



CONSUMER CONFUSION AND ITS IMPACT ON DECISION MAKING AMONG FEMALE CONSUMERS IN INDONESIA'S ONLINE COSMETICS AND PERSONAL CARE INDUSTRY

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ARTICLE INFO

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Key words:

*consumer confusion, decision
making, online cosmetics
and personal care industry*

Website:

[https://idm.or.id/JSER/index.
php/JSER](https://idm.or.id/JSER/index.php/JSER)

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ABSTRACT

This study examines consumer confusion and its impact on decision-making among female consumers in Indonesia's online cosmetics and personal care industry. With the rise of online shopping due to its convenience and extensive product information, consumer confusion – defined as the inability to correctly interpret various aspects of product information – has become a significant issue. A mixed-method approach was used, combining quantitative surveys and qualitative interviews. Data was collected through an online survey and analyzed using PLS-SEM, followed by semi-structured interviews that were manually coded through open, axial, and selective coding. The findings reveal that informational sources – overload, similarity, and ambiguity positively impact overall consumer confusion. Additionally, utilitarian decision-makers show higher levels of confusion compared to hedonic decision-makers. Previous brand experience was found to mitigate the negative effects of overload and ambiguity confusion on decision quality and enhance decision quality in the case of similarity confusion. Furthermore, overload and ambiguity confusion negatively impacts decision quality, whereas similarity confusion shows a positive impact. Finally, all informational sources of confusion positively impact decision postponement and cognitive dissonance. This study extends existing knowledge in marketing and consumer behavior, particularly regarding consumer confusion in the cosmetics sector. It offers practical insights for companies and brand managers to develop strategies that reduce consumer confusion, such as simplifying decision-making processes, providing clear product information, and leveraging previous brand experiences. These strategies aim to enhance decision quality, reduce decision postponement, and mitigate cognitive dissonance among consumers. Finally, the study suggests directions for future research in consumer confusion.

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INTRODUCTION

Online shopping channels are increasingly preferred due to their convenience, expansive product range, and abundant product-related information. According to McKinsey & Company (2022), Indonesia's online commerce market, currently worth at least \$8 billion, is projected to reach \$40 billion within five years, driven by e-commerce platforms like Tokopedia, Shopee, and Lazada, and social commerce via Instagram, Facebook, WhatsApp, and Line. The cosmetics and personal care industry is a significant segment, with projected revenues of \$9.17 billion by 2024, where online sales will account for 23.3%.

However, this growth leads to consumer confusion, defined as difficulty in decision-making due to overly similar, abundant, or unclear information (Mitchell et al., 2005). Companies' detailed product specifications and features, aimed at aiding consumers, often result in overload confusion (Fang, 2019). Female consumers, being more detail-oriented and experienced in different product classes, are particularly prone to this confusion (Meyers-Levy and Maheswaran, 1991; Mitchell et al., 2005).

The digital landscape exacerbates consumer confusion due to the overwhelming amount of accessible product information, challenging the assumption that more choices lead to better outcomes (Schwartz, 2004; Mitchell and Papavassiliou, 1999). Walsh et al. (2007) identify three dimensions of consumer confusion: similarity, overload, and ambiguity. Experience plays a critical role, as experienced consumers make quicker, more automatic decisions (East, 1997). Decision-making styles significantly impact consumer confusion, influencing how information is processed and choices are made (Sproles, 1990).

Consumer confusion affects decision quality, often leading to decision paralysis (Mitchell and Papavassiliou, 1999), decision postponement (Shiu, 2017), and cognitive dissonance (Mitchell et al., 2005). These outcomes highlight the importance of addressing consumer confusion to enhance decision-making experiences and optimize marketing strategies.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Overload confusion occurs when individuals face an overwhelming amount of information that limits their ability to process it effectively (Mitchell et al., 2004). Each brand competes by promoting its product as superior to others, leading to a complex decision-making process for consumers due to subtle product distinctions (Sarabhai and Singh, 2014). Several scholars exploring consumer confusion have found a correlation between information overload and confusion, suggesting that the overload of information causes confusion (Mitchell et al., 2005; Walsh et al., 2007). It was previously stated that consumers have limited cognitive processing abilities. Hence, when the amount of information exceeds a certain point, it leads to information overload, which subsequently results in consumer confusion.

Moreover, similarity confusion in consumer behavior refers to the lack of understanding and potential alteration of distinguishing between products or services due to their perceived physical similarity, potentially leading to incorrect brand evaluation or choice (Mitchell et al., 2004). This confusion often arises from the significant similarities in brands, quality, attributes, or functions among various alternatives (Walsh and Hennig-Thurau, 2002). Kim (2021) argues that when

consumers are faced with similar alternatives and uncertain information, they often experience confusion, which can lead to a delay in their decision-making process.

On the other hand, ambiguity confusion emerges when consumers are forced to reassess and revise their existing beliefs or assumptions about a product or purchasing environment due to unclear, contradictory, or complex information (Mitchell et al., 2004). A study by Sharma et al. (2022) confirms the contribution of ambiguity confusion to the overall consumer information confusion.

H1. Overload confusion (H1-a), similarity confusion (H1-b), and ambiguity confusion (H1-c) has a positive impact on information confusion in the cosmetics and personal care industry.

In their study, Coothoopermal and Chittoo (2017) examined whether consumer confusion levels vary across different consumer decision-making styles. The results indicate a statistically significant difference in confusion levels based on different consumer decision-making styles (Coothoopermal and Chittoo, 2017). While some studies, such as Sproles and Kendall (1986), assume that consumers use only one decision-making style, Kasper et al. (2010) challenged this assumption and found that consumers may have a combination of different decision-making styles, although one may predominate.

H2. There is a significant difference in the effect of utilitarian decision-making style and hedonic decision-making style on information confusion.

