HOW E-CONSUMERS INTEGRATE DIVERSE RECOMMENDATIONS FROM MULTIPLE SOURCES

Research-in-Progress

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Abstract

While numerous prior studies have extended our knowledge of the impact of recommendations and decision-making strategies on e-Consumers’ purchase process, few have empirically investigated how e-Consumers integrate diverse recommendations from multiple sources. Relying on cognitive dissonance theory and signaling theory, this study postulated that consistency between diverse recommendations could be a key factor for integration and followed an exploratory approach using protocol analysis to determine how e-Consumers utilize and integrate recommendation diversity. We identified two underlying approaches (exploration-driven and confirmation-driven), each with two strategies — fit-based and consistency-based — that could provide a theoretical foundation to investigate recommendation diversity. The consistency-based strategy is a new concept and it is being applied to the context of recommendation diversity. Eliciting consistency between recommendations from multiple sources would be beneficial for e-Commerce websites because consistency reduces dissonance in consumers and facilitates the purchase process.

Keywords: Decision-making strategy, multiple recommendation sources, e-Commerce, process model, purchase process, protocol analysis
Introduction

As searching and posting on the Web gets easier, e-Consumers can access a vast amount of information from a multitude of sources to offset the uncertainty and risks due to their lack of direct interaction with products and sellers (Ba and Pavlou 2002; Dimoka et al. 2012; Pavlou and Dimoka 2006). However, this large quantity of information also reduces their decision quality by overloading their cognitive capacity (Bettman et al. 1998; Chewning and Harrell 1990). To simultaneously reduce uncertainties and cognitive overload, e-Consumers rely on recommendations from diverse sources, such as online recommendation agents (RAs) (Kamis et al. 2008; Xiao and Benbasat 2007), other customers (Chen and Xie 2008), and experts (Wang and Doong 2010). E-Commerce websites provide diverse recommendation sources to assist their customers in choosing a suitable product from a wide variety of alternatives. These recommendations have the potential to improve the efficacy of e-Consumers’ decision-making process by enhancing their decision quality and reducing their decision effort. These recommendations also increase e-Consumers’ purchase intentions of the recommended products and their perceived usefulness of the website (Benlian et al. 2012; Kamis et al. 2008; Kumar and Benbasat 2006; Wang and Doong 2010; Wang and Benbasat 2009).

While a number of these prior studies have extended our knowledge of the impact of recommendations on e-Consumers’ decision-making process, only a few have empirically investigated how e-Consumers use and integrate diverse recommendations from multiple sources (Li et al. 2010; Xu et al. 2013). In addition, although the vast body of existing research proposed that consumers construct their preferences using a variety of strategies contingent on tasks (Bettman et al. 1998), most of these strategies relied on comparing product attributes using data from a single recommendation source rather than data provided by multiple and independent recommendation sources. These prior studies seem to assume a single source-based preference formation. However, it is unlikely that e-Consumers would rely on a single recommendation source when multiple sources are easily and simultaneously accessible; a single source may be the choice only when under restrictions of time and cost. Hence, by examining e-Consumers’ purchase process and the underlying mechanisms used to integrate diverse recommendations, this study intends to fill in the gap in the literature by investigating the impact of recommendations and decision-making strategies in the e-Commerce context. In addition, this study can also contribute to practical issues regarding when additional recommendations are required, how to present them, and what are the elements of diverse recommendation sources that can assist e-Consumers in choosing products suitable for their needs.

Given both the academic and practical relevance of multiple recommendation sources, the major objective of this study is to propose a process model showing how e-Consumers use and integrate advice from diverse recommendations. Since there is little existing theoretical foundation and research on this issue, we designed an exploratory study to conduct protocol analyses, supplemented with in-depth interviews to capture the purchase process. As a consequence, we identified two underlying mechanisms – the exploration-driven approach and the confirmation-driven approach – each using two strategies: fit-based and consistency-based. These concepts are described below.

