# CHAPTER II

# LITERATURE BASIS

## 2.1 Theoretical Review

In the context of e-commerce and digital shopping environments, understanding the cognitive and behavioral drivers that underpin consumer decision-making is critically important. This theoretical review examines the principal frameworks and theories that inform consumer behavior on e-commerce platforms, with a particular focus on optimizing search advertisement performance within Tokopedia. Anchored in the grand theory of behavioral economics, this analysis leverages the Customer Decision-Making Model alongside core concepts such as visual hierarchy, banner blindness, and selective attention. Behavioral economics offers a foundational perspective on how psychological factors and cognitive biases systematically affect consumer choices, particularly within visually complex and information-rich settings. Together, these frameworks provide a nuanced understanding of how structured visual design and strategic content placement within search advertisements can effectively capture user attention, foster engagement, and ultimately enhance user experience in the digital marketplace.

### 2.1.1 Grand Theory

#### 2.1.1.1 Behavioral Economics

Behavioral economics is a field that integrates insights from psychology into economic theory to explain deviations from the assumptions of traditional rational behavior models. Samson and Voyer (2022) define behavioral economics as "the study of how psychological, cognitive, emotional, cultural, and social factors influence the decisions of individuals and institutions, and how those decisions vary from those implied by classical economic theory." By emphasizing the complexities

of human decision-making, behavioral economics provides a lens to understand consumer behavior in real-world contexts.

This perspective is particularly relevant in contexts where decisions are influenced by factors such as heuristics, biases, and emotional responses. Mullainathan and Shafir (2018) highlight the role of behavioral economics in revealing "systematic patterns of decision-making that deviate from the predictions of standard economic models," such as the impact of framing, loss aversion, and mental shortcuts in complex environments. Similarly, Vigna and Malmendier (2018) emphasize the importance of attention as a scarce resource in decision-making, noting that behavioral economics helps to uncover how consumers allocate their focus amidst competing stimuli.

The core principles of behavioral economics encompass several key concepts that challenge traditional notions of human rationality. Thaler's concept of mental accounting (2009) illustrates how individuals categorize and evaluate economic outcomes, noting that they tend to segregate gains and integrate losses, which can lead to irrational financial behaviors. Additionally, the concept of "nudging," popularized by Thaler and Sunstein (2008), refers to subtle changes in choice architecture that can significantly influence behavior without restricting options or altering economic incentives, such as modifying default options in retirement savings plans to boost participation rates. Finally, behavioral economics acknowledges that individuals are motivated by factors beyond self-interest, with concepts like fairness and altruism playing significant roles in decision-making.

In the domain of digital marketplaces and advertising, behavioral economics provides a robust framework for analyzing consumer responses to visual and textual elements. According to Kőszegi (2019), "behavioral economics extends traditional theories by incorporating psychologically realistic assumptions, particularly in areas such as attention, perception, and decision-making under uncertainty." These principles guide the examination of phenomena such as banner blindness, selective attention, and decision optimization, which are central to this study.

This research builds on the foundational principles of behavioral economics to investigate how visual design and psychological factors influence consumer

behavior in e-commerce. By connecting visual hierarchy, attention, and decision-making processes to behavioral theories, this study seeks to contribute to a deeper understanding of consumer interactions within information-rich environments.

### 2.1.2 Middle-Range Theory

#### 2.1.2.1 Customer Decision Making

The Customer Decision Making Model provides a structured framework for comprehending how consumers navigate through various stages of decision-making when considering a purchase. Herbert Simon's model of decision-making, introduced in 1960, emphasizes the bounded rationality of consumers. It suggests that individuals often make decisions based on a limited set of information and cognitive resources. Simon's model has profound implications for the e-commerce landscape, where users are inundated with information and choices. The bounded rationality concept aligns with the notion that online shoppers might not exhaustively search and evaluate all options, which can influence their decision to click on paid search ads. Armano (2007) further explores the applicability of Simon's model in the digital age, highlighting the impact of limited attention spans on user decision-making.