Mitchell et al. (2005) stated that brand experience acts as a mediator, influencing the impact of various antecedents on confusion. Consumers with more brand experience have a lower incidence of confusion compared to those with less experience (Foxman et al., 1992). Confused consumers struggle to process information effectively, make informed choices, and are more susceptible to deceptive marketing practices, leading to poor decision quality (Marsden, Pakath, and Wibowo, 2006; Phillips-Wren and Adya, 2020). Therefore, it is hypothesized that previous brand experience mediates the relationship between information confusion (overload, similarity, and ambiguity) and decision quality. Specifically, increased brand experience is expected to reduce the negative impact of these types of confusion on decision quality.

H3. Previous brand experience mediates the relationship between overload confusion (H3-a), similarity confusion (H3-b), and ambiguity confusion (H3-c) on decision quality in the cosmetics and personal care industry.

Consumers frequently encounter vast amounts of information while shopping online due to reduced search costs (Su, 2008). This information overload, coupled with insufficient time to assess details, can lead to decisions based on incomplete information, negatively impacting decision quality (Schultze & Vandenbosch, 1998; Gao et al., 2012). Research indicates an inverse relationship between information overload and decision quality, with increased information leading to poorer purchase decisions (Chen, Shang, & Kao, 2009). When consumers encounter brands with similar attributes, their confidence in distinguishing between them decreases, leading to uncertainty (Schwartz et al., 2002; Simonson & Tversky, 1992). Ambiguity can further deter decision-making due to conflicting data or lack of important information (Heath & Tversky, 1991; Wang & Shukla, 2013).

H4. Overload confusion (H4-a), similarity confusion (H4-b), and ambiguity confusion (H4-c) has a negative impact on decision quality in the cosmetics and personal care industry.

Consumer confusion often leads to delayed decision-making, prompting further exploration and information seeking to reduce future confusion (Hall et al., 2017; Leek et al., 2006; Walsh et al., 2007; Walsh & Mitchell, 2010). Postponing decisions can help consumers overcome confusion if the information becomes clearer (Shiu, 2021). Overwhelming advertisements and promotional materials can lead to decision postponement or abandonment (Edward & Sahadev, 2012; Schweizer et al., 2006). Similarity and overload confusion are significant factors in decision postponement (Shiu, 2017; Walsh et al., 2007), as is ambiguity confusion (Iqbal et al., 2014).

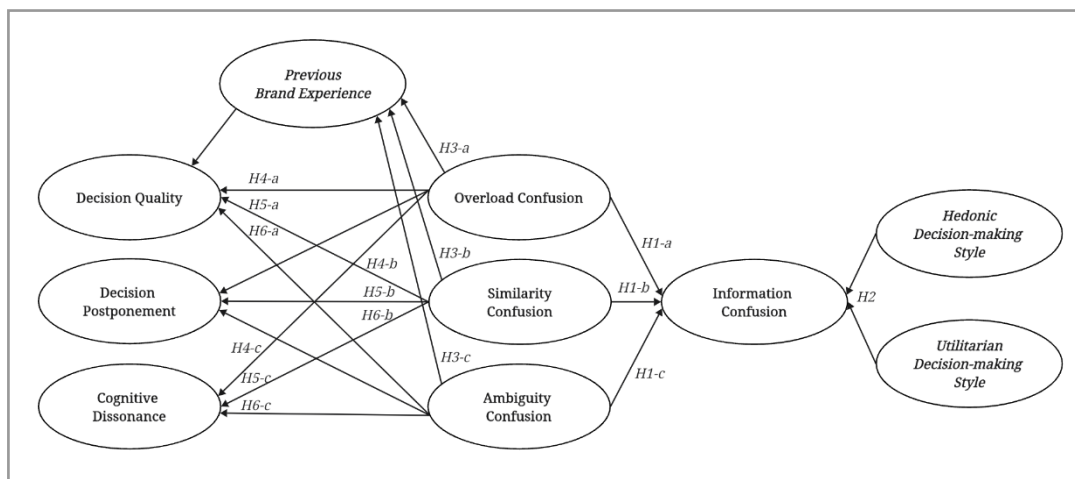
H5. Overload confusion (H5-a), similarity confusion (H5-b), and ambiguity confusion (H5-c) has a positive impact on decision postponement in the cosmetics and personal care industry.

Cognitive dissonance, a well-studied psychological phenomenon, occurs when there is a conflict between a person's beliefs and their actions or outcomes (Festinger, 1957). In the context of consumer behavior, this often manifests as post-purchase dissonance, where consumers feel regret or discomfort after making a purchase due to perceived compromises (Bose, 2012). In today's market, where consumers face numerous choices, confusion can easily lead to dissonance (Sharma, 2014). For instance, if consumers cannot distinguish between similar brands and mistakenly buy the wrong product, they are likely to experience dissonance. This dissonance can also occur if they choose a lookalike brand and later feel they overpaid for the original, or even when they select the original after extensive evaluation of alternatives (Mitchell et al., 2004). Furthermore, ambiguity in information has been shown to directly contribute to cognitive dissonance (Gan & Ting, 2014).

H6. Overload confusion (H6-a), similarity confusion (H6-b), and ambiguity confusion (H6-c) has a positive impact on cognitive dissonance in the cosmetics and personal care industry.

CONCEPTUAL FRAMEWORK

The study's conceptual framework builds on Chauhan and Sagar's (2021) systematic review. This study focuses on the three main sources of information confusion: similarity, overload, and ambiguity confusion, as consistently highlighted in consumer confusion literature (Walsh et al., 2007; Mitchell et al., 2005; Xue et al., 2020; Shiu, 2017, 2021). The study examines the outcomes of confusion, such as decision postponement, decision quality, and cognitive dissonance, which are influenced by cognitive overload and dissonance (Schweizer et al., 2006; Mitchell et al., 2005). Decision outcomes like intention to postpone or abandon purchases are documented in prior studies (Mitchell & Papavassiliou, 1997; Walsh et al., 2007; Matzler et al., 2011; Shiu, 2017). A mediator variable, brand experience, will be included to explore its influence on reducing confusion and improving decision quality (Foxman et al., 1990; Mitchell et al., 2005; Li, 2016). Additionally, decision-making styles will be considered to understand their impact on consumer information confusion (Coothoopermal & Chitoo, 2017).



