The Influence of the Online Decision Environment Characteristics on Consumer Selective Information Processing and Choice

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The uniqueness of the online shopping environment and the rapid growth of the online retail sales make it important to understand how consumers process information and make decisions in an online setting. This research examines how various online decision environment characteristics (i.e., attribute type, attribute correlation, alternative organization, and attribute perceptual salience) interact with each other to influence consumer selective information processing and choice. Further, it also shows that selective information processing mediates the effect of online decision environment characteristics on consumer choice.

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**EXTENDED ABSTRACT**

The uniqueness of the online shopping environment and the rapid growth of the online retail sales make it important to understand consumer information processing and decision making in an online setting. Specifically, this research examines (1) how online decision environment characteristics influence the extent consumers selectively process attributes and alternatives and (2) whether selective information processing mediates the effect of decision environment characteristics on consumer choice.

The adaptive decision making view posits that due to limited cognitive capacity, consumers often use a variety of information processing and decision making strategies contingent on the decision environment to construct their preferences (Bettman, Luce, and Payne 1998). Thus, consumers’ information search process can be highly selective. They only select certain attributes and alternatives to process and neglect others. Selective information processing refers to consumers spending unequal amounts of time or effort acquiring information for each alternative or attribute (e.g., Bettman, Johnson, and Payne 1991; Lurie 2004). Research shows that task complexity and selective attention influence consumers’ decision about which information to select for processing (e.g., Bettman, Luce, and Payne 1998; Lurie 2004). Task complexity can be determined by attribute type (digital vs. non-digital), attribute correlation (positive vs. negative), and alternative organization (random vs. sorted); consumer selective attention can be affected by attribute perceptual salience (salient vs. non-salient) and alternative organization (random vs. sorted by the non-salient attribute).

As non-digital attributes require much more time and effort for consumers to process (Biswas and Biswas 2004; Lal and Sarvary 1999), when attributes are positively correlated, consumers can opt to use simplifying heuristics and process fewer attributes. Thus, the extent of selective information processing of attributes is greater for products with more non-digital (vs. digital) attributes and positive attribute correlation. However, when attributes are negatively correlated, using simplifying heuristics reduces decision accuracy. Thus, the extent of selectivity information processing of attributes is small regardless of attribute type when attributes are negatively correlated.

It is generally accepted that sorting alternatives by attribute helps consumers to screen alternatives. However, we hypothesize that the extent of selective information processing of alternatives is greater only when alternatives are sorted and attributes are positively (vs. negatively) correlated. When attributes are negatively correlated, screening alternatives by one attribute tends to reduce decision accuracy.

As consumers tend to pay more attention to the perceptually salient objects in the environment (Janiszewski 1998), they are likely to focus more attention on the perceptually salient attribute. Thus, they are likely to use the perceptually salient attribute to screen the alternatives. As a result, they may examine and choose alternatives with better values on the perceptually salient attribute. However, alternative organization may also increase the perceptual salience of the sorting attribute and consumers’ screening behavior (Areni, Duhan, and Kiecker 1999). Thus, we predict when alternatives are listed in random order, attribute perceptual salience influences consumers’ selective information processing of alternatives and choice; however, when alternatives are sorted by the non-salient attribute, attribute perceptual salience has no effect on consumers’ selective information processing of alternatives and choice. As the adaptive decision making theory posits that consumers process information contingent on the decision environment and the process of information processing can create a new preference structure, we argue that consumer selective information processing of alternatives mediates the interaction effect between attribute perceptual salience and alternative organization on consumer choice.

Finally, based on the cost-benefit theory of consumer information search, we expect that the extent of selective information processing of attributes is negatively correlated with the extent of selective information processing of alternatives.

We tested these hypotheses in two experiments. We constructed an experimental web site in which attribute type, attribute correlation, alternative organization, and attribute perceptual salience were manipulated. Participants were asked to search for information on the experimental web site and make choices after the information search.

Results from the two experiments supported our hypotheses. Specifically, In Study 1, we find that consumers tend to selectively process attributes when there are more non-digital (vs. digital) attributes and attributes are positively correlated, and selectively process alternatives when alternatives are sorted (vs. random) and attributes are positively correlated. Further, the results also indicate that the extent of the two types of selective information processing is negatively correlated. In Study 2, we find that that consumers tend to examine and choose alternatives with better values on the perceptually salient attribute when alternatives are listed in random order. However, sorting alternatives by the perceptually non-salient attribute attenuates such an effect. Further, the results show that consumers’ selective information processing of alternatives mediates the interaction effect between attribute perceptual salience and alternative organization on consumer choice.

This research adds to the literature of online consumer information processing and decision making by specifying the online decision environment in which consumers are more likely to selectively process attributes/alternatives. We further show that the impact of the online decision environment characteristics on consumer choice is mediated by how consumers selectively process information.

**References**