Belch and Belch's Consumer Decision Model, introduced in 2009, delves into the phases consumers undergo before making a purchase. It consists of five stages: problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. This model provides valuable insights into the decision-making process of online shoppers. The application of this model to e-commerce platforms, such as Tokopedia, underscores the importance of optimizing the paid search experience to cater to users at various stages of the decision-making journey. Kotler and Keller (2012) further elaborate on the intricacies of the consumer decision-making process, emphasizing the dynamic nature of the digital environment.

In the context of e-commerce, understanding how users progress through the decision-making stages is crucial for the effective optimization of paid search

performance. Users encounter a myriad of products and advertisements while navigating online marketplaces, making it essential to acknowledge the cognitive and emotional factors that guide their choices. By synthesizing the insights from Simon (1960), Armano (2007), Belch and Belch (2009), and Kotler and Keller (2012), we gain a comprehensive understanding of the factors that influence user decision-making in the dynamic landscape of e-commerce.

The consumer decision-making model, as outlined in the second edition of "Consumer Behaviour: A European Outlook" (Schiffman, Kanuk, & Hansen, 2012), provides a comprehensive understanding of the intricate stages involved in the consumer decision-making process. This model is structured into three interlocking stages: the input stage, the process stage, and the output stage.

1. Input Stage: Recognizing Product Need

Two primary information sources shape the consumer's recognition of a product need. The first involves the firm's marketing efforts, encompassing aspects like the product itself, pricing, promotion, and distribution channels. The second revolves around external sociological influences, including family, friends, societal norms, social class, and cultural memberships.

2. Process Stage: Making Informed Decisions

The process stage delves into how psychological factors inherent in individuals, such as motivation, perception, learning, personality, and attitudes, influence the decision-making process. This stage includes the recognition of a need, pre-purchase search for information, and evaluation of alternatives. Furthermore, the experience gained in evaluating alternatives feeds back into shaping existing psychological attributes.

3. Output Stage: Post-Decision Activities

The output stage involves two closely related post-decision activities. Firstly, purchase behavior, influenced by factors like sales promotions, trial purchases for non-durable products, and repeat purchases signifying product adoption. Secondly, post-purchase evaluation, reflecting consumer satisfaction and experience, plays a crucial role in shaping future decision-making.

#### 2.1.2.2 Visual Hierarchy

Visual hierarchy refers to the arrangement or presentation of elements within a visual design that guides a viewer's attention according to a specific order of importance. In web design and human-computer interaction, visual hierarchy is critical as it ensures users can efficiently process information and focus on key elements without cognitive overload (Lidwell, Holden, & Butler, 2010). It leverages various visual cues such as size, contrast, color, and spacing to prioritize the information users need to see and interact with first.

According to Lidwell et al. (2010), visual hierarchy is grounded in the idea that not all elements on a page are equal. Designers use principles such as size, contrast, color, proximity, and alignment to arrange content in a way that naturally guides the user's attention to the most important pieces of information. Larger elements, bolder colors, and strategic placement on the page can all signal that certain information should be processed before others. This enables users to more easily navigate complex interfaces and helps them make decisions faster, a key aspect of effective design in e-commerce and digital environments.

The principles of visual hierarchy are rooted in Gestalt psychology, which posits that humans have a natural tendency to organize visual information into meaningful patterns (Wertheimer, 1938). Elements that are grouped together by proximity or similarity are perceived as related, while those that stand out due to contrast or size attract more attention (Koffka, 1935). In this context, designers apply these psychological principles to ensure that the most critical content is not only visible but easy to interpret and engage with. This is particularly important in digital advertising, where strategic visual hierarchy can influence whether a user notices an ad and how they interact with it (Moore, Cummings, & Dune, 2010).

Studies by Nielsen (2006) have shown that users tend to follow specific scanning patterns when viewing web content, such as the F-pattern and Z-pattern. These patterns inform the way users process information on a page, naturally guiding attention from top-left to top-right and down the page, creating predictable zones of focus. Understanding these patterns helps designers place key content and advertisements where users are most likely to notice them. As a result, visual

hierarchy can be strategically used to improve content visibility and user engagement by aligning design with these common scanning behaviors.