METHODS

Research Approach

The study adopts a mixed-method (quantitative and qualitative) approach, starting with a quantitative online survey followed by personal interviews for qualitative data collection. This sequential method is chosen due to the findings of Chauhan and Sagar (2021), which highlighted the lack of mixed-method research in consumer confusion studies. By integrating both methodologies, the study aims to provide a comprehensive understanding of consumer confusion and its implications.

Quantitative Approach

The study uses questionnaire surveys to measure key variables and test the model hypothesis. To ensure reliability and validity, variable scales were derived from established literature and pilot tested. Data was collected from 505 respondents aged 18–35 using purposive sampling, targeting those actively involved in the cosmetics and personal care industry. PLS-SEM was utilized for statistical analysis. The survey employed a 5-level Likert scale to measure responses, with items adapted from consumer confusion literature.

This study tests hypotheses using a 5-level Likert scale, with items adapted from consumer confusion literature and modified to fit the study context. Informational sources of consumer confusion were measured with 10 items: 3 for overload confusion (Walsh et al., 2007; Matzler et al., 2011), 3 for similarity confusion (Walsh et al., 2007), and 4 for ambiguity confusion (Walsh and Mitchell, 2010). Information confusion was assessed with 4 items from Sharma et al. (2022). Decision-making styles were measured using 18 items adapted from Sproles and Kendall (1986) and Kasper et al. (2010). Brand experience as a mediator was assessed with 4 items from Brakus et al. (2009). Outcomes of consumer confusion included decision quality (3 items, Aljukhadar et al., 2012; Zhang et al., 2011), decision postponement (4 items, Walsh et al., 2007), and cognitive dissonance (3 items, Powers and Jack, 2013; Zhang, 2018; Li and Choudhury, 2020), referencing Zeelenberg and Pieters (2004).

Qualitative Approach

Qualitative data supports an in-depth initial exploration of the issue and enables the concurrent development of a theoretical framework (Miles & Huberman, 1984). Semi-structured, open-ended, in-depth interviews were conducted with the participants to understand the way in which customers live their experience of

confusion and the factors that affect this experience in a decision-making context. Using a semi-structured interview protocol, participants were asked a series of open-ended questions to explore their experiences with confusion when purchasing cosmetics and personal care products. Interviews were conducted using Zoom sessions, recorded in audio format for the purpose of transcribing, with the resulting transcripts serving as the primary data source for analysis.

RESULT AND DISCUSSION

A. Quantitative Findings

Measurement Model Assessment

The measurement model assessment is based on the guidelines of Hair (2017) to affirm the reliability and validity of the constructs and their dimensions. As discussed in Chapter 3, the validity and reliability of the measurement model is evaluated by assessing: (1) indicator reliability; (2) internal consistency reliability; (3) convergent validity; and (4) discriminant validity. Based on the table provided below, all variables have passed all thresholds.

	Cronbach's Alpha	Composite Reliability	AVE
Overload Confusion (OC)	0.732	0.847	0.651
Similarity Confusion (SC)	0.717	0.841	0.639
Ambiguity Confusion (AC)	0.748	0.841	0.571
Hedonistic Shopping Conscious (HS)	0.81	0.889	0.730
Brand Conscious (BS)	0.909	0.942	0.845
Novelty-fashion Conscious (NS)	0.717	0.842	0.64
Quality Conscious (QS)	0.834	0.900	0.75
Price Conscious (PS)	0.712	0.833	0.627
Previous Brand Experience (BE)	0.765	0.865	0.682
Information Confusion (IC)	0.871	0.912	0.722
Decision Quality (DQ)	0.700	0.832	0.623
Decision Postponement (DP)	0.838	0.892	0.673
Cognitive Dissonance (CD)	0.737	0.851	0.656

Discriminant Validity

For the assessment of discriminant validity, the Fornell-Larcker criterion is employed. The Fornell-Larcker criterion postulates that a latent construct shares more variance with its assigned indicators than with another latent variable in the structural model. In statistical terms, the AVE of each latent construct should be greater than the latent construct's highest squared correlation with any other latent construct (Fornell and Larcker, 1981). The diagonal elements of the Fornell-Larcker table display the square root of AVE values, while off-diagonal elements represent correlations between latent variables. In this study, the square root of AVE (in Bold and Italics) for all constructs were found greater than its correlation

with other constructs, hence, providing strong support for establishment of discriminant validity.

	OC	SC	AC	HS	BS	NS	QS	PS	BE	IC	DQ	DP	CD
OC	0.807												
SC	0.487	0.799											
AC	0.481	0.482	0.756										
HS	0.192	0.164	0.134	0.854									
BS	0.022	0.108	0.118	0.173	0.919								
NS	0.152	0.126	0.146	0.289	0.260	0.800							
QS	0.118	0.098	0.107	0.234	0.126	0.175	0.866						
PS	0.172	0.168	0.137	0.286	0.043	0.117	0.211	0.792					
BE	0.457	0.366	0.384	0.142	0.066	0.122	0.127	0.074	0.826				
IC	0.744	0.540	0.601	0.300	0.055	0.162	0.250	0.224	0.419	0.850			
DQ	-0.125	0.039	-0.220	0.149	0.076	0.042	0.234	0.018	0.073	0.019	0.789		
DP	0.681	0.537	0.518	0.321	0.044	0.175	0.256	0.265	0.425	0.715	0.063	0.820	
CD	0.511	0.480	0.734	0.181	0.099	0.170	0.113	0.247	0.292	0.556	-0.128	0.512	0.810

Validating Higher-order Construct

Building upon Zhou's (2010) conceptualization of decision-making styles, this study adopts higher-order constructs to categorize individual decision-making styles into Hedonic Decision-Making Style (HDM) and Utilitarian Decision Making Style (UDM). HDM encompasses three lower-order constructs: Hedonic Shopping Conscious (HS), Brand Conscious (BS), and Novelty-fashion Conscious (NS), while UDM comprises Quality Conscious (QS) and Price Conscious (PS). To establish the higher order construct validity, Outer Weights, Outer Loadings, and VIF were assessed, considering the formative-reflective form of the constructs (Hair et al. 2016). In line with established guidelines by Hair (2017), the indicator BS was removed from the higher order construct, and the validity of the higher order construct was subsequently established.

