

A Conceptual Model of Consumer Decision States using Information Acceleration

Harmen Oppewal, Monash University
Mark Morrison, Charles Sturt University
Cam Rungie University of South Australia
David Waller, University of Technology, Sydney
Paul Wang, University of Technology, Sydney
Jordan Louviere, University of Technology, Sydney
Tim Devinney, Australian Graduate School of Management

Abstract

This paper introduces a conceptual framework for relationships between information acquisition and choice behaviour in new product adoption. The framework underlies a study that the authors are conducting with funding from the Australian Research Council regarding the modelling of consumer decision states. As part of this research, we develop a framework explaining the relationship between information search, consumer decision states and new product choice. We will be using this framework as a basis for identifying the effectiveness of information acceleration (IA) as a method for improving the accuracy of choice experiments to predict new product choices.

Key words: choice models, new product adoption, consumer information processing, information acceleration, decision states

Introduction

This paper introduces the conceptual framework for a study into the effectiveness of Information Acceleration methods for enhancing the predictive ability of choice experiments. Choice experiments allow one to assess and model consumer preferences by presenting systematically varied choice sets of existing or hypothetical options (Louviere, Hensher and Swait, 2000). Versatility and a sound theoretical basis have led to choice experiments being a popular method for measuring consumer preferences and predicting choices in many applications. However, for really new products, choice experiments may lead to less accurate forecasts of actual choices because consumers are unfamiliar with such products and their attributes, so they cannot express accurate or stable preferences for future options. One way to potentially overcome this limitation is to combine choice experiments with Information Acceleration (IA) methods (Devinney, Louviere and Coltman, 2003; Urban, Weinberg and Hauser, 1996).

The idea behind IA is to place consumers in virtual environments that simulate the information that will be available to them when they make future purchase decisions (Urban et al., 1996). Information in IA tasks typically is presented in multimedia formats that allow respondents to freely access several sources of information like (simulated) ads, store or dealer visits, consumer reports or similar reviews, and even word-of-mouth. This contrasts with most forecasting methods that only account for the availability of information sources (Urban et al., 1996), IA typically tracks consumers' active search behaviour.

Our objective is to determine the extent to which the "acceleration" provided by IA methods influence consumer decision states. Consumers flow from one state to another as a result of their search for information and in response to marketing actions (Urban, Hulland and

Weinberg, 1993). For example, they move from being unaware to being aware of a new product or product feature. We hypothesise that the use of IA will hasten the movement of respondents to decision states where their preferences are more completely formed, and where predictions about future product usage can more accurately be made.

Information Acquisition Behaviour

There have been many studies of consumer information search behaviour. Information search is a key component in traditional conceptualizations of consumer choice processes (eg Engel, Blackwell and Miniard 1995). Search can be internal (memory based) or external. Consumers will expend effort in search provided the perceived benefits exceed the perceived costs (Punj and Staelin, 1983). Benefits of continued search include increased chance of finding an optimal product (Zwick et al, 2003). Costs include effort and time and monetary cost, including opportunity cost. Consumers engage in more search if involvement is higher (Celsi and Olsen, 1988).

In the literature, consumer search is mostly seen as directed and intentional, serving to help make good purchase decisions. Yet not all information acquisition is intentional. For example, if search is less directed and more an aim in itself, it is typically called “browsing”. That is, consumers are ‘still looking’, not yet knowing what they want which may lead to serendipitous finds. A related concept is ongoing search, which is a continuous monitoring of market information (Bloch, Sherrell and Ridgway, 1986).

Beyond information obtained during browsing, consumers encounter information daily from many sources. Many marketing communications are received by consumers who are not actively searching for particular product information but who may become aware and interested in finding out about and possibly purchasing the product. Information encountered depends on consumers’ interests and activity patterns, including work and travel patterns, media use and social networks.

Information encountered also depends on wider market contexts. For example, a competitive market structure is one of the determinants of attribute prominence in the trade-off among alternatives, through processes such as attraction and substitution effects (e.g., Mishra et al., 1993). These processes also depend on manufacturer and distributor marketing strategies (cf. Steenkamp et al., 2003), and allow (for example) pioneering advantages to early entrants (Kardes et al., 1993).