Literature Review and Theoretical Framework

Decision-making Strategies

Over the decades, the vast body of research investigating consumer choice preferences argued that consumer choice is a constructive process contingent on tasks due to the limited working memory and computational capabilities of individuals (Bettman et al. 1998; Payne et al. 1993). It also proposed a variety of decision-making strategies. One classic strategy is the weighted adding strategy (WADD), summing each product attribute’s subjective importance multiplied by its attribute value. Although WADD is considered to be a more comprehensive strategy than the others defined below, it requires more processing capacity. The equal weight strategy (EQW) is a simplified approach, which sums all product attribute values without considering their subjective importance. The majority of confirming dimensions strategy (MCD) is an iterative pair-wise comparison process. A consumer compares each attribute between two alternatives and retains the alternative with a majority of better attribute value. This pair-
wise comparison process continues until all alternatives are evaluated. While the above strategies are largely comprehensive processes that use all product attributes, there are other strategies that emphasize heuristic processes focusing on one or a few product attributes. Using the lexicographic strategy (LEX), a consumer selects a product that has the highest value on the most important product attribute. The elimination-by-aspects strategy (EBA) eliminates alternatives lower than a cut-off value for its most important product attribute. This process continues by iterating comparisons of the next important product attribute until just a single product remains. While EBA eliminates alternatives by sequentially processing each product attribute, the satisficing strategy (SAT) sequentially processes each product in the order they are presented in the list. That is, if one product doesn’t meet any predetermined cutoff value in all of its attributes, it is dropped from the list and next product is evaluated. Since each of these strategies has its own strengths and weaknesses, a consumer uses combinations of these strategies contingent on the task (Bettman et al. 1998).

While these classical strategies have extended our knowledge of consumers’ decision-making, most of them assume the availability of a single source-based consideration set rather than multiple independent source-based sets. That is, these strategies cannot be applied when a product has different values or position in each source’s recommendation set since a major assumption of these approaches is that the value of each product attribute is single and fixed for a given product. Hence, these strategies cannot explain how consumers select a product that has diverse or converged recommendations or ratings from multiple sources. To understand the constructive decision-making process, we must look for a new strategy in which consumers can use and integrate diverse recommendations. Furthermore, we need to investigate how this new strategy is constructed and how it can combine with classic strategies in the consumer purchase process.

**E-Consumer Purchase Process Model**

The consumer purchase process has been interpreted as a series of activities, defined as “the activities people engage in when searching for, selecting, purchasing, using, evaluating, and disposing of products and services so as to satisfy their needs and desires” (Belch and Belch 1998, p. 107). According to the classic purchase process model, these activities can be categorized into five stages: problem recognition, information search, evaluation of alternatives, purchase, and post-purchase behavior (Butler and Peppard 1998). Although the e-Consumer’s purchase process could be different from the classical one, prior literature has revealed that three major stages in the purchase process – information search, evaluation of alternatives, and making purchase – are inevitable in any context (Karimi et al. 2010). Prior studies have focused on the information search stage as one of the key aspects of the e-Consumer’s process and even proposed its sub-stages (Johnson et al. 2004; Karimi et al. 2010; Klein 1998; Li et al. 2010; Sproule and Archer 2000). However, to the best of our knowledge, integrating diverse recommendations from multiple sources has not been embedded as a sub-stage in the purchase process model.

**Recommendations and Recommendation Sources**

The impact of recommendations and recommendation sources on a consumer’s decision-making process has been investigated in the marketing and information system literatures. These have proposed that recommendations or word-of-mouth suggestions from fellow customers, family members, or experts are important marketing channels that influence consumers’ purchasing decisions (Duhan et al. 1997; Gilly et al. 1998; Senecal and Nantel 2004; Stamm and Dube 1994; Swearingen and Sinha 2001; Wang and Doong 2010). However, these recommendations are relatively hard to match with each customer’s specific needs (Pfeiffer and Benbasat 2012). In the e-Commerce context, to fill this gap, a new type of recommendation source has been utilized to propose the “right” fit product. Called recommendation agents (RAs), these are “software agents that elicit the interests or preferences of individual consumers for products, either explicitly or implicitly, and make recommendations accordingly” (Xiao and Benbasat 2007, p. 137). RAs have become one of the key success factors in e-Commerce websites. Due to growing pressure from competitors, many retailers have developed RAs to support their customers in choosing a product to match their needs (Ahn 2006; Kamis et al. 2008; 2010; Leavitt 2006; Wang and Benbasat 2009). Although several studies have investigated the impact of recommendations and recommendation sources on consumer’s decision-making process, to the best of our knowledge only two studies have empirically investigated how e-Consumers use diverse recommendations from multiple sources. Li et al. (2010)
investigated the effectiveness of recommendation sources’ sequence in pre- and post-screening stages. Xu et al. (2013) examined which types of recommendation sources – RAs, experts, and fellow customers – are more influential in e-Consumers’ purchase decisions and the impact of consensus among these sources on purchase behavior.

