| EA6 | | | 0.779 | | |
| HC1 | | | | 0.876 | |
| HC2 | | | | 0.897 | |
| HC3 | | | | 0.909 | |
| HC4 | | | | 0.907 | |
| HC5 | | | | 0.859 | |
| SA1 | | | | | 0.839 |
| SA2 | | | | | 0.868 |
| SA3 | | | | | 0.901 |
| SA4 | | | | | 0.924 |

2. Composite Reliability and AVE

The results of the construction reliability test shown in Table 2 show that all variables in this study have a Composite Reliability (CR) value above 0.70, with a range between 0.894 to 0.950. In addition, Cronbach's Alpha values also showed good results, with values above 0.70 for the entire construct. The AVE values of all variables in this study ranged from 0.613 to 0.792, which means that the minimum requirement of 0.50 has been met.

Table 2. Composite Reliability Variable

| | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|---------------------------|------------------|-------|-----------------------|----------------------------------|
| Checkout Complexity | 0.852 | 0.854 | 0.894 | 0.628 |
| Choice Overload | 0.874 | 0.878 | 0.905 | 0.613 |
| Emotional Ambivalence | 0.903 | 0.906 | 0.926 | 0.675 |
| Hesitation at Checkout | 0.934 | 0.937 | 0.950 | 0.792 |
| Shopping Cart Abandonment | 0.906 | 0.906 | 0.934 | 0.781 |

Based on these results, it can be concluded that all constructs in this study have high reliability, which means that the internal consistency of indicators in measuring latent variables can be accounted for. Thus, the model used in this study has met the reliability criteria.

3. Discriminant Validity

Validity of discrimination measures the extent to which a construct is entirely different from other constructs in the research model. The validity test of discrimination was conducted using three approaches: Cross-Loading, Fornell-Larcker Criterion, and Heterotrait-Monotrait Ratio (HTMT).

Cross Loading

The cross-loading approach is used to evaluate the validity of discrimination by comparing the correlation between the indicator and its construct with the correlation against other constructs. An indicator is considered valid if it exhibits the highest correlation value with the measured construct compared to other constructs. The cross-loading test results, as shown in Table 3, indicate that each indicator has the highest correlation value with its construct compared to other constructs. This suggests that each indicator uniquely represents its construct and does not have a higher correlation with different constructs. Thus, it can be concluded that this research model meets the criteria for validity of discrimination based on cross-loading.

Table 3. Discriminant Validity Result Test

| | Checkout Complexity | Choice Overload | Emotional Ambivalence | Hesitation at Checkout | Shopping Cart Abandonment |
|-----|---------------------|-----------------|-----------------------|------------------------|---------------------------|
| CC1 | 0.801 | 0.438 | 0.533 | 0.418 | 0.462 |
| CC2 | 0.746 | 0.365 | 0.457 | 0.576 | 0.474 |
| CC3 | 0.811 | 0.396 | 0.437 | 0.489 | 0.460 |
| CC4 | 0.832 | 0.292 | 0.448 | 0.428 | 0.361 |
| CC5 | 0.768 | 0.312 | 0.468 | 0.301 | 0.501 |
| CO1 | 0.283 | 0.806 | 0.425 | 0.532 | 0.554 |
| CO2 | 0.458 | 0.779 | 0.422 | 0.470 | 0.545 |
| CO3 | 0.427 | 0.771 | 0.558 | 0.653 | 0.479 |
| CO4 | 0.335 | 0.778 | 0.472 | 0.464 | 0.543 |
| CO5 | 0.331 | 0.792 | 0.580 | 0.535 | 0.604 |
| CO6 | 0.320 | 0.773 | 0.497 | 0.565 | 0.524 |
| EA1 | 0.557 | 0.585 | 0.876 | 0.581 | 0.510 |
| EA2 | 0.475 | 0.481 | 0.816 | 0.444 | 0.435 |
| EA3 | 0.451 | 0.479 | 0.772 | 0.478 | 0.462 |
| EA4 | 0.492 | 0.504 | 0.897 | 0.510 | 0.455 |
| EA5 | 0.481 | 0.542 | 0.783 | 0.647 | 0.540 |
| EA6 | 0.456 | 0.525 | 0.779 | 0.559 | 0.460 |
| HC1 | 0.489 | 0.608 | 0.529 | 0.876 | 0.586 |
| HC2 | 0.455 | 0.579 | 0.513 | 0.897 | 0.605 |
| HC3 | 0.485 | 0.585 | 0.550 | 0.909 | 0.537 |
| HC4 | 0.503 | 0.628 | 0.656 | 0.907 | 0.626 |
| HC5 | 0.585 | 0.671 | 0.666 | 0.859 | 0.671 |
| SA1 | 0.480 | 0.597 | 0.508 | 0.609 | 0.839 |
| SA2 | 0.510 | 0.558 | 0.505 | 0.619 | 0.868 |
| SA3 | 0.518 | 0.637 | 0.533 | 0.595 | 0.901 |
| SA4 | 0.507 | 0.646 | 0.517 | 0.592 | 0.924 |