Hedonistic Decision-Making Style						
	VIF	Outer Weights	T Statistics	P Values	Outer Loadings	P Values
HS	1.049	0.847	7.812	0.000	0.928	0.000
BS	1.034	0.148	0.929	0.176	0.280	0.043
NS	1.073	0.326	1.864	0.031	0.529	0.000
Utilitarian Decision-Making Style						
	VIF	Outer Weights	T Statistics	P Values	Outer Loadings	P Values
QS	1.030	0.651	4.874	0.000	0.763	0.000
PS	1.030	0.656	5.089	0.000	0.767	0.000

Structural Model Assessment

Following the measurement model assessment, the structural path evaluation assesses the path coefficients and their statistical significance. Path coefficients reveal expected relationships among constructs. Researchers usually use p values to assess significance levels, with values below 0.05 indicating statistical significance (Hair et al, 2017). Based on the results, all hypotheses are supported except for H4-b. The results revealed that similarity confusion has a significant and positive impact on decision quality ($B = 0.196$, $T = 2.965$, $p = 0.002$). Hence, H4b is not supported. The positive path coefficient ($B = 0.196$) suggests that similarity confusion, contrary to initial hypothesis, improves decision quality slightly.

		Path Coefficient	T Statistics	P Values	Results
<i>H-1a</i>	OC -> IC	0.517	16.427	0.000	Supported
<i>H-1b</i>	SC -> IC	0.134	3.893	0.000	Supported
<i>H1-c</i>	AC -> IC	0.258	7.608	0.000	Supported
<i>H2</i>	HDM -> IC	0.086	3.072	0.001	Supported
	UDM -> IC	0.101	2.976	0.001	Supported
<i>H4-a</i>	OC -> DQ	-0.160	2.365	0.009	Supported
<i>H4-b</i>	SC -> DQ	0.196	2.965	0.002	Not Supported
<i>H4-c</i>	AC -> DQ	-0.310	5.688	0.000	Supported
<i>H5-a</i>	OC -> DP	0.491	14.961	0.000	Supported
<i>H5-b</i>	SC -> DP	0.211	6.222	0.000	Supported
<i>H5-c</i>	AC -> DP	0.180	5.251	0.000	Supported
<i>H6-a</i>	OC -> CD	0.168	4.103	0.000	Supported
<i>H6-b</i>	SC -> CD	0.109	2.890	0.002	Supported
<i>H6-c</i>	AC -> CD	0.602	18.095	0.000	Supported

Mediation Analysis

Mediation analysis was performed to assess the mediating role of previous brand experience (BE) in the relationship between overload confusion (OC), similarity confusion (SC), and ambiguity confusion (AC) in influencing information confusion (IC).

For the OC -> IC relationship, the analysis indicates a competitive mediation. The direct effect of OC on DQ is significant and negative ($B = -0.16$, $T = 2.365$, $p = 0.009$), while the indirect effect through BE is significant and positive ($B = 0.06$, $T = 2.731$, $p = 0.003$). This suggests that while OC directly reduces DQ, the presence of BE partially offsets this reduction. Hence, H4a is supported.

For the SC -> IC relationship, the analysis indicates a complementary mediation. Both the direct effect ($B = 0.196$, $T = 2.965$, $p = 0.002$) and the indirect effect through BE ($B = 0.026$, $T = 1.931$, $p = 0.027$) are significant and positive. This means that SC improves DQ directly and indirectly through BE, leading to an overall stronger positive impact.

Regarding the AC -> IC relationship, the analysis indicates a competitive mediation. The direct effect of AC on DQ is significantly negative ($B = -0.31$, $T =$

5.688, $p < 0.001$), while the indirect effect through BE is positive and significant ($B = 0.031$, $T = 2.203$, $p = 0.014$). This suggests that while AC directly reduces DQ, BE partially mitigates this negative effect.

Direct Effect Result.

	Path Coefficient	T Statistics	P values
OC -> DQ	-0.160	2.365	0.009
SC -> DQ	0.196	2.965	0.002
AC -> DQ	-0.310	5.688	0

Indirect Effect Result.

	Path Coefficient	T Statistics	P values
OC -> BE -> DQ	0.060	2.731	0.003
SC -> BE -> DQ	0.026	1.931	0.027
AC -> BE -> DQ	0.031	2.203	0.014

Total Effect Result.

	Path Coefficient	T Statistics	P values
OC -> DQ	-0.099	1.395	0.081
SC -> DQ	0.222	3.413	0
AC -> DQ	-0.279	4.849	0

B. Qualitative Findings

The following codebook provides a detailed overview of the qualitative coding process used in this study, organized into distinct levels for clarity. Each coding level is precisely defined to facilitate understanding:

1. Selective Code (Main Theme): Represents the broad general category that encompasses the central concept of the study. It is the broadest and most general category that encompasses all the other codes and themes.
2. Axial Code (Sub-theme): Identifies larger themes from the sub-categories. In the context of this study, axial codes represent the variables discussed in this study.
3. Sub-category (Specific Theme): Categorize the open codes collected from the data into a broader concept.
4. Open Code (Examples from Data): Includes actual instances or evidence extracted from the data that illustrate the specific themes.

This structured approach ensures that each level of coding is distinctly identified, making the analytical process transparent and comprehensible. The table format below encapsulates this hierarchical organization, clearly showing the progression from broad categories to specific instances.

