

# Simple Decision Aids and Consumer Decision Making

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## Abstract

To help consumers deal with increasing amounts of information, many online retailers offer simple decision aids, such as the ability to sort on a particular attribute or eliminate undesired alternatives. The authors propose that consumers use simple decision aids as substitutes for cognitive effort, potentially with adverse consequences for decision making. An experimental study shows that providing unrestricted sorting increases decision quality only when choice conflict is low; beyond a certain point, greater use of the decision aid is associated with declines in decision quality. A second study shows that allowing consumers to sort alternatives only one time enhances decision quality and, when choice conflict is high, reduces decision effort. A third study shows that providing elimination as well as sorting tools helps mitigate the negative effects of simple decision aids. Although the availability of sorting alone hurts decision quality when choice conflict is high, decision quality under choice conflict is improved when both sorting and elimination tools are provided. Implications for retail practice are discussed.

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## Introduction

In effort to help consumers deal with large amounts of information, many online retailers provide simple decision aids that can be used to sort or eliminate alternatives. Retailers favor simple decision aids since they are easy to deploy and consumers perceive them as helpful.<sup>2</sup> However, simple decision aids fail to account for the compensatory nature of many decision tasks.

This raises the question: Can simple decision aids hurt consumer decision making?

In this paper, we examine how simple decision aids affect the quality of and effort associated with consumer decisions in online retail environments. We define *simple* decision aids as interactive tools that change the way in which products are displayed through *direct* manipulation by the consumer on a single aspect (i.e., attribute or product) at a time. For example, clicking the “sort” function on many retail websites orders products on a single attribute while marking a product for elimination removes it from display. Simple decision aids may be distinguished from *comprehensive* decision aids that recommend, and sometimes sort, products by first eliciting the relative importance of each attribute then *simultaneously* weighting each attribute by its importance to calculate each product’s multi-attribute utility (Diehl 2005; Häubl and Trifts 2000; Komiak and Benbasat 2006).

Although theoretically superior to simple decision aids, in that they account for tradeoffs among multiple product attributes, comprehensive decision aids require information about individual consumer preferences for different attributes, either directly through importance scales (Diehl, Kornish, and Lynch 2003; Häubl and Trifts 2000), or indirectly, through prior behavior (Ansari, Essegai, and Kohli 2000), through questions

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<sup>2</sup> Providing empirical support for the idea that consumers believe simple decision aids are helpful, a preliminary study was conducted in which 48 participants evaluated two mock BestBuy interfaces, one of which offered a sorting tool (see Appendix). The proportion of participants indicating that the interface with a sorting tool would lead to a better decision ( $M = 91.7\%$ ) was significantly higher than the proportion choosing the interface without a sorting tool ( $M = 4.2\%$ ,  $z = 8.31$ ,  $p < .001$ ) or the proportion who thought two interfaces were equally helpful ( $M = 4.2\%$ ,  $z = 8.31$ ,  $p < .001$ ). Participants were more satisfied with the interface with a decision aid ( $M_{\text{Aid}} = 6.06$  vs.  $M_{\text{NoAid}} = 4.02$ ,  $F(1, 47) = 103.63$ ,  $p < .001$ ) and believed that using the interface with the decision aid would involve less effort ( $M_{\text{Aid}} = 2.13$  vs.  $M_{\text{NoAid}} = 4.65$ ,  $F(1, 47) = 86.37$ ,  $p < .001$ ).

about related demographic characteristics or usage intentions, or through conjoint tasks (De Bruyn et al. 2008; Diehl, Kornish, and Lynch 2003).<sup>3</sup> Given the difficulty of collecting information on individual preferences for each of the many product categories a consumer might consider, it is perhaps unsurprising that few retailers have adopted comprehensive decision aids; yet many offer simple aids. Relative to simple decision aids, deploying comprehensive decision aids involves more complexity, risk, and cost to the retailer. In addition, the need for additional information such as attribute weights from the consumer, the difficulty of explaining multi-attribute utility to the average consumer (Aksoy et al. 2006), and greater feelings of control when using simple (vs. comprehensive) decision aids, further explain the paucity of comprehensive decision aids and the ubiquity of simple decision aids in online retail environments (Murray and Häubl 2009).<sup>4</sup>