Fornell-Larcker Criterion

In addition to cross-loading, the validity of discrimination is also tested using the Fornell-Larcker Criterion, where the root value of the Fornell-Larcker Criterion for each construct must be greater than its correlation with other constructs in the model. Based on the results shown in Table 4, the root value of the Fornell-Larcker Criterion for each construct is in the range of **0.783 and 0.890**, which is greater than the correlation value with other variables.

Table 4. Fornell-Larcker Criterion Correlation

| | Checkout Complexity | Choice Overload | Emotional Ambivalence | Hesitation at Checkout | Shopping Cart Abandonment |
|---------------------------|---------------------|-----------------|-----------------------|------------------------|---------------------------|
| Checkout Complexity | 0.792 | | | | |
| Choice Overload | 0.460 | 0.783 | | | |
| Emotional Ambivalence | 0.593 | 0.636 | 0.822 | | |
| Hesitation at Checkout | 0.569 | 0.693 | 0.660 | 0.890 | |
| Shopping Cart Abandonment | 0.571 | 0.690 | 0.585 | 0.684 | 0.884 |

Heterotrait-Monotrait Ratio (HTMT)

The HTMT approach is used to assess the validity of discrimination by comparing the mean correlations between latent variables. A construct is said to meet the validity of discrimination if the HTMT value is less than 0.90. Based on the results shown in Table 5, all HTMT values are below 0.90, with a range between **0.526** and **0.777**. Thus, this research model meets the criteria for validity of discrimination based on the HTMT calculation, as recommended by Henseler et al. (2015).

Table 5. Discriminant Validity HTMT Ratio Matrix

| | Checkout Complexity | Choice Overload | Emotional Ambivalence | Hesitation at Checkout | Shopping Cart Abandonment |
|---------------------------|---------------------|-----------------|-----------------------|------------------------|---------------------------|
| Checkout Complexity | | | | | |
| Choice Overload | 0.526 | | | | |
| Emotional Ambivalence | 0.673 | 0.703 | | | |
| Hesitation at Checkout | 0.622 | 0.753 | 0.706 | | |
| Shopping Cart Abandonment | 0.649 | 0.777 | 0.643 | 0.739 | |

The HTMT value must be less than 0.9 to ensure the validity of discrimination between two reflective constructs (Henseler et al., 2015). The HTMT table above shows that all HTMT values are < 0.9, so it can be stated that all constructs have been valid in terms of discrimination validity based on the HTMT calculation.