Selective Code	Axial Code	Sub-category	Open Code
Informational sources of consumer confusion	Overload confusion	Product variety	Number of alternatives
			Different brands
			Range of products within a brand
		Social media influence	Influence of online channel on product choices
			Overwhelming numbers of reviews and recommendations
		Promotional overload	Various promotions and discounts
	Similarity confusion	Brand similarity	Similarity between brand names
			Similar packaging designs
		Product duplication	Products mimicking each other
			Market copies and duplicates
		Ingredient similarity	Similar ingredients across different brands
			Claims about ingredient benefits
	Ambiguity confusion	Conflicting information	Conflicting claims on product ingredients
			Contradictory Recommendations
		Misinformation	False or misleading information
		Source credibility issues	Fake reviews
			Trustworthiness of information sources
		Unclear product benefits	Lack of understanding of skincare ingredients
			Insufficient product information provided by brands
Impact of decision-making styles on consumer confusion	Utilitarian decision-making styles	Perfectionistic and Quality-Conscious	Excessive research and comparison leading to information overload
		Price-Conscious and Influenced by Promotions	Balancing quality and cost amidst numerous options.
		Focused on Functional Needs and Skin Sensitivity	Careful evaluation process based on needs
			Heightened caution and thorough checking due to sensitive skin.

	Hedonic decision-making styles	Novelty fashion consciousness	Exposure to a vast number of choices and new products through social media and trends
			Manageable Confusion in Hedonic Decisions
		Shopping for enjoyment	Reduced Confusion Due to Enjoyment
Mediating effect of previous brand experience	Previous brand experience	Mitigates negative impacts on confusion and enhances decision quality	Loyalty reduces decision confusion Repeat purchases simplify decision-making Trust developed from previous use increases decision confidence Positive past experiences enhance satisfaction and reduce confusion
Outcomes of consumer confusion	Decision quality	Negative impact from confusion	Perceived quality of the purchased product influenced by confusion Negative emotions leading to poor decision quality
		Potential Positive Impact from similarity confusion	Intensive research due to encountering similar products enhances decision quality.
	Decision postponement	Confusion contributing to postponement	Overwhelming number of options Uncertainty and confusion Need for more information before deciding
		Difficulty due to complex product information	Comparing sources
	Cognitive dissonance	Impact of Confusion Types on cognitive dissonance	Post-purchase regret Discrepancy between expectations and reality Influence of new information

Discussion of Hypotheses

H1a. Overload confusion positively impacts information confusion in the online cosmetics and personal care industry.

Quantitative findings confirm a substantial positive impact of overload confusion on information confusion ($B = 0.517$, $T = 16.427$, $p = 0.000$), consistent with Mitchell et al. (2005). Qualitative data indicate consumers feel overwhelmed by numerous options and contradictory reviews, amplifying confusion.

H1b. Similarity confusion positively impacts information confusion in the online cosmetics and personal care industry.

Quantitative analysis shows a significant positive impact of similarity confusion on information confusion ($B = 0.134$, $T = 3.893$, $p = 0.000$), aligning with Kim (2021). Qualitative insights reveal consumers struggle with distinguishing between similar products, validating the hypothesis.

H1c. Ambiguity confusion positively impacts information confusion in the online cosmetics and personal care industry.

Quantitative analysis confirms ambiguity confusion's significant positive impact on information confusion ($B = 0.258$, $T = 7.608$, $p = 0.000$), resonating with Sharma et al. (2022). Qualitative data highlight the prevalence of conflicting information and misinformation, exacerbating confusion.

H2. Differences in utilitarian and hedonic decision-making styles impact information confusion in the online cosmetics and personal care industry.

The study finds utilitarian decision-making style has a stronger positive impact on consumer confusion ($B = 0.101$, $T = 2.976$, $p = 0.001$) compared to hedonic decision-making style ($B = 0.086$, $T = 3.702$, $p = 0.001$), with a significant difference between them ($\Delta B = 0.015$, $p < 0.05$). Qualitative data support these findings, showing utilitarian consumers experience higher confusion due to extensive research, while hedonic consumers are less intensely confused.

H3a-c. Previous brand experience mediates the effect of overload, similarity, and ambiguity confusion on decision quality in the online cosmetics and personal care industry.

Quantitative analysis confirms previous brand experience mediates these effects. Overload confusion shows competitive mediation (direct effect $B = -0.16$, indirect effect $B = 0.06$), similarity confusion shows complementary mediation (direct effect $B = 0.196$, indirect effect $B = 0.026$), and ambiguity confusion shows competitive mediation (direct effect $B = -0.31$, indirect effect $B = 0.031$). Qualitative data align, indicating positive brand experiences enhance decision quality.

H4a-c. Overload, similarity, and ambiguity confusion negatively impact decision quality in the online cosmetics and personal care industry.

Quantitative findings reveal significant negative impacts of overload ($B = -0.16$, $T = 2.365$, $p = 0.009$) and ambiguity confusion ($B = -0.31$, $T = 5.688$, $p = 0.000$) on decision quality. Contrary to expectations, similarity confusion positively impacts decision quality ($B = 0.196$, $T = 2.965$, $p = 0.002$). Qualitative insights explain that similarity confusion can lead to more deliberate decisions, enhancing decision quality.

H5a-c. Overload, similarity, and ambiguity confusion positively impact decision postponement in the online cosmetics and personal care industry.

Quantitative analysis shows significant positive impacts of overload ($B = 0.491$, $T = 14.961$, $p = 0.000$), similarity ($B = 0.211$, $T = 6.222$, $p = 0.000$), and ambiguity confusion ($B = 0.180$, $T = 5.251$, $p = 0.000$) on decision postponement. Qualitative data support these findings, with consumers delaying purchases due to overwhelming options and uncertainty.

H6a-c. Overload, similarity, and ambiguity confusion positively impact cognitive dissonance in the online cosmetics and personal care industry.

Quantitative findings reveal significant positive impacts of overload ($B = 0.168$, $T = 4.103$, $p = 0.000$), similarity ($B = 0.109$, $T = 2.890$, $p = 0.002$), and ambiguity confusion ($B = 0.602$, $T = 18.095$, $p = 0.000$) on cognitive dissonance. Qualitative data highlight post-purchase regret and dissatisfaction, consistent with existing literature on confusion and cognitive dissonance.

CONCLUSION

This study investigates how informational sources of confusion—overload, similarity, and ambiguity—along with individual decision-making styles (hedonic and utilitarian), contribute to overall consumer confusion. The research also explores the impact of these informational sources on decision quality, decision postponement, and cognitive dissonance, and analyzes the mediating role of previous brand experience on the relationship between these informational sources and decision quality.