Visual hierarchy also helps reduce cognitive load, a concept introduced by Sweller (2011), which suggests that presenting information in a way that is easy to process and understand minimizes mental strain on users. When visual hierarchy is well-executed, users can focus their attention on what is most important without feeling overwhelmed by excessive or poorly organized content. However, when misused, it can lead to banner blindness, a phenomenon where users ignore or overlook certain elements, especially advertisements, because they become habituated to their design or positioning (Moore, Cummings, & Dune, 2010).

In summary, visual hierarchy is essential for guiding users' attention effectively in digital environments. By using design principles that align with cognitive processes and natural scanning patterns, designers can create layouts that are not only aesthetically pleasing but also functional and intuitive, improving user experience and engagement.

#### 2.1.2.3 Banner Blindness

Banner blindness refers to a cognitive phenomenon where users fail to notice or ignore banner-like advertisements on websites due to their repetitive exposure and the perception that these ads are irrelevant or unimportant. It occurs when users develop a tendency to overlook areas of a webpage that resemble advertisements, typically in the form of banners or other promotional content. Banner blindness can be seen as a form of selective attention, where users unconsciously prioritize more relevant information while ignoring ads, which they perceive as distractions.

Moore et al. (2010) define banner blindness as the "inability to notice or engage with advertisements on a webpage, primarily due to the repetitive exposure to similar banner-style ads that leads to learned inattention." This definition highlights how users actively avoid ads they have learned to associate with irrelevant or disruptive content. Over time, as users repeatedly encounter banner ads in a similar format across different websites, they become more adept at filtering these elements out of their cognitive focus. This phenomenon reflects the brain's

effort to reduce cognitive overload by filtering out non-essential stimuli and focusing on content deemed relevant to the user's goals.

This concept aligns with cognitive psychology theories where attention is a limited resource. As DellaVigna & Malmendier (2018) argue, attention is scarce, and users tend to focus on content that aligns with their immediate interests, such as product evaluation or decision-making, while ignoring distracting ads. This ties in with broader theories of selective attention, where cognitive resources are allocated to stimuli that are perceived as more useful or valuable to the individual.
The mechanisms behind banner blindness involve habituation and cognitive load. With repeated exposure, users become desensitized to ads, which is known as habituation. According to Tobias & Sill (2018), this response reduces the cognitive effort required to dismiss ads, leading to automatic filtering based on visual or contextual cues that resemble typical banner ads. As users encounter these advertisements, they learn to ignore them, further ingraining the automatic filtering response.

In addition, cognitive load plays a critical role in banner blindness. In high-stress or information-dense environments, like online shopping, users tend to focus on content that directly supports their decision-making goals. As Mullainathan & Shafir (2018) suggest, ads, which are often peripheral to the task at hand, are quickly filtered out of the user’s attention span, allowing the individual to concentrate on product comparisons, price evaluations, or other relevant content.

For digital advertising, the theory of banner blindness suggests that traditional banner ads may lose their effectiveness over time. Köhler et al. (2019) argue that advertisers can counteract banner blindness by adopting more integrated, context-aware advertising formats that blend seamlessly with the user experience. In order to overcome this effect, advertisements should feel relevant and valuable, making them less likely to be ignored. Research by Thaler & Sunstein (2008) on "nudging" further supports this, suggesting that subtle design changes in advertisements, such as adjusting their placement or visual style, can increase their chances of being noticed.

In conclusion, banner blindness is a well-documented cognitive phenomenon where users, due to repeated exposure and cognitive overload, tend to ignore banner-like ads. This mechanism is shaped by habituation and cognitive load, leading users to focus on content that supports their goals. Advertisers can mitigate the effects of banner blindness by creating ads that are more relevant, seamlessly integrated, and less intrusive, thus improving their visibility and effectiveness.