Inner Model

The evaluation of the structural model in this study was conducted to assess the extent to which independent variables can explain dependent variables, as measured by R² and f². This test aims to measure the model's ability to explain the relationship between latent variables and ensure the validity of predictions, as well as the strength of the relationship between variables in this study

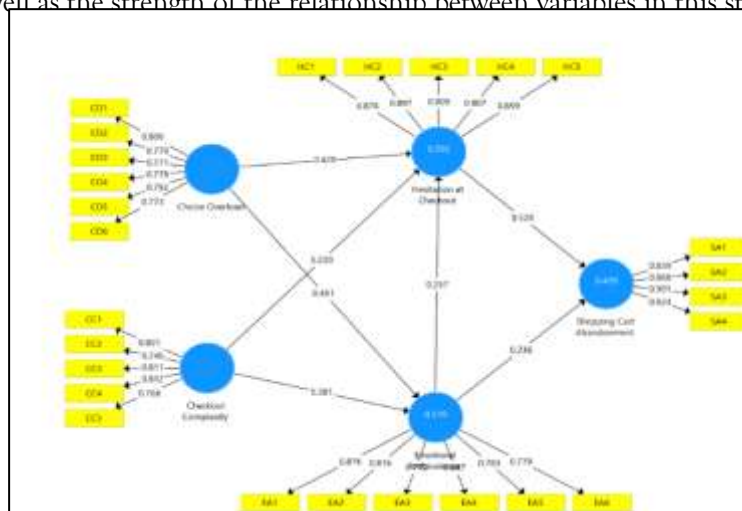


Figure 2. Structural Model

The results of the R-squared (R^2) estimate show that the Emotional Ambivalence variable has an R^2 value of 0.519, indicating that 51.9% of the variability in Emotional Ambivalence can be explained by the variables Choice Overload and Checkout Complexity. In comparison, the remaining 48.1% is influenced by other factors that are not included in this model. The Hesitation at checkout variable has an R^2 value of 0.592, indicating that Choice Overload, Checkout Complexity, and Emotional Ambivalence can explain 59.2% of the variation in this variable. In comparison, the remaining 40.8% is attributed to other external factors. Meanwhile, the Shopping Cart Abandonment variable has an R^2 value of 0.499, indicating that 49.9% of the variability in consumers' decisions to abandon their shopping carts can be attributed to Hesitation at checkout and Emotional Ambivalence. In comparison, the other 50.1% of the variation is attributed to factors outside the scope of this study's model.

Table 6. R-Square

| | R Square | R Square Adjusted |
|---------------------------|----------|-------------------|
| Emotional Ambivalence | 0.519 | 0.513 |
| Hesitation at Checkout | 0.592 | 0.583 |
| Shopping Cart Abandonment | 0.499 | 0.492 |

In addition to the R^2 test, an Effect Size (f^2) test was also carried out to measure the magnitude of the influence of each exogenous variable on the endogenous variable. The results of the analysis showed that Choice Overload had a significant impact on Emotional Ambivalence, with an f^2 value of 0.349. At the same time, its effect on Hesitation at checkout was moderate, with a value of 0.264. The Checkout Complexity variable had a mild impact on Emotional Ambivalence, with an f^2 of 0.239; however, its effect on Hesitation at checkout was relatively small, with a value of 0.075. The variable "Hesitation at checkout" had a moderate influence on Shopping Cart Abandonment, with an f^2 value of 0.314. In contrast, Emotional Ambivalence had a negligible impact on Shopping Cart Abandonment ($f^2 = 0.063$) and Hesitation at checkout ($f^2 = 0.078$). These findings indicate that Choice Overload and Hesitation at checkout are the dominant factors in influencing consumers' decisions to abandon their shopping carts. At the same time, Checkout Complexity and Emotional Ambivalence also contribute, albeit to a lesser extent.

Table 7. F-Square

| | Checkout Complexity | Choice Overload | Emotional Ambivalence | Hesitation at Checkout | Shopping Cart Abandonment |
|---------------------------|---------------------|-----------------|-----------------------|------------------------|---------------------------|
| Checkout Complexity | | | 0.239 | 0.075 | |
| Choice Overload | | | 0.349 | 0.264 | |
| Emotional Ambivalence | | | | 0.078 | 0.063 |
| Hesitation at Checkout | | | | | 0.314 |
| Shopping Cart Abandonment | | | | | |

Hypothesis Testing

In the Partial Least Squares (PLS) method, the bootstrapping technique is used to determine the magnitude of the path coefficient, utilizing 5000 bootstrap samples. Table 1 presents the results of hypothesis tests, detailing the relationships between various factors influencing online SCA. For each hypothesised path, it provides the original sample coefficient, sample mean, standard deviation, T-statistics, and P-values, indicating the significance and strength of the proposed connections.