In sum, very little is known about e-Consumers’ purchase process when they access, use, and integrate diverse recommendations. Furthermore, there is little understanding about the underlying mechanisms influencing e-Consumer’s strategies to increase decision quality through the purchase process as well as the key factor for integration. To fill this gap, this present study applies cognitive dissonance theory (Festinger 1962) and signaling theory (Spence 1973; 2002) as its theoretical foundations to identify and explain potential key factors in integrating multiple recommendation sources.

**Cognitive Dissonance Theory and Signaling Theory**

Dissonance refers to a feeling of discomfort. In the decision-making process, the cognitive dissonance theory provides a theoretical framework explaining how people change their attitudes on the product selection and purchasing decisions to reduce their state of dissonance (Bettman et al. 1998; Festinger 1962). For instance, when people are exposed to conflicting recommendations from different sources, dissonance could be aroused and people might try to change their attitude towards the source of information or product, seek consistent recommendations, or avoid the recommendation (Pfeiffer and Benbasat 2012; Xu et al. 2013). While the cognitive dissonance theory provides a theoretical foundation about the affective motivation to rely on consistency across sources, it does not provide the cognitive motivations or reasons.

Signaling Theory (Spence 1973; 2002) provides an explanation about cognitive motivation. This theory states that people reduce information asymmetry by using diverse signals from insiders who obtain information that might not to be available to outsiders. In the consumer behavior literature, signaling theory has been used as a framework to understand how consumers address limited information in a pre-purchase context (Boulding and Kirmani 1993; Connelly et al. 2010; Kirmani 1997; Kirmani and Rao 2000; Rao et al. 1999). In an e-Commerce context, natural information asymmetry occurs between recommendation sources and e-Consumers due to their lack of direct interaction with the products before purchasing. In such a scenario, signaling theory could provide a theoretical foundation for the cognitive motivation to seek consistency across sources.

Since these theories can be used as theoretical lenses through which participant behavior is observed, we postulate that consistency among diverse recommendations is one of the key factors motivating e-Consumers’ decision-making strategies to integrate diverse recommendations in the information search process. Thus,

**Proposition:** Consistency between recommendations from multiple sources is one of an e-Consumer’s key considerations, and this is embedded in his/her information search process and decision-making strategies to integrate product-related information.

**Methodology**

**Protocol Analysis**

To explore and build a purchase process model, this study used concurrent verbalization protocol analysis in a lab-experiment context. This method provides simultaneous access to activities that occur between the onset of a stimulus and the eventual response or choice (Ericsson and Simon 1985; Todd and Benbasat 1987). It offers a more comprehensive means of evaluating and understanding the decision-making process such that the appropriate information for designing and evaluating the impact of an IT artifact can be extracted (Todd and Benbasat 1987). Furthermore, since integrating recommendation diversity would require substantial time and mental effort on the purchase process of e-Consumers, it is critical to concurrently access the purchase process. If the purchase process is captured after finishing the task, the consumer could consciously or unconsciously recreate distorted memory or interpretation of their purchase process and behavior (Ericsson and Simon 1985).
**Experimental Design**

**E-Commerce Website Development**

A laboratory study was conducted within an e-Commerce website developed for this study. To enhance experimental realism and prevent potential extraneous effects coming from task involvement, etc., we recruited participants who were willing to buy a laptop within the next few months. To enhance mundane realism — shaping the similarity of experimental events to real experience (Singleton and Straits 1999) — and ensure the generalizability of the findings, we selected laptops sold in a real e-Commerce website, Amazon.com. In addition, the recommendations from each source were created from real data from a well-recognized e-Commerce website (Amazon.com) and a third-party electronic devices review website (Cnet.com). An RA was designed to reflect each user’s preferred level of eight product attributes. The number of product attributes was based on a general rule of thumb offered by Miller (1956). The types of product attributes – such as price, hard drive, memory, processor, screen size, weight, battery, and video card – were borrowed from Xu et al. (2013). Participants could review recommendations from the RA, experts, and other customers at the same time on the display and freely choose the sequence and number of recommendation sources. To prevent order effects of displayed sources, their order was randomized. Each recommendation source provided five recommendations on a page and participants could navigate another twenty pages to review beyond the top five recommendations. Each laptop was described using its product attributes and picture.