#### 2.1.2.4 Selective Attention

Selective attention, a cornerstone in cognitive psychology, holds substantial implications for consumer behavior and preference formation (Florack et al., 2022; Janiszewski et al., 2013). In the marketing domain, exposure to products is considered a crucial factor influencing sales, with pricing often tied to the frequency of exposures (Karrh, McKee, & Pardun, 2003; Hoffman & Novak, 2000). However, exposure alone does not guarantee attention, as consumers operate within limited visual processing capacity, leading to selective attention where competing products vie for cognitive resources (de Fockert et al., 2001; Cowan, 2010).

The study by Janiszewski et al. (2013) explores the delayed effects of selective attention on product preferences, showing that products receiving attention in a prior task are often preferred later. This raises important questions about the mechanisms driving these effects and their generalizability across response modes. Research suggests that selective attention follows a biased competition model, where products compete for attention, and neuronal networks adapt to prioritize certain products (Reynolds & Chelazzi, 2004). This prioritization influences subsequent choices, supporting Janiszewski et al.'s (2013) findings that selective attention impacts preferences in decision-making situations.

The effects of selective attention extend beyond exposure duration, challenging the mere exposure effect and emphasizing the need to understand attention dynamics in preference formation. The biased competition model, based on visual attention processes, provides a valuable framework for examining the relationship between attention allocation and consumer preferences (Reynolds & Chelazzi, 2004). This aligns with evidence that attentional processes significantly

shape judgments and decisions (Frings et al., 2015).As researchers further explore the practical applications of these findings, marketers stand to benefit from insights into how selectively allocating attention in visually complex environments can enhance product preferences. The competition for attention in such contexts is integral to the formation of preferences, and marketers can strategically leverage this understanding. Designing interactive search games where consumers actively locate products may be more effective than static advertisements. Additionally, increasing a product's salience, for instance, through changing banner advertisements or employing gaze cueing, offers potential avenues for directing attention effectively (Palcu, Sudkamp, & Florack, 2017). Future research may delve into the moderating role of individuals' attentional focus, exploring whether a broad or narrow focus influences the selective attention effects on preferences.

In summary, selective attention is crucial in guiding consumer focus and shaping preferences in visually complex environments. By prioritizing relevant stimuli, it enables efficient decision-making and influences subsequent choices. The biased competition model highlights how selective attention enhances engagement and preferences beyond mere exposure. For marketers, leveraging this requires strategies that align with consumer needs, such as creating engaging, contextually relevant advertisements. Future research on individual attentional patterns and visual complexity will provide deeper insights into optimizing attention and preference formation.

### 2.3 Previous Research

The landscape of e-commerce is marked by dynamic shifts in consumer behavior and technological advancements, prompting a continuous exploration of the intricate interplay between users and online platforms. This section delves into the rich tapestry of previous research that has sought to unravel the nuances of user interactions, decision-making processes, and the optimization of digital advertising within the e-commerce domain. Drawing on a diverse array of studies, this review spans investigations into web search behavior, the challenges and opportunities in e-commerce search and recommendations, revenue optimization for product search,

and empirical studies on factors influencing purchase intentions during online shopping. From deep learning models for personalized product search to efforts in debiasing grid-based product search, the body of prior research provides valuable insights into user intents, behavior, and satisfaction. As we navigate this landscape of scholarly contributions, we lay the groundwork for our exploration of paid search performance on Tokopedia, seeking to build upon and contribute to the existing body of knowledge in this dynamic field.

