Sorting As Screening

Kurt Munz & Priya Raghubir
New York University

Introduction

Abstract

Sorting by a product attribute can diminish the importance weight of that attribute. When choosing is difficult, consumers may treat sorting as screening. Once options are sorted, consumers may form a consideration set comprising the options at the top. Because these options are more homogeneous with respect to the sorted attribute, consumers pay less attention to the sorted attribute in favor of a second attribute. This attentional shift emerges in a subsequent conjoint analysis (following the sorting task), with less weight placed on the sorted attribute and more weight on a second attribute.

Background

• **Sorting** may cause more weight to be placed on a sorted attribute (Russo, 1977; Lynch & Ariely, 2000)

• **Screening** a list of options to form a consideration set may cause less weight to be placed on attributes used for pre-screening when choosing from the consideration set (Chakravarti, Janiszewski, & Ülkümen, 2006)

• Electronic **screening agents** may cause the top options to more homogeneous with respect to the screening attribute, necessitating the use of a second attribute to differentiate among the choices (Diehl, Kornish, & Lynch, 2003)

We suggest that consumers may sometimes use simple sorting tools for screening (forming consideration sets)

• After sorting a large assortment of options, consumers without strong prior preferences form a consideration set of the items near the top of the list

• The top results will be homogeneous with respect to the sorting attribute

• A second attribute will be needed to differentiate among the top options

• This leads to an attentional shift from the sorted attribute to a second attribute

• The attentional shift translates into decision weight in subsequent evaluations

Note: this attentional shift may only occur in choice sets which require tradeoffs (negative attribute correlations) (Bettman, Johnson, Luce, & Payne, 1993)


Method

Participants
• N = 423 Mturk
• Exclusion
  • Outlier prediction errors on conjoint holdouts (34)
  • By-condition outliers on size importance (10)
  • Did not complete DV (10)
• Final Sample **N = 369**, aged 19-69 (M=35.4, SD=10.9), 58% male

2 x2 Between-subjects Design
• **Sorting**: yes / no
  • Participants either sort a list of televisions **by screen size**, or choose from a randomly ordered list

• **Number of Options**: 5 / 25
  • No screening is assumed when choosing from 5 options [one stage decision process]
  • Screening is assumed from 25 [two stage]
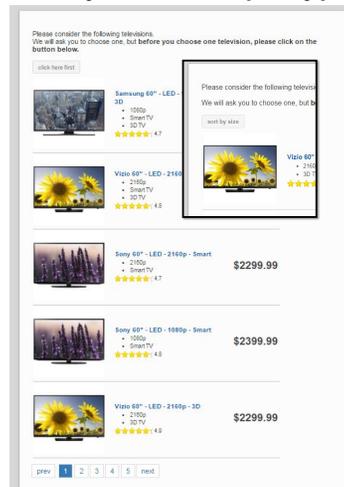

Dependent Measure: Conjoint Analysis
• After the choice task, participants rated 18 television profiles + 3 holdout profiles on 7-point scale of preference

• Choice task stimuli and profiles varied on 7 attributes: resolution (2160p, 1080p), size (70", 65", 60"), price ($2399.99, $2299.99), brand (Samsung, Sony, Vizio), customer rating (4.9, 4.8, 4.7), smart TV capability (yes, no), and 3D TV capability (yes, no)

• Conjoint estimated at individual level

• Importance weight of "size" primary DV

Results
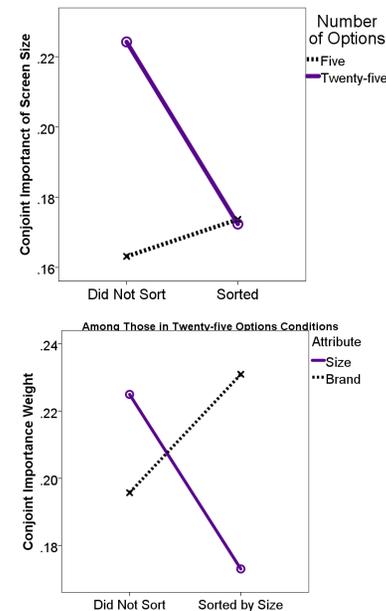
Main Analysis
• Numerical responses to "How may TVs have you purchased in your lifetime?" included as covariate

• Predicted **interaction was significant** $F(1,364) = 4.0$, $p = .045$, indicating that the impact of sorting depended on the number of options

• The difference between conditions due to sorting in the twenty-five options conditions (M_{sort}=.173, SD_{sort}=.137 vs. $M_{no\text{-}sort}$=.225, $SD_{no\text{-}sort}$=.177) was significant $F(1,177) = 4.8$, $p = .029$, $\eta^2_p = .027$, indicating that when choosing from a set of twenty-five options, sorting lowers importance on the sorted attribute in a subsequent conjoint analysis compared to not sorting the options

Within-subjects Analysis (25 Options Conditions)
• Expected consumers to trade-off between brand and size based on pretest

• The attribute by sorting interaction was significant $F(1,177) = 3.9$, $p = .05$, indicating that among participants in the twenty-five options conditions, the within-subjects importance of brand and size depended on sorting. In the choice set, size was negatively correlated with brand $r = -.43$, such that more preferred brands were less likely to be large in size.

Conclusions

Conclusions
• Initial evidence from one study in favor of the proposed effect, that sorting a list of options by an attribute can decrease the importance placed on that attribute in subsequent evaluative judgments when part of a two-stage decision process.

Limitations
• **Conjoint Analysis**
  • Artifact? When one attribute becomes more important, one or more other attribute(s) *must* decrease in importance
  • Assumptions? Rating-based conjoint assumes that consumers are capable of assigning a numerical value to their preference for each profile

• **Heterogeneous Preferences**
  • Bigger is not necessarily better for all consumers; Samsung not necessarily better than Vizio

• **Subsequent Vs. Current Choice**
  • Subsequent evaluations seem to be affected. No evidence yet for an effect in the current choice

Future Directions
• **Process Measures**
  • Attention
  • One vs. two-stage decision process
  • Role of interattribute correlation

• **Role of Goals**
  • Goal completion?

• **Second Order Sorting**
  • If a consumer chooses to sort by an attribute, and the retailer chooses the attribute for a second-level sort, how are choices impacted?

References

Bettman, J. R., Johnson, E. J., Luce, M. F., & Payne, J. W. (1993). Correlation, conflict, and choice. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(4), 931–951.

Chakravarti, A., Janiszewski, C., & Ülkümen, G. (2006). The neglect of prescreening information. *Journal of Marketing Research*, 43(4), 642–653.

Diehl, K., Kornish, L. J., & Lynch, J. G. (2003). Smart Agents: When Lower Search Costs for Quality Information Increase Price Sensitivity. *Journal of Consumer Research*, 30(1), 56–71.

Lynch, J. G., & Ariely, D. (2000). Wine Online: Search Costs Affect Competition on Price, Quality, and Distribution. *Marketing Science*, 19(1), 83–103.

Russo, J. E. (1977). The Value Of Unit Price Information. *Journal of Marketing Research*, 14(2), 193–201.