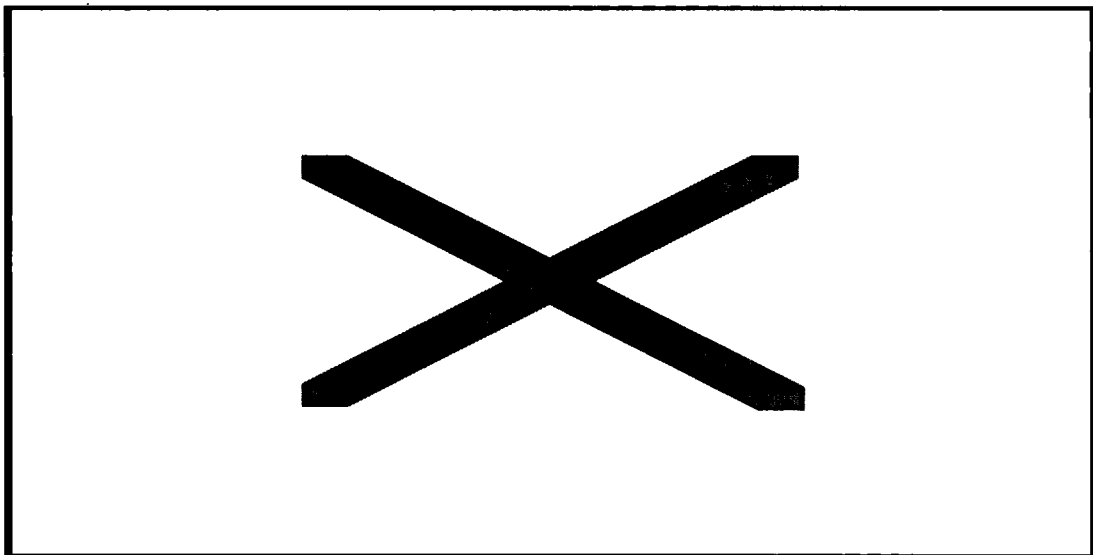
The effects of encountering product information depend on consumer ability and motivation to process the information. Ability relates to cognitive processing ability and knowing how and what information to search (Brucks, 1985). Higher knowledge or familiarity suggests greater ability to process information (Alba and Hutchinson, 1987). Other moderators include time pressure (Beatty and Smith, 1987), task goals, and involvement (Celsi and Olson, 1988). Variables specifically related to new products are consumer innovativeness, market mavenism and susceptibility to normative influence (eg, Steenkamp et al., 2003).

Conceptual Model

The above reasoning is summarised in the conceptual model in Figure 1. There are two main columns in this conceptual model. The second column summarises consumer decision

processes that underlie shifts in consumer decision states, while the first column shows market context variables that can influence these decision processes.

There are four market context variables. The first is “Non Experimentally Varied Context Variables”. However advanced and rich an IA platform may be, it can never fully simulate the complexity of real market environments. Relevant market variables that cannot or will not be experimentally varied using IA can be modelled as covariates where possible. Such covariates include the number of competitors and variables associated with market structure that may influence how consumers behave (eg product positioning, exchange rates). They also include consumer background variables like socio-demographics. Covariates potentially affect many other variables in the model, but they particularly influence the extent to which needs arise, and hence the nature of purchase goals.



The second set of variables is “Context Factors”. These variables can be manipulated by presenting respondents with information generally available in media like newspaper articles quoting expert opinions about changes in economic conditions or advertisements for new products. One also might ask consumers to assume that they developed a need to purchase due to things like product malperformance, hearing about a new product on TV etc).

The third set of variables is “Information Availability and Cost”. This refers to information available to consumers about products (eg advertisements, newspaper articles, word of mouth, etc), and the costs of obtaining this information, which is directly related to all aspects of marketing communications. This variable could be experimentally manipulated using IA by describing differences in costs and efforts in tasks, and by explaining that it takes a certain amount of time to visit particular stores.

The final set of market variables in Figure 1 refers to the actual products and product attributes available to respondents in hypothetical choice environments. These variables obviously also can be experimentally manipulated using IA.

In the second column we propose a seven-stage consumer decision process. This process underlies consumer shifts from a state of being unaware of a product and unfamiliar with its attributes, to a state of being aware and sufficiently familiar to express a preference that is

accurate, stable and representative of their future post-trial behaviour. This process is influenced by context factors, information availability and product attributes as indicated in the figure, and is the process that IA methods aim to accelerate. The first stage of the consumer decision process is the purchase goal, which includes need recognition. As discussed above, the purchase goal can be experimentally manipulated and will covary with non-experimentally manipulated context factors and consumer characteristics.

Having a purchase goal leads to an initial interest to acquire a product to satisfy a need and to collect more information about products that potentially satisfy the need. Product acquisition and information acquisition interest are arguably related, and the former may be causally related to the latter. These are our decision state variables. For example, product acquisition interest includes whether a consumer respondent has purchased, decided to purchase has put off a decision to purchase or has decided to never purchase. Analogous states can be defined for information acquisition and will be related to concepts like category awareness and brand awareness and consideration. It is these states that we seek to initially measure, and to subsequently measure after respondents have been exposed to IA experimental treatments.