Table 1 Previous Research Literature Review

| No | Author(s) | Article Title | Publication | Research Findings |
|---|---|---|---|---|
| 1 | Phillips, A. H., Yang, R., & Djamasbi, S. | Do Ads Matter? An Exploration of Web Search Behavior, Visual Hierarchy, and Search Engine Results Pages | 46th Hawaii International Conference on System Sciences, 2013 | 77% of users who were presented with ads looked at them, contrary to banner blindness theory. Duration values without ads are highest, but viewed entry number decreases. |
| 2 | Tsagkias, M.; King, T.H.; Kallumadi, S.; Murdock, V.; de Rijke, M. | Challenges and Research Opportunities in eCommerce Search and Recommendations | SIGIR Forum, 2020 | Creating fair, accountable, confidential, and transparent search and recommendation systems is crucial for eCommerce platforms. |
| 3 | Wu, L., Hu, D., Hong, L., & Liu, H. | Turning Clicks into Purchases: Revenue Optimization for Product Search in E-Commerce | SIGIR Forum, 2018 | E-commerce platforms' rise necessitates enhancing customer satisfaction. E-commerce search differs from web search by involving comparing and clicking on search results and deciding whether to make a purchase. |
| 4 | Kripesh, A. S. | An empirical study on the effect of product information and perceived usefulness on purchase intention during online shopping in India | Int. J. Business Innovation and Research, Vol. 21, No. 4, 2020 | Product information strongly influences perceived usefulness and purchase intention during online shopping. |
| 5 | Su, N., He, J., Liu, Y., Zhang, M., & Ma, S. | User Intent, Behavior, and Perceived Satisfaction in Product Search | WSDM 2018 | Product search user intents include Target Finding, Decision Making, and Exploration. |

| No | Author(s) | Article Title | Publication | Research Findings |
|---|---|---|---|---|
| 6 | Guo, Y., Cheng, Z., Nie, L., Wang, Y., Ma, J., & Kankanhalli, M. | Attentive Long Short-Term Preference Modeling for Personalized Product Search | ACM Transactions on Information Systems, 2019 | A novel model integrates long- and short-term user preferences to better represent user search intentions. |
| 7 | Guo, R., Zhao, X., Henderson, A., Hong, L., & Liu, H. | Debiasing Grid-based Product Search in E-commerce | KDD 2020 | The framework debiases grid-based product search using multiple types of feedback and user behavior patterns. |
| 8 | Di, W., Bhardwaj, A., Jagadeesh, V., Piramuthu, R., & Churchill, E. | When relevance is not Enough: Promoting Visual Attractiveness for Fashion E-commerce | arXiv, 2014 | Introduces a new ranking function for enhancing user engagement in the fashion clothing category based on user preferences and presentation efficacy. |
| 9 | Moraes, F., Yang, J., Zhang, R., & Murdock, V. | The Role of Attributes in Product Quality Comparisons | CHIIR 2020 | Customers rely on a few quality attributes but often do not extensively read reviews. Price strongly influences perceived quality. |
| 10 | Jbene, M., Tigani, S., Saadane, R., & Chehri, A. | Deep Neural Network and Boosting Based Hybrid Quality Ranking for e-Commerce Product Search | Big Data Cogn. Comput. 2021 | Context-aware embeddings and quality indicators enhance product relevance and quality ranking in e-commerce product search. |