**Experimental Conditions**

Through reviews of literature and theoretical foundations, this study postulates that consistency between diverse recommendations from multiple sources is a key factor for e-Consumers to integrate diverse recommendation. Hence, this study manipulated consistency between recommendations only when there were less than two naturally occurring same products on the first page. To capture the potential impact of converged source type on the decision-making process, we manipulated two consistency conditions: 1) two converging recommendations between the RA and experts; and 2) two converging recommendations between the RA and other customers. We followed the manipulation procedures used in Xu et al. (2013). Also in accordance with the results of Xu et al. (2013), we did not include the condition where experts’ and fellow customers’ recommendations converged because they had found that consistency between them did not influence e-Consumers’ decision-making (Xu et al. 2013). Furthermore, there was not any natural consistency between them in our data either.

**Participants and Experimental Procedures**

This study recruited nineteen participants from a public university in North America. Since concurrent verbalization protocol analysis provides rich data from both verbal and action protocols, which in this study were recorded via voice and video recording devices, even such small samples are appropriate for protocol analysis (Burton-Jones and Meso 2006; Ericsson and Simon 1985; Kim et al. 2011; Todd and Benbasat 1987). Perceived involvement and knowledge of tasks and products can influence the purchase process, the participants’ perceived task involvement ($M = 5.45, SD = 1.233$) and product knowledge ($M = 4.54, SD = 0.924$) were measured before the experiment. To motivate participants to fully engage in the task, every participant received $20 as an honorarium. To prevent extraneous effects, participants were randomly assigned to experimental conditions.

The experimental procedures were as follows. First, pre-questionnaires for perceived task involvement, product knowledge, and trustworthiness of the RA were administered. Next, subjects were trained to “talk-aloud” — verbalizing every thought in their mind as if they were talk to themselves — using two standard training tasks (Ericsson and Simon 1985). After participants fully understood how to “talk-aloud”, they were instructed on how to use the website interfaces. Then, the main experimental task was administered. The product selection task took between 10 to 25 minutes. All the verbalization and movements of the cursor on the display during the main task were recorded with the consent of

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1 All the measurement items were borrowed from prior studies (Eisingerich and Bell 2008; McKnight et al. 2002; McQuarrie and Munson 1992; Sharma and Patterson 2000).
participants. After finishing the main task, participants completed post-questionnaires consisting of open questions about their motivation to choose each recommendation source in the purchase process and their perceived trustworthiness of the RA. Last, an in-depth interview was conducted with each participant to capture further underlying search mechanisms. To prevent any conscious or unconscious memory distortion on the part of the subject, a video clip recording each subject’s purchase process was used in the interview.

Data Analysis and Findings

Data Analysis

Verbal occurrences during the main task were the major source of data for verbal protocols. Movements of the cursor on the display were also collected for a more comprehensive and complete trace of the decision-making process (Rist 1989). We used episodes — small, self-contained phases of highly organized activity (Newell and Simon 1972) — as a unit of analysis. We also utilized three major stages in the purchase process — information search, evaluation of alternatives, and making purchase (Karimi et al. 2010) — as basic coding schemas. Through these basic coding schemas, we developed several sub-coding schemas that captured sub-dimensions of each stage and added several schemas to capture transitions and roles of consistency between sources. We did two pretests to develop and validate the coding schemas. The coding system is described in the Table 1.

<table>
<thead>
<tr>
<th>Episode</th>
<th>Coding Schema</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selecting a Source</td>
<td>- Click a “Show List” box located below each source’s name - Verbalize a source’s name (such as experts, customers, or RA) without paying attention to or evaluating a product.</td>
</tr>
<tr>
<td>Deciding Criteria</td>
<td>- Verbalize criteria for product attributes without comparing each product’s attributes.</td>
</tr>
<tr>
<td>Paying Attention to a Recommendation</td>
<td>- Point to or verbalize a product’s picture or attribute.</td>
</tr>
<tr>
<td>Evaluating a Recommendation</td>
<td>- Verbalize criteria for product attributes by comparing each product’s attributes.</td>
</tr>
<tr>
<td>Making a Consideration Set</td>
<td>- Verbalize purchase intention of a product when evaluating a product. - Verbalize the thought that a certain product is the best among a certain source’s recommendations. - Click the shopping cart located in the right side of a product but not click the “OK” box to finish the task.</td>
</tr>
<tr>
<td>Transiting from a Prior Source</td>
<td>- Point to or verbalize product’s source that is different from prior one. - Point to or verbalize a product’s picture, name or attribute that is not included in a prior selected source’s recommendations.</td>
</tr>
<tr>
<td>Paying Attention to Consistency</td>
<td>- Point to or verbalize a product’s picture, name, or attribute that is equivalent to the previous one. - Verbalize consistency-relevant words (e.g. same, similar, equal, etc.) between two recommendations.</td>
</tr>
<tr>
<td>Purchasing</td>
<td>- Click the cart located in the right side of each product and did a “OK” box to finish the task</td>
</tr>
</tbody>
</table>