Thirdly, the levels of product and information acquisition interest influence information search. This includes deliberate searching by consumers (eg reading newspapers, visiting internet sites, talking to sales assistants), and serendipitous discoveries. We expect that more search activity will increase the probability of encountering unexpected but useful information more than if a consumer displays less search activity; moreover, there will be greater interest in processing this information. The amount of search activity undertaken also should be a function of the availability and cost of obtaining information. We expect that as information becomes more readily available and cheaper to obtain, more search activity should occur (Zwick et al., 2003). The amount of search activity influences the amount of information received, from both deliberate (active) search and serendipitous findings (passive search). The amount of search activity (eg time spent searching) and the amount of information received (eg quantity of information accessed) can be monitored using IA.

Fourthly, consumer preferences may be influenced by the information accessed by consumers. Product information provided to consumers (eg brands available, product attributes) also can be experimentally manipulated using designed choice experiments enhanced by IA multimedia techniques. The evaluation of product information will have a subsequent effect on consumers' product and information acquisition interests. We expect consumer decision states to change after they go through an initial information search process. The direction of the effect of receiving additional information on product and information acquisition interest cannot be specified *a priori*. The provision of positive information and subsequent positive evaluations may increase product acquisition interest and reduce consumers' interest in collecting further information. However, less positive information may cause consumers to delay (or refuse) purchase and possibly extend their information search (note the feedback loop). We are interested in examining how exposure to IA tasks will result in decision state shifts.

Finally, we hypothesise that product acquisition and information acquisition interests are related to the final product purchase decision. This includes whether to choose to purchase now, delay or never purchase. If purchasing now, it also potentially includes quantity. This final stage can be modelled using stated choice experiments. Our interest lies in examining how different decision states influence market participation, willingness to pay and predictive validity.

References

- Beatty, S.E., & Smith, S.M., 1987. External Search Effort: An Investigation Across Several Product Categories. *Journal of Consumer Research*. 14, 83-95.
- Bloch, P.H., Sherrell, D.L., & Ridgway N.M. 1986, Consumer Search: An Extended Framework. *Journal of Consumer Research*. 13, 119-126.
- Brucks, M. 1985, The Effects of Product Class Knowledge on Information Search Behavior. *Journal of Consumer Research*.12, 1-16.
- Celsi, R.L., & Olson, J.C. 1988, The Role of Involvement in Attention and Comprehension Processes. *Journal of Consumer Research*. 15, 210-224.
- Devinney, T., Louviere, J., & Coltman T. 2003, A Comprehensive Review of the Theory and Underlying Technology of Information Acceleration Simulators, AGSM/Smart Internet CRC.
- Engel, J.F., Blackwell, R.D., & Miniard, P.W. 1995 *Consumer Behavior*. Forth Worth: The Dryden Press.
- Kardes, F.R., Kalyanaram, G., Chandrashekar, M., & Dornoff, R.J. (1993), Brand Retrieval, Consideration Set Composition, Consumer Choice, and the Pioneering Advantage. *Journal of Consumer Research*. 20, 62-75.
- Louviere, J.J., Henscher, D.A., & Swait J.D. (2000) *Stated Choice Methods: Analysis and Application*. Cambridge: Cambridge University Press.
- Mishra, S., Umesh, U.N., & Stem, D.E. Jr. (1993), Antecedents of the Attraction Effect: An Information-processing Approach. *Journal of Marketing Research*. 30, 331-349.
- Steenkamp, J.B.E.M., & Gielens, K. 2003, Consumer and Market Drivers of the Trial Probability of New Consumer Packaged Goods. *Journal of Consumer Research*. 30, 368-383.
- Urban, G.L., Hauser, J.R., Roberts, J.R., & John, H. 1990, Prelaunch Forecasting of New Automobiles. *Management Science*. 36, 401-421.
- Urban, G.L., Hauser, J.R., Qualls, W.J., Weinberg, B.D., Bohlman, J.D., & Chicos, R.A. 1997, Information Acceleration: Validation and Lessons from the Field. *Journal of Marketing Research*. 34, 143-153.
- Urban, G.L., Hulland, J.S., & Weinberg, B.D. 1993, Premarket Forecasting for New Consumer Durable Goods: Modeling Categorization, Elimination, and Consideration Phenomena. *Journal of Marketing*. 57, 47-63.
- Urban, G.L, Weinberg, B.D., & Hauser, J.R. 1996, Premarket Forecasting of Really-New Products. *Journal of Marketing*. 60, 47-60.
- Zwick, R., Rapoport, A., King Chung Lo, A, & Muthukrishan, A.V. 2003, Consumer Sequential Search: Not Enough or Too Much? *Marketing Science*. 22, 503-519.