## 2.4 Conceptual Framework

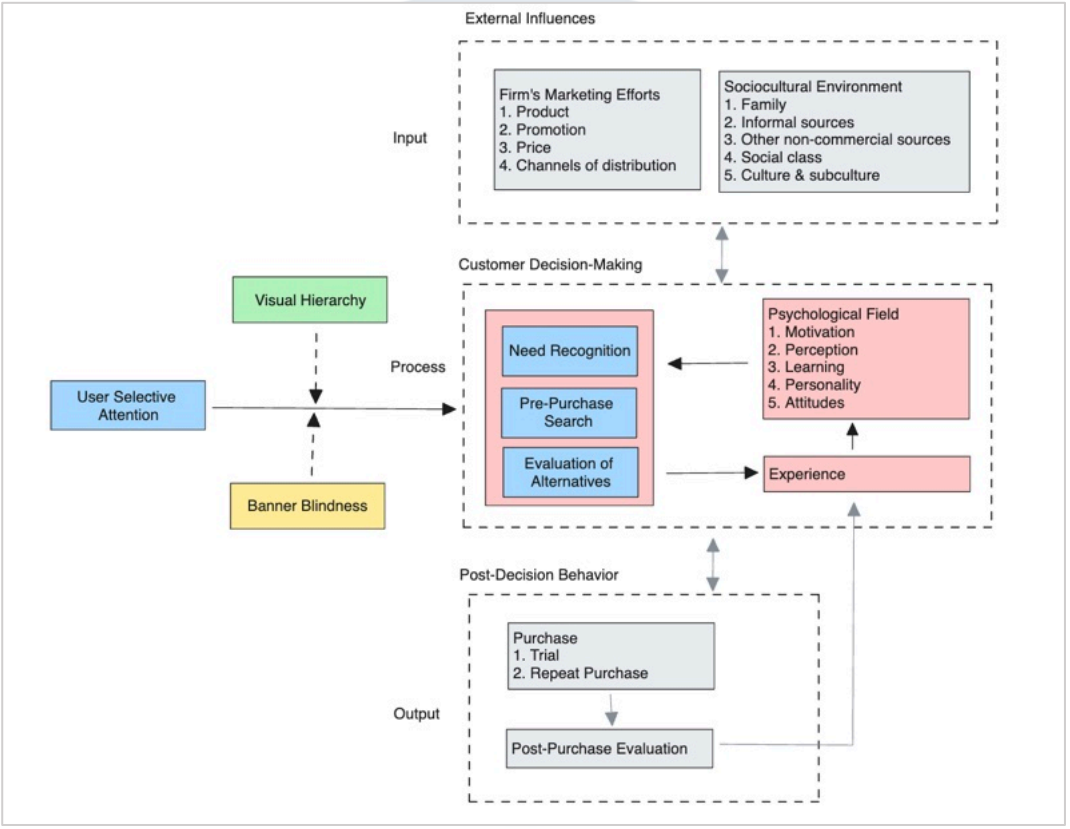


*Figure 1 Conceptual Framework*

Figure 1 illustrates the conceptual framework created by the author to analyze the key variables in this research, which is based on Schiffman, Kanuk, and Hansen's (2012) model of customer decision-making, specifically focusing on the "process" stage observed on Tokopedia's product search result page. This stage includes need recognition, pre-purchase search, and evaluation of alternatives, where visual hierarchy and banner blindness act as mediating variables influencing selective attention. The author hypothesizes that visual hierarchy positively complements the challenges posed by selective attention, while banner blindness adds a layer of disadvantage that requires strategic attention to improve ad performance.

Visual hierarchy directs users' attention on Tokopedia's search result page by influencing how visual elements—like product images, text size, and color—are prioritized. This study examines how these design choices impact users during critical decision-making stages, such as need recognition, information search, and

alternative evaluation, shaping their interactions with product ads and ultimately their purchase decisions.

Banner blindness refers to users' tendency to overlook advertisements, even when relevant. This phenomenon impacts how attention is allocated, especially during the alternative evaluation phase. By exploring banner blindness on Tokopedia's search result page, this research assesses its effect on user engagement and its potential to reduce click-through rates (CTR) on product ads.

Need recognition occurs when users identify a need that prompts a potential purchase. This study investigates how visual and contextual elements on Tokopedia's search page trigger need recognition, focusing on how these factors influence users' attention and their initial decision to engage with products.

During information search, users gather details to compare options. This study looks at how visual hierarchy and banner blindness influence attention allocation in Tokopedia's search results, determining how these factors affect users' ability to evaluate product information during the pre-purchase stage.

Alternative Evaluation, in this phase, users compare different products. This research examines how visual hierarchy and banner blindness impact attention and decision-making as users evaluate alternatives on Tokopedia's search page, influencing their likelihood of clicking on product ads.

## 2.5 Proposition

The conceptual framework outlines how visual hierarchy and banner blindness shape user decision-making on Tokopedia's search result page. These factors influence user attention during key stages such as need recognition, pre-purchase search, and alternative evaluation. The application of visual hierarchy principles plays a crucial role in guiding user attention during the Need Recognition stage, as well as throughout the Pre-Purchase Search and Evaluation of Alternatives phases. Similarly, banner blindness demonstrates how user attention is directed during these stages and highlights the potential for design interventions to manage this phenomenon effectively. By understanding these dynamics, the framework

offers insights into optimizing user experience and decision-making through thoughtful design.