The findings reveal that overload, similarity, and ambiguity confusion significantly contribute to overall consumer confusion. Overload confusion, driven by excessive information, creates significant confusion as consumers face contradictory reviews and promotional messages. Similarity confusion, caused by indistinguishable brand names, packaging, and claims, exacerbates confusion, making product differentiation challenging. Ambiguity confusion, fueled by conflicting information and deceptive claims, further adds to the complexity, leaving consumers uncertain about product benefits and ingredient functionalities. Additionally, utilitarian decision-makers experience higher confusion due to extensive research and price comparisons, while hedonic decision-makers encounter less intense confusion, focusing more on enjoyment than optimization.

Moreover, previous brand experience plays a crucial mediating role in mitigating the negative impacts of informational sources of confusion on decision quality. It partially offsets the negative impact of overload confusion and enhances decision quality amidst similarity confusion by providing familiarity. While overload and ambiguity confusion significantly decrease decision quality, similarity confusion unexpectedly improves it by prompting more deliberate decision-making. All forms of confusion significantly contribute to decision postponement as consumers delay purchases seeking clarity and confidence. Additionally, confusion significantly contributes to cognitive dissonance, resulting in post-purchase regret and dissatisfaction.

FUTURE RESEARCH RECOMMENDATIONS

Future research should replicate this study across different contexts and cultures, including various Southeast Asian countries and high-growth industries like electronics and apparel, to understand how industry-specific factors impact consumer confusion. Comparing digital commerce platforms, such as Shopee versus Tokopedia, could reveal how platform features affect clarity. Further investigations should focus on consumer characteristics (e.g., awareness, loyalty, cognitive vulnerability) and marketing mix variables (e.g., product attributes, promotional messages). Exploring customer satisfaction, loyalty, and post-purchase behavior will offer deeper insights. Additionally, the positive impact of similarity

confusion on decision quality suggests further exploration of mediation effects and consumer learning styles. Incorporating demographic, geographic, and behavioral factors will refine understanding and enhance marketing strategies.

REFERENCES

- Alloza, A. (2008). Brand Engagement and Brand Experience at BBVA, the Transformation of a 150 Years Old Company. *Corporate Reputation Review*, 11(4), 371–379. <https://doi.org/10.1057/crr.2008.31>
- Beneke, J. (2014). Are Consumers Really Bewildered by Overchoice? An Experimental Approach to the Tyranny of “Too Much.” *Journal of Food Products Marketing*, 21(1), 90–101. <https://doi.org/10.1080/10454446.2013.843490>
- Bose, T. K., & Sarker, S. (2012). Cognitive Dissonance Affecting Consumer Buying Decision Making: A study Based on Khulna Metropolitan Area. *Journal of Management Research*, 4(3). <https://doi.org/10.5296/jmr.v4i3.1847>
- Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand Experience: What Is It? How Is It Measured? Does It Affect Loyalty? *Journal of Marketing*, 73(3), 52–68. <https://doi.org/10.1509/jmkg.73.3.052>
- Brengman, M., Geuens, M., & Pelsmacker, P. D. (2001). The impact of consumer characteristics and campaign related factors on brand confusion in print advertising. *Journal of Marketing Communications*, 7(4), 231–243. <https://doi.org/10.1080/13527260127415>
- Bryman, A. (2012). *Social Research Methods* (4th ed.). Oxford University Press. (Original work published 2001)
- Bryman, A., & Bell, E. (2015). *Business research methods* (4th ed.). Oxford University Press.
- Chauhan, V., & Sagar, M. (2021). Consumer confusion: a systematic review and research directions. *Journal of Consumer Marketing*, 38(4), 445–456. <https://doi.org/10.1108/jcm-03-2020-3705>
- Chen, Y.-C., Shang, R.-A., & Kao, C.-Y. (2009). The effects of information overload on consumers’ subjective state towards buying decision in the internet shopping environment. *Electronic Commerce Research and Applications*, 8(1), 48–58. <https://doi.org/10.1016/j.elerap.2008.09.001>
- Coothoopermal, S., & Chitto, H. (2017). The impact of consumer decision-making styles on consumer confusion in Mauritius: An empirical analysis. *International Journal of Consumer Studies*, 41(3), 312–324. <https://doi.org/10.1111/ijcs.12343>
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design : Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications, Inc.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Drummond, G. (2004). Consumer confusion: reduction strategies in higher education. *International Journal of Educational Management*, 18(5), 317–323. <https://doi.org/10.1108/09513540410543466>