The following steps were used to analyze the verbal protocols. After confirming the coding system, all the verbal occurrences were transcribed and verified by the authors. Next, the transcripts were segmented into episodes—small, self-contained phases of highly organized activity. A few episodes could not be classified with the coding system; we decided to omit them from further analysis since they didn’t contain
task-relevant information and participants spent a negligible amount of time on them. After confirming episodes, we constructed and classified each participant’s purchase process model and found the underlying mechanisms and strategies by analyzing the open questionnaires and in-depth interviews. Although most of the participants accessed three recommendation sources, their approaches and strategies in using the second and third sources were no different than in the first. Hence, to clarify the e-Consumers’ purchase process model, we didn’t explicitly distinguish the second and third sources.

Findings

Since the aim of this exploratory study was to build a comprehensive purchase process model representing how e-Consumers use and integrate diverse recommendations, we classified participants’ purchase process into three different categories based on their application of consistency between recommendations in their purchase process. Combining the motivational perspectives found in open questionnaires and in-depth interviews, we categorized the purchase process into exploratory-driven and confirmatory-driven approaches and proposed underlying mechanisms activating each approach. Our results support our proposition that consistency between multiple recommendations is one of an e-Consumer’s key considerations. Interestingly, even though this study manipulated two consistency conditions between different sources to capture potential impacts of converging recommendations among source types, it didn’t influence choice of strategy and purchase process. That is, we didn’t find any evidence that source type has interaction effects with consistency on purchase process.

The Exploration-driven Approach

We found that several participants were trying to process as much product-relevant information as possible. Although they clearly understood that products were sorted from highest to lowest in terms of ratings in each source’s recommendations, they paid attention to more than fifty laptops within each source (i.e. more than fifty percent of the products listed)\(^2\). Furthermore, they were continuously evaluating almost every product even though they clearly understood that recommendation agents would provide recommendations based on their preferred levels of product attributes from highest to lowest ratings\(^3\). We call this phenomenon exploratory information seeking behavior (EISB) that “satisfies consumers’ cognitive stimulation needs through the acquisition of consumption-relevant knowledge out of curiosity” (Baumgartner and Steenkamp 1996, p. 123; Raju 1981). In an e-Commerce context, this EISB has been found in e-Consumers’ browsing activities as one component of exploratory behavior (Richard and Chandra 2005). EISB might not be suitable in our context since exploratory behavior is usually performed when people do not have precise knowledge of relevant information or a clear goal (Richard and Chandra 2005; Sutcliffe and Ennis 1998). However, the EISB also could be influenced by a person’s optimum stimulation level (OSL), which indicates individual differences in optimal or preferred level of stimulation (Steenkamp and Baumgartner 1995; Zuckerman 1979).

In accordance with the literature, we postulate that e-Consumers’ desire to increase cognitive stimulation through acquisition of consumption-relevant knowledge is the underlying motivation for their EISB. Hence, we named this type of purchase process as exploration-driven approach. In the exploration-driven approach, this study found two distinctive strategies of e-Consumers for using and integrating recommendation diversity: fit-based strategy and consistency-based strategy. Overall, the e-Consumers evaluated and developed a separate consideration set after reviewing each source. After building their own consideration set from each source, e-Consumers started to compare these consideration sets. One group applied the fit-based strategy, i.e., a strategy looking at the fit between product attributes and their preference on each attribute\(^4\) (see Figure 1). This is comprised of several classic decision-making

\(^2\) We checked their understanding of recommendation lists in in-depth interview procedure.