Comprehensive decision aids are the subject of much research (De Bruyn et al. 2008; Murray and Häubl 2009) but relatively little is known about how simple decision aids affect consumer decision making. This gap, between the academic focus on comprehensive decision aids and the common retail practice of deploying simple decision aids, suggests an intriguing research direction. While prior research has found that simple decision aids reduce decision effort without improving decision quality (Häubl and Trifts 2000; Todd and Benbasat 1992, 1999), this research has not considered how these effects depend on the choice context. Although prior research has convincingly demonstrated that consumers are quite good at adapting their unassisted decision strategies to different choice contexts in ways that maximize decision quality while minimizing effort (Bettman et al. 1993); for example reducing their use of non-compensatory choice strategies under choice conflict, in which tradeoffs must be made among product attributes (Bettman et al. 1993; Payne, Bettman, and Johnson 1988), it is unclear whether consumers are similarly adaptive in their use of simple decision aids.

In addition to being counter to consumer intuitions that (simple) decision aids are helpful, the idea that decision aids can harm consumer decision making runs counter to a large literature calling for greater use of decision aids; particularly in online retail environments (Bellman et al. 2006; Van Bruggen, Smidts, and Wierenga 1998; West et al. 1999). Finding that simple decision aids can sometimes hurt consumer decision making has important implications for online retailers, who have widely deployed such aids.

In contrast to prior research, we propose that, because they trust decision aids to help them make good decisions (Alba et al. 1997; Bechwati and Xia 2003; Häubl and Trifts 2000; Hoch and Schkade 1996), and reduce decision effort (Todd and Benbasat 1992, 1999), consumers will over-rely on simple decision aids with potentially adverse consequences. This means that simple decision aids will not always help consumers make better decisions or reduce decision effort; beyond a certain point, greater use of simple decision aids will be associated with lower decision quality. Limiting decision aid use, or providing additional tools that allow consumers to eliminate low quality alternatives, can enhance decision quality.

We test these ideas in three laboratory experiments. We focus our attention on two of the most widely deployed simple decision aids—sorting and elimination. In Study 1, we identify the conditions under which the availability of a simple sorting tool helps or harms decision making. We predict and empirically find that the unrestricted availability of a sorting tool only improves decision quality when choice conflict is low. In addition, we find that, beyond a certain point, greater use of a sorting tool is associated with declines in decision quality. A second study shows that limiting the number of times a sorting tool can be used enhances decision quality and, when choice conflict is high, reduces decision effort. A third study examines whether combining two simple decision aids—sorting and elimination—can overcome the drawbacks of simple decision aids by encouraging consumers to systematically evaluate alternatives after sorting. Replicating the earlier results, this study shows that the availability of sorting alone helps decision quality when choice conflict is low and hurts decision quality when choice conflict is high. However, when both sorting and elimination tools are available, decision quality is improved under high choice conflict.

By examining how and when simple decision aids affect consumer decision making, this research helps fill the gap between the academic focus on comprehensive decision aids and the common practice of deploying simple decision aids in online retail environments. Our results suggest that consumers excessively rely on simple decision aids in contexts in which they are least helpful and that, beyond a certain point, use of simple decision aids can be harmful—lowering decision quality without reducing decision effort. Limiting the use of simple decision aids, or providing the ability to eliminate low quality alternatives, can help consumers make better decisions. For retailers, we suggest ways to increase the benefits, and reduce the potential harms, of simple decision aids.

## Theoretical Background

### *Comprehensive Decision Aids*

Based on the idea that humans have limited information processing abilities (Simon 1957), while a computer's ability to process information is virtually limitless (Bucklin, Lehmann, and Little 1998), there was a belief among many researchers that decision aids would “rescue” consumers from their cognitive shortcomings; particularly in electronic environments (Bellman et al. 2006; Van Bruggen, Smidts, and Wierenga 1998; West

<sup>3</sup> An alternative approach is to use a separate set of judges to rate products or indicate attribute importance weights (Diehl, Kornish, and Lynch 2003) but this approach requires that judges and consumers share the same preferences.

<sup>4</sup> A review of the 100 most heavily trafficked shopping websites in March 2013 based on data from Alexa (2013) shows that, of the 91 websites that allow consumers to make purchases, none offers an agent that ranks alternatives based on elicited preferences. At the same time, 76 (84%) of these websites allow decision makers to sort alternatives on a single attribute at a time. In other words, most popular online retail environments are characterized by the presence of simple decision aids.

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