Table 1. Hypothesis Test Results on The Relationships Between Various Factors Influencing Online Shopping Cart Abandonment (SCA)

| | O | M | STDEV | T Statistics | P Values |
|--|-------|-------|-------|--------------|----------|
| Checkout Complexity -> Emotional Ambivalence | 0.381 | 0.382 | 0.057 | 6.715 | 0.000 |

| | | | | | |
|---|-------|-------|-------|-------|--------------|
| Checkout Complexity -> Hesitation at checkout | 0.220 | 0.226 | 0.073 | 3.012 | 0.003 |
| Choice Overload -> Emotional Ambivalence | 0.461 | 0.466 | 0.051 | 8.966 | 0.000 |
| Choice Overload -> Hesitation at checkout | 0.429 | 0.427 | 0.071 | 6.056 | 0.000 |
| Emotional Ambivalence -> Hesitation at checkout | 0.257 | 0.253 | 0.094 | 2.739 | 0.006 |
| Emotional Ambivalence -> Shopping Cart Abandonment | 0.236 | 0.238 | 0.085 | 2.763 | 0.006 |
| Hesitation at checkout -> Shopping Cart Abandonment | 0.528 | 0.529 | 0.079 | 6.660 | 0.000 |

Source: Present study's SEM analysis calculation using the partial least squares (PLS method).
 Notes: O, original sample; M, sample mean; STDEV, standard deviation

We accept all of the model's assumptions, as our hypothesis testing revealed that the p-values for the associations between the variables we examined were less than 0.05. Furthermore, the Original Sample Estimate (β) highlighted the direction and strength of the link between the variables, and it was used to assess the size of each latent variable's effect.

The estimated results showed that Choice Overload had a significant influence on Hesitation at checkout, with a value of $\beta = 0.429$; $t = 6.056$, $p < 0.001$. Customers are more likely to have doubts while checking out if they perceive a greater degree of Choice Overload, according to this. This study's initial hypothesis was correct, suggesting that Choice Overload significantly reduces checkout hesitancy. In addition, the influence of Choice Overload on Emotional Ambivalence was also proven to be significant with a value of $\beta = 0.461$; $t = 8,966$; $p < 0.001$. These results show that the higher the level of Choice Overload, the more likely consumers are to experience emotional ambivalence when shopping online. The second hypothesis of this study, that Choice Overload significantly and positively influences Emotional Ambivalence, is thus validated.

With a value of $\beta = 0.220$, $t = 3.012$, and $p = 0.003$, the test findings also indicated that Checkout Complexity had a positive and significant influence on Hesitation at Checkout. This suggests that the more complicated the checkout process consumers go through, the greater their degree of uncertainty in finishing the transaction. Therefore, the third hypothesis is accepted; Checkout Complexity thus positively affects Hesitation at Checkout.

Additionally, the analysis's findings demonstrate that Checkout Complexity significantly and favourably affects Emotional Ambivalence ($\beta = 0.381$; $t = 6.715$; $p = 0.001$). These findings suggest that consumers' emotional ambivalence during online shopping increases with the complexity of the checkout process they encounter. The findings support the fourth premise of this study by demonstrating that Checkout Complexity has a positive and significant impact on Emotional Ambivalence.

Further study revealed that Emotional Ambivalence positively affected checkout hesitation with a value of $\beta = 0.257$; $t = 2.739$; $p = 0.006$. These findings suggest that individuals who experience emotional ambiguity are more likely to hesitate before completing purchases. Therefore, the fifth hypothesis in this work is accepted; Emotional Ambivalence has a positive and vital influence on Hesitation at Checkout.