- East, R. (1997). *Consumer behaviour: advances and applications in marketing*. Prentice Hall.
- Gan, C.C., & Ding, H.T. (2014). Pre-purchase behaviour: Is there a cognitive dissonance?
- Hall, A., Towers, N., & Shaw, D. R. (2017). Understanding how Millennial shoppers decide what to buy. *International Journal of Retail & Distribution Management*, 45(5), 498–517. <https://doi.org/10.1108/ijrdm-11-2016-0206>
- Hall-Phillips, A., & Shah, P. (2017). Unclear confusion and expiration date labels in the United States: A consumer perspective. *Journal of Retailing and Consumer Services*, 35, 118–126. <https://doi.org/10.1016/j.jretconser.2016.12.007>
- Häubl, G., & Trifts, V. (2000). Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids. *Marketing Science*, 19(1), 4–21.
- Heath, C., & Tversky, A. (1991). Preference and belief: Ambiguity and competence in choice under uncertainty. *Journal of Risk and Uncertainty*, 4(1), 5–28. <https://doi.org/10.1007/bf00057884>
- Iqbal, S., Ahmad, N., Iqbal, N., & Ahmad, N. (2014). Postponable Purchasing of Confused Consumer; The Moderating Role of Perceived Risk And Income Between Consumer Confusion Proneness & Decision Postponement. 02.
- Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, 79(6), 995–1006.
- Jacoby, J. (1977). Information Load and Decision Quality: Some Contested Issues. *Journal of Marketing Research*, 14(4), 569. <https://doi.org/10.2307/3151201>
- Jacoby, J., & Morrin, M. (1998). “Not Manufactured or Authorized by ...”: Recent Federal Cases Involving Trademark Disclaimers. *Journal of Public Policy & Marketing*, 17(1), 97–107. <https://doi.org/10.1177/074391569801700110>
- Jo, H., Chung, N., Hlee, S., & Koo, C. (2021). Perceived Affordances and Regret in Online Travel Agencies. *Journal of Travel Research*, 61(5), 004728752110149. <https://doi.org/10.1177/00472875211014962>
- Kahneman, D., Lovallo, D., & Sibony, O. (2011). Before you make that big decision... *Harvard business review*, 89(6), 50–137.
- Kapferer, J. (1995). Brand confusion: Empirical study of a legal concept. *Psychology and Marketing*, 12(6), 551–568. <https://doi.org/10.1002/mar.4220120607>
- Kasabov, E. (2015). What we know, don't know, and should know about confusion marketing. *European Journal of Marketing*, 49(11/12), 1777–1808. <https://doi.org/10.1108/ejm-03-2014-0166>
- Kasper, H., Bloemer, J., & Driessen, P. H. (2010). Coping with confusion. *Managing Service Quality: An International Journal*, 20(2), 140–160. <https://doi.org/10.1108/09604521011027570>
- Keaveney, S. M., Huber, F., & Herrmann, A. (2007). A model of buyer regret: Selected prepurchase and postpurchase antecedents with consequences for

- the brand and the channel. *Journal of Business Research*, 60(12), 1207–1215. <https://doi.org/10.1016/j.jbusres.2006.07.005>
- Kim, J.-O. (2021). Consumer confusion, shopping fatigue, and negative purchasing behavior in internet shopping environment. *The Research Journal of the Costume Culture*, 29(4), 505–521. <https://doi.org/10.29049/rjcc.2021.29.4.505>
- Kinard, B. R., & Hartman, K. B. (2013). Are You Entertained? The Impact of Brand Integration and Brand Experience in Television-Related Advergaming. *Journal of Advertising*, 42(2-3), 196–203. <https://doi.org/10.1080/00913367.2013.775794>
- Leek, S., & Chansawatkit, S. (2006). Consumer confusion in the Thai mobile phone market. *Journal of Consumer Behaviour*, 5(6), 518–532. <https://doi.org/10.1002/cb.200>
- Leek, S., Szmigin, I., & Baker, E. (2015). Consumer confusion and front of pack (FoP) nutritional labels. *Journal of Customer Behaviour*, 14(1), 49–61. <https://doi.org/10.1362/147539215x14267608004087>
- Levitt, T. (1966, September). Innovative Imitation. *Harvard Business Review*. <https://hbr.org/1966/09/innovative-imitation>
- Li, C.-Y. (2016). Why do online consumers experience information overload? An extension of communication theory. *Journal of Information Science*, 43(6), 835–851. <https://doi.org/10.1177/0165551516670096>
- Li, M., & Choudhury, A. H. (2021). Using website information to reduce postpurchase dissonance: A mediated moderating role of perceived risk. *Psychology & marketing*, 38(1), 56–69.
- Lv, J., & Liu, X. (2022). The Impact of Information Overload of E-Commerce Platform on Consumer Return Intention: Considering the Moderating Role of Perceived Environmental Effectiveness. *International Journal of Environmental Research and Public Health*, 19(13), 8060. <https://doi.org/10.3390/ijerph19138060>
- Malhotra, N. K., Nunan, D., & Birks, D. F. (2017). *Marketing research: an applied approach* (5th ed.). Pearson.
- Marsden, J. R., Pakath, R., & Wibowo, K. (2006). Decision making under time pressure with different information sources and performance-based financial incentives: part 3. *Decision Support Systems*, 42(1), 186–203. <https://doi.org/10.1016/j.dss.2004.09.013>
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage publications.
- Mathur, T. (2020). Marketing health insurance products: Sources and consequences of customers' confusion. *International Journal of Healthcare Management*, 14(4), 1337–1347. <https://doi.org/10.1080/20479700.2020.1758896>
- Matzler, K., Stieger, D., & Füller, J. (2011). Consumer Confusion in Internet-Based Mass Customization: Testing a Network of Antecedents and Consequences. *Journal of Consumer Policy*, 34(2), 231–247. <https://doi.org/10.1007/s10603-011-9157-6>

- Meyers-Levy, J., & Maheswaran, D. (1991). Exploring differences in males and females processing strategies. *Journal of Consumer Research*, 18(1), 63–70. <https://doi.org/10.1086/209241>
- Miles, M. B., & Huberman, A. M. (1984). *Qualitative Data Analysis*. SAGE Publications, Incorporated.
- Mitchell, V., & Papavassiliou, V. (1999). Marketing causes and implications of consumer confusion. *Journal of Product & Brand Management*, 8(4), 319–342. <https://doi.org/10.1108/10610429910284300>
- Mitchell, V., Walsh, G., & Yamin, M. (2005). Toward a conceptual model of consumer confusion. *Advances in Consumer Research*, 32, 143–150.
- Mitchell, V. W., Walsh, G., & Yamin, M. (2004). Reviewing and redefining the concept of consumer confusion. Manchester: Manuscript Manchester School of Management, 4.
- Moon, S., Costello, J., & Koo, D. (2017). The impact of consumer confusion from ecolabels on negative WOM, distrust, and dissatisfaction. *International Journal of Advertising*, 36(2), 246–271. <https://doi.org/10.1080/02650487.2016.1158223>
- Neisser, U. (1976). *Cognition and Reality: Principles and Implications of Cognitive Psychology*. New York: WH Freeman and Company.
- Olsen, G. D., Pracejus, J. W., & Brown, N. R. (2003). When Profit Equals Price: Consumer Confusion about Donation Amounts in Cause-Related Marketing. *Journal of Public Policy & Marketing*, 22(2), 170–180. <https://doi.org/10.1509/jppm.22.2.170.17641>
- Parasidis, E., Hooker, N., & Simons, C. T. (2015). Addressing Consumer Confusion Surrounding “Natural” Food Claims. *American Journal of Law & Medicine*, 41(2-3), 357–373. <https://doi.org/10.1177/0098858815591522>
- Phillips-Wren, G., & Adya, M. (2020). Decision making under stress: the role of information overload, time pressure, complexity, and uncertainty. *Journal of Decision Systems*, 29(1), 1–13. <https://doi.org/10.1080/12460125.2020.1768680>
- Powers, T. L., & Jack, E. P. (2013). The Influence of Cognitive Dissonance on Retail Product Returns. *Psychology & Marketing*, 30(8), 724–735. <https://doi.org/10.1002/mar.20640>
- Sarabhai, S., & Singh, N. (2014). Overload Confusion Proneness: The Underlying Cognitive Vulnerabilities and Their Decision Moderations through Various Risk Reduction Strategies in High Involvement Personal Care Category. *Asia-Pacific Journal of Management Research and Innovation*, 10(4), 337–346. <https://doi.org/10.1177/2319510x14553702>
- Scardamaglia, A., & Daly, A. (2016). Google, online search and consumer confusion in Australia. *International Journal of Law and Information Technology*, 24(3), 203–228. <https://doi.org/10.1093/ijlit/eaw004>
- Schultz, U., & Vandenbosch, B. (1998). Information Overload in a Groupware Environment: Now You See It, Now You Don't. *Journal of Organizational Computing and Electronic Commerce*, 8(2), 127–148. https://doi.org/10.1207/s15327744joc0802_3

- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology*, 83(5), 1178–1197. <https://doi.org/10.1037/0022-3514.83.5.1178>
- Schwarz, N. (2004). Metacognitive Experiences in Consumer Judgment and Decision Making. *Journal of Consumer Psychology*, 14(4), 332–348. https://doi.org/10.1207/s15327663jcp1404_2
- Schweizer, M., & Kotouc, A.J. (2006). Scale Development for Consumer Confusion. *ACR North American Advances*.
- Shafir, E., Simonson, I., & Tversky, A. (2000). Reason-Based Choice. Cambridge University Press EBooks, 597–619. <https://doi.org/10.1017/cbo9780511803475.035>
- Sharma, A., Pandher, Jagwinder Singh, & Prakash, G. (2023). Consumer confusion and decision postponement in the online tourism domain: the moderating role of self-efficacy. *Journal of Hospitality and Tourism Insights*, 6(2), 1092–1117. <https://doi.org/10.1108/JHTI0320220096>
- Sharma, M.K. (2014). The Impact on Consumer Buying Behaviour: Cognitive Dissonance.
- Shiu, J. (2021). Risk reduction strategies in competitive convenience retail: How brand confusion can impact choice among existing similar alternatives. *Journal of Retailing and Consumer Services*, 61, 102547. <https://doi.org/10.1016/j.jretconser.2021.102547>
- Singh, D., & Sharma, S. (2018). “ An Empirical Study of Consumer Confusion on Decision Postponement ”.
- Solomon, M. R., Askegaard, S., Hogg, M. K., & Bamossy, G. J. (2019). *Consumer Behaviour : A European Perspective* (6th ed.). Pearson.
- Sproles, G. B., & Kendall, E. L. (1986). A Methodology for Profiling Consumers' Decision-Making Styles. *Journal of Consumer Affairs*, 20(2), 267–279. <https://doi.org/10.1111/j.1745-6606.1986.tb00382.x>
- Su, B. (2008). Characteristics of Consumer Search On-Line: How Much Do We Search? *International Journal of Electronic Commerce*, 13(1), 109–129. <https://doi.org/10.2753/jec1086-4415130104>
- Sweeney, J. C., Hausknecht, D., & Soutar, G. N. (2000). Cognitive dissonance after purchase: A multidimensional scale. *Psychology and Marketing*, 17(5), 369–385. [https://doi.org/10.1002/\(sici\)1520-6793\(200005\)17:5%3C369::aid-mar1%3E3.0.co;2-g](https://doi.org/10.1002/(sici)1520-6793(200005)17:5%3C369::aid-mar1%3E3.0.co;2-g)
- Walsh, G., Hennig-Thurau, T., & Mitchell, V.-W. (2007). Consumer confusion proneness: scale development, validation, and application. *Journal of Marketing Management*, 23(7-8), 697–721. <https://doi.org/10.1362/026725707x230009>
- Walsh, G., & Mitchell, V. (2010). The effect of consumer confusion proneness on word of mouth, trust, and customer satisfaction. *European Journal of Marketing*, 44(6), 838–859. <https://doi.org/10.1108/03090561011032739>

- Walsh, G., & Mitchell, V.-W. (2005). Consumer Vulnerability to Perceived Product Similarity Problems: Scale Development and Identification. *Journal of Macromarketing*, 25(2), 140–152. <https://doi.org/10.1177/0276146705280613>
- Walsh, G., Mitchell, V.-W., & Hennig-Thurau, T. (2001). German Consumer Decision-Making Styles. *Journal of Consumer Affairs*, 35(1), 73–95. <https://doi.org/10.1111/j.1745-6606.2001.tb00103.x>
- Wang, Q., & Shukla, P. (2013). Linking Sources of Consumer Confusion to Decision Satisfaction: The Role of Choice Goals. *Psychology & Marketing*, 30(4), 295–304. <https://doi.org/10.1002/mar.20606>
- Yin, R. K. (2014). *Case study research: Design and methods (applied social research methods)* (p. 312). Thousand Oaks, CA: Sage publications.
- Zhang, Y. (2018). Product Returns in a Digital Era: The Role of Multidimensional Cognitive Dissonance, Regret, and Buying Context in the Post-purchase Appraisal Process.
- Zhou, J. X., Arnold, M. J., Pereira, A., & Yu, J. (2010). Chinese consumer decision-making styles: A comparison between the coastal and inland regions. *Journal of Business Research*, 63(1), 45–51. <https://doi.org/10.1016/j.jbusres.2009.01.010>