\(^3\) Since our manipulation could influence participants’ perceived trustworthiness on a RA, we asked their perceived trustworthiness on the RA both pre- and post-questionnaires. Trustworthiness on the RA before the main task (\(M = 4.66, SD = 0.85\)) was not statistically different with those after main task (\(M = 4.53, SD = 1.03, t(9) = 0.733, p > 0.1\)). Hence we concluded that exploratory-driven approach was not influenced by our manipulation and participants also have trusted the capability of a RA.

\(^4\) In this case, there was more than one consistency in their consideration sets. We excluded two cases.
strategies proposed by Payne et al. (1993) that generally apply to a single source, even though our context encompassed multiple sources. Participants using the fit-based strategy relied more on their own evaluation rather than evaluations from recommendation sources.

In contrast, another group applied the consistency-based strategy, i.e., a strategy looking for consistency between recommendations in each consideration set. Rather than evaluating each recommendation in their consideration sets, they were paying attention to the consistency between consideration sets. If they found a consistently recommended product between their consideration sets, they chose that product rather than comparing it with others in the sets (see Figure 1). Although this approach is also comprised of several classic decision-making strategies to evaluate each recommendation and develop consideration sets (Payne et al. 1993), relying on the consistency between sets might be a new decision-making strategy to integrate recommendation diversity. As our theoretical foundation proposed, this strategy could be derived from emotional and cognitive motivations. That is, e-consumers could be comfortable and confident when they find the consistency among sources, because of low cognitive dissonance and decreased information asymmetry caused by the converging recommendation. This emotional and cognitive status could induce them to choose a converging product rather than to evaluate alternatives.

The Confirmation-driven Approach

We also found several participants trying to confirm their choices from one most preferred source by comparing them to other sources’ recommendations. These participants were more focused on a particular source and built their consideration set only on that one. After building a consideration set, they reviewed other recommendations from different sources and checked consistency between other recommendations and their consideration set. Although the task description clearly mentioned that they should choose the one best laptop for themselves and they also clearly understood that they could not choose multiple laptops, several participants adhered only to a certain source’s recommendations without where there was no consistency in their considerations sets, even though there was consistency between recommendations from a RA and experts or customers as we manipulated.
evaluating other sources’ recommendations.

In consumer behavior literature (Hoch and Ha 1986; Lee et al. 2011; Nickerson 1998), it has been found that people are motivated to seek and overvalue information confirming their own preference while simultaneously avoiding and disvaluing disconfirming information in order to defend and maintain their belief (Nickerson 1998). This confirmation bias was frequently exhibited in people with high product knowledge (Lee et al. 2011; Nickerson 1998). In accordance with literature, we propose that e-Consumers’ desire to defend and maintain their own beliefs about their choice of products from a particular source is the underlying motivation for this approach. As cognitive dissonance theory proposed, consistency could reduce emotional discomfort created by inconsistency between their choice and other sources’ recommendations. In addition, as signaling theory proposed, they can enhance and defend their belief by relying on consistency as a signal of less asymmetric information. Hence we named this the confirmation-driven approach. Within this approach, we found that the consistency-based strategy was applied in a relatively different manner (see Figure 2).

Compared to the application of consistency-based strategy in exploration-driven purchase process, its role was more comprehensive in confirmation-driven purchase process. Participants used this strategy when they accessed other recommendation sources without using a fit-based strategy to create other consideration sets. Participants were willing to find consistency between their considerations set and other recommendations from different sources. As our theoretical foundations proposed, when they found any consistency, they interpreted it as an evidence to support or confirm their preference, and that later led them to make the purchase.

Figure 2. Consistency-based Strategy in Confirmation-driven Purchase Process

Conclusions

To the best of our knowledge, this is the first study regarding e-Consumers’ purchase process that integrates recommendations from multiple sources. Our process models extend classic decision strategies to e-Commerce purchase process with multiple recommendation sources. They also propose a new decision-making strategy – i.e., consistency-based strategy – which might be an important approach to integrating multiple recommendations. We posit that these underlying mechanisms and strategies can provide a theoretical foundation to understand e-Consumers’ purchase process in integrating recommendation diversity. From a practical point of view, this study also provides useful guidelines. We show that additional recommendations can be used either to build other consideration sets or to confirm e-Consumers’ belief of a preferred product. Since consistency between recommendations is the key factor for integration, the e-Commerce websites would do well to highlight naturally occurring consistency between sources.

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