Furthermore, with a value of $\beta = 0.528$, $t = 6,660$, $p < 0.001$, Hesitation at Checkout had the most significant impact on Shopping Cart Abandonment. These results indicate that when customers experience significant reluctance at the checkout, they are more likely to abandon their shopping carts before completing the transaction. Customers who hesitate during the checkout process are less likely to abandon their shopping carts, according to the sixth hypothesis, which is supported by the results.

Finally, Emotional Ambivalence also had a positive influence on Shopping Cart Abandonment, with a value of $\beta = 0.236$; $t = 2.763$; $p = 0.006$. According to these findings, Shoppers who feel conflicted about making a purchase are more likely to leave their carts unfinished. Emotional Ambivalence significantly and positively affects Shopping Cart Abandonment, proving the seventh hypothesis.

DISCUSSION

Based on the findings of this study, several practical recommendations can be provided to e-commerce platforms and online retailers to reduce SCA and improve consumers' shopping experience. Simplifying the decision-making process is critical to reducing the impact of Choice Overload. E-commerce platforms should implement advanced filtering algorithms and recommendations to help consumers quickly narrow down choices based on their preferences. Providing structured product categories, personalised recommendations, and search features can reduce decision fatigue and increase the likelihood of completing a purchase transaction. Optimising the checkout process is essential to lowering the complexity of checkout processes. E-commerce platforms should ensure that the checkout process is simple, intuitive, and streamlined, with minimal unnecessary steps. By adding inbound checkout options, payment integrations, and one-click checkout options, consumer time is significantly reduced. This automatically improves the consumer experience. Along with these improvements, displaying clear upfront policies regarding pricing, estimated delivery times, and returns helps to increase a consumer's confidence. As a result, the likelihood of cart abandonment is significantly reduced.

CONCLUSION

This research addresses the SCA phenomenon through the stimulus of Choice Overload and Checkout Complexity, which in this case affects Emotional Ambivalence, and Hesitation at Checkout, based on the S-O-R model. The results indicate that the stimuli of Choice Overload and Checkout Complexity have a significant impact on Emotional Ambivalence and Hesitation at Checkout. Also, the present research defines Emotional Ambivalence and doubt as checkout 'organisms' that respond to shopping cart abandonment. The outcomes from the hypothesis testing verified that the assumed correlations were all statistically significant, which confirms the assumption that psychological and cognitive factors affect the consumer's decision to abandon the shopping cart.

A complex flow of information revealed by these findings proves that Choice Overload has a powerful, positive effect on Emotional Ambivalence and Hesitation at the point of checkout. When customers are presented with overwhelming options, they often encounter a form of decision fatigue, resulting in greater emotional vulnerability and skepticism about completing transactions. In the same way, Complicated Checkout was assessed, resulting in a significant positive impact on Emotional Ambivalence and skepticism just before completing the purchase transaction, thus drawing attention to the experience implications of consumers in e-commerce transactions. The lengthy and complex checkout process requires more cognitive effort, thereby increasing the probability of abandoning the shopping cart due to irritation or confusion surrounding the purchase.

Equally, this study establishes that Emotional Ambivalence is a critical factor impacting the degree of delay in payment and SCA. Consumers who feel conflicted about a purchasing decision are highly likely to either postpone the transaction or cancel it entirely. Moreover, such indecisiveness was referred to as the most plausible explanation of SCA, which strengthens the existing one, which states that consumers tend to abandon their shopping carts easily when faced with challenges or resistance toward the final purchase decision.

In conclusion, these findings suggest that SCA is maintained not only by economic influencers such as price or cost, but also fundamentally shaped by psychological and behavioral elements. Choice Overload and Checkout Complexity induce emotional ambivalence, causing doubt and increasing the likelihood of transaction abandonment. These findings underscore the importance of enhancing the consumer decision-making experience within the scope of the checkout process, as well as the need to minimize human inefficiencies in online transactions to boost sales. In sum, these results suggest that both an excessive and intricate array of options for internet shopping can lead to feelings of emotional uncertainty and self-doubt when making decisions, ultimately resulting in consumers emptying their shopping carts. Therefore, there is a need for effective changes to improve the consumer experience to mitigate the issue of SCA.

LIMITATION

This study is not without limitations. The study's limited geographical scope, as it only involved respondents from the Greater Jakarta area, may limit the generalizability of the findings to other regions in Indonesia or to other countries with different cultures and shopping habits. Therefore, more global samples are necessary to understand the phenomenon of SCA more comprehensive. Furthermore, to provide a well-rounded analysis, further research could be enhanced by incorporating a qualitative method, such as behavioral observation, to gain a deeper understanding of emotional aspects. This study emphasizes quantitative aspects through online surveys, which may not fully explore consumers' profound

experiences and motivations related to the Shopping Cart Abandonment (SCA) phenomenon. Therefore, qualitative research can provide deeper insights into consumer behavior. Finally, in a digital context, e-commerce trends and technologies are constantly evolving, so the results of this study may not be entirely relevant as the sector rapidly changes, especially with the advancement of technological technologies that impact the way consumers shop. Understanding these limitations is essential for planning follow-up studies that can refine or extend these findings.

REFERENCES

1. Badan Pusat Statistik. (2025). Statistik E-Commerce 2023. Bps.Go.Id. <https://www.bps.go.id/publication/2025/01/30/D52af11843aee401403ecfa6/statistik-e-commerce-2023.html>
2. Boychuk, A. (2023). Abandoned Cart Email: The Complete Guide For Ecommerce. Flowium.
3. Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice Overload: A Conceptual Review And Meta-Analysis. *Journal Of Consumer Psychology*, 25(2), 333-358. <https://doi.org/10.1016/j.jcps.2014.08.002>
4. Cho, C. H., Kang, J., & Cheon, H. J. (2006). Online Shopping Hesitation. *Cyberpsychology And Behavior*, 9(3), 261-274. <https://doi.org/10.1089/cpb.2006.9.261>
5. Close, A. G., & Kukar-Kinney, M. (2010). Beyond Buying: Motivations Behind Consumers' Online Shopping Cart Use. *Journal Of Business Research*, 63(9-10), 986-992. <https://doi.org/10.1016/j.jbusres.2009.01.022>
6. Das Sarma, A., Sarkar, J. G., & Sarkar, A. (2024). E-Tail Format, Cognitive Orientation And Device: Shaping Variety's Impact On Online Cart Abandonment. *Journal Of Consumer Marketing*, 42(1), 72-92. <https://doi.org/10.1108/jcm-01-2024-6537>
7. Elliot, A. J., & Thrash, T. M. (2002). Approach-Avoidance Motivation In Personality: Approach And Avoidance Temperaments And Goals. *Journal Of Personality And Social Psychology*, 82(5), 804-818. <https://doi.org/10.1037/0022-3514.82.5.804>
8. Firfiray, S., & Gomez-Mejia, L. R. (2021). When Is Ambivalence Good For Family Firms? Understanding The Impact Of Family Managers' Emotional Ambivalence On Decision Making. *Entrepreneurship Research Journal*, 11(3), 177-189. <https://doi.org/10.1515/erj-2021-0181>
9. Forter Team. (2019). Friction-Filled Online Checkouts Cause Shopping Cart Abandonment. Forter. <https://www.forter.com/blog/infographic-customers-wont-tolerate-friction-filled-checkout/#:~:text=Time:MinuteRead,during%20peak%20shopping%20periods%20providing%20customers%20with%20a%20seamless%20shopping,shoppers%20expect%20instant%20gratification>
10. Gelder, K. Van. (2025). Online Shopping Cart Abandonment Rate Worldwide Between 2006 To 2025. Statista. <https://www.statista.com/statistics/477804/online-shopping-cart-abandonment-rate-worldwide/>
11. Globenewswire. (2018). 54% Of Consumers Abandon Ecommerce Sites If Choosing Is Too Difficult, Says Smartassistant Report. Smartassistant. <https://www.globenewswire.com/news-release/2018/05/29/1512935/0/en/54-Of-Consumers-Abandon-Ecommerce-Sites-If-Choosing-Is-Too-Difficult-Says-Smartassistant-Report.html>
12. Consumers-Abandon-Ecommerce-Sites-If-Choosing-Is-Too-Difficult-Says-Smartassistant-Report.html
13. Gupta, S., Raj, S., Garg, A., & Gupta, S. (2024). Analyzing Shopping Cart Abandonment Enablers: An Ism And Micmac Approach. *International Journal Of Quality & Reliability Management*, 42(1), 61-85. <https://doi.org/10.1108/ijqrm-09-2021-0313>
14. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed A Silver Bullet. *Journal Of Marketing Theory And Practice*, 19(2), 139-152. <https://doi.org/10.2753/mtp1069-6679190202>
15. Huang, G. H., Korfiatis, N., & Chang, C. T. (2018). Mobile Shopping Cart Abandonment: The Roles Of Conflicts, Ambivalence, And Hesitation. *Journal Of Business Research*, 85, 165-174. <https://doi.org/10.1016/j.jbusres.2017.12.008>
16. Jacob, B., & Joseph, J. (2023). Choice Overload: A Systematic Literature Review. *Ssrn Electronic Journal*. <https://doi.org/10.2139/ssrn.4434106>
17. Jiang, D., Zhang, G., & Wang, L. (2021). Empty The Shopping Cart? The Effect Of Shopping Cart Item Sorting On Online Shopping Cart Abandonment Behavior. *Journal Of Theoretical And Applied Electronic Commerce Research*, 16(6), 1973-1996. <https://doi.org/10.3390/jtaer16060111>
18. Kredivo & Katadata. (2023). Laporan Perilaku Konsumen Indonesia 2023: Pemulihan Ekonomi Dan Tren Belanja Pasca Pandemi. Kredivo. <https://kredivocorp.com/wp-content/uploads/2023/06/2023-Indonesia-E-Commerce-Behavior-Report.pdf>
19. Kumparan. (2022). Cara Hapus Keranjang Shopee Dengan Cepat Dan Mudah. Kumparan. <https://kumparan.com/berita-bisnis/cara-hapus-keranjang-shopee-dengan-cepat-dan-mudah-1zm3i8os3gp/full>
20. Mishra, S., Malhotra, G., & Tiwari, S. R. (2021). Moderating Effect Of Cognitive Conflict On The Relationship Between Value Consciousness And Online Shopping Cart Abandonment. *The International Review Of Retail, Distribution And Consumer Research*, 31(5), 511-530.
21. Oliver, R. L., & Shor, M. (2003). Digital Redemption Of Coupons: Satisfying And Dissatisfying Effects Of Promotion Codes. *Journal Of Product & Brand Management*, 12(2), 121-134. <https://doi.org/10.1108/10610420310469805>
22. Ong, A. K. S., Dejucos, M. J. R., Rivera, M. A. F., Muñoz, J. V. D. J., Obed, M. S., & Robas, K. P. E. (2022). Utilizing Sem-Rfc To Predict Factors Affecting Online Shopping Cart Abandonment During The Covid-19 Pandemic. *Heliyon*, 8(11), 1-13. <https://doi.org/10.1016/j.heliyon.2022.E11293>
23. Panel, F. E. (2021). 12 Ways To Avoid Late-Stage Shopping Cart Abandonment. Forbes.
24. Rahnamaee, A., & Berger, P. D. (2013). Investigating Consumers' Online Purchasing Behavior: Single-Brand E-Retailers Versus Multi-Brand E-Retailers. *Journal Of Marketing Analytics*, 1(3), 138-148. <https://doi.org/10.1057/jma.2013.13>
25. Rajamma, R., Paswan, A., & Hossain, M. (2009). Why Do Shoppers Abandon Shopping Cart? Perceived Waiting Time, Risk, And Transaction Inconvenience. *Journal Of Product & Brand Management*, 18, 188-197. <https://doi.org/10.1108/10610420910957816>

26. Rejikumar, G., & Asokan-Ajitha, A. (2020). Role Of Impulsiveness In Online Purchase Completion Intentions: An Empirical Study Among Indian Customers. *Journal Of Indian Business Research*, 13(2), 189-222. <https://doi.org/10.1108/Jibr-04-2018-0132>
27. Rubin, D., Martins, C., Ilyuk, V., & Hildebrand, D. (2020). Online Shopping Cart Abandonment: A Consumer Mindset Perspective. *Journal Of Consumer Marketing*, 37(5), 487-499. <https://doi.org/10.1108/Jcm-01-2018-2510>
28. Scheibehenne, B., Greifeneder, R., & Todd, P. M. (2010). Can There Ever Be Too Many Options? A Meta-Analytic Review Of Choice Overload. *Journal Of Consumer Research*, 37(3), 409-425. <https://doi.org/10.1086/651235>
29. Similarweb. (2024). Top Marketplace Websites Ranking In Indonesia. Similarweb. <https://www.similarweb.com/top-websites/indonesia/e-commerce-and-shopping/marketplace/>
30. Simon, H. A. (1995). A Behavioral Model Of Rational Choice. *The Quarterly Journal Of Economics*, 69, 99-118. <https://doi.org/10.2307/1884852>
31. Song, J. Do. (2019). A Study On Online Shopping Cart Abandonment: A Product Category Perspective. *Journal Of Internet Commerce*, 18(4), 337-368. <https://doi.org/10.1080/15332861.2019.1641782>
32. Sundjaja, A. M., Tatuil, A. V., Scholus, D. V., & Restiani, Y. D. (2024). The Determinant Factors Of Shopping Cart Abandonment Among E-Commerce Customers In Indonesia. *Commit Journal*, 18(1), 29-38. <https://doi.org/10.21512/Commit.V18i1.9308>
33. Toffler, A. (1970). *Future Shock*. Random House. Townsend.
34. Van Harreveld, Frenk, Van Der Pligt, Joop, & De Liver, Yael N. (2009). The Agony Of Ambivalence And Ways To Resolve It: Introducing The Maid Model. *Personality And Social Psychology Review*, 13(1), 45-61. <https://doi.org/10.1177/1088868308324518>
35. Wang, S., Ye, Y., Ning, B., Cheah, J. H., & Lim, X. J. (2022). Why Do Some Consumers Still Prefer In-Store Shopping? An Exploration Of Online Shopping Cart Abandonment Behavior. *Frontiers In Psychology*, 12(1), 1-14. <https://doi.org/10.3389/fpsyg.2021.829696>
36. <https://doi.org/10.3389/fpsyg.2021.829696>
37. Xiaoyu Xu, Jen-Her, & Li, Q. (2020). What Drives Consumer Shopping Behavior In Live Streaming Commerce? *Journal Of Electronic Commerce Research*, Vol 21, No, 144.
38. Yuan, S., Liu, L., Su, B., & Zhang, H. (2020). Determining The Antecedents Of Mobile Payment Loyalty: Cognitive And Affective Perspectives. *Electronic Commerce Research And Applications*, 41(100971), 1-9
39. <https://doi.org/10.1016/j.elerap.2020.100971>
40. Yusuf, L. L., Tamara, D., & Setiadi, N. J. (2021). The Determinants For Shopping Cart Abandonment. *Emerging Markets : Business And Management Studies Journal*, 8(2), 89-107. <https://doi.org/10.33555/Embm.V8i2.178>
41. Zafar, A. U., Qiu, J., & Shahzad, M. (2020). Do Digital Celebrities' Relationships And Social Climate Matter? Impulse Buying In F-Commerce. *Internet Research*, 30(6), 1731-1762. <https://doi.org/10.1108/Intr-04-2019-0142>