



## Concept discovery, process explanation, and theory deepening in e-marketing research: The case of online auctions

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**Abstract.** *By reviewing recent consumer research on online auctions, the commentary distinguishes between three forms of e-marketing research: (1) concept discovery, leveraging advances in technology to identify and describe new concepts or phenomena of significance to marketers; (2) process explanation, seeking to provide insights into the psychological, social, and economic mechanisms underlying the discovered concepts or phenomena through asking and answering ‘when’ and ‘why’ questions; and (3) theory deepening, using the online environment as the setting or context to develop, elaborate on, and test general marketing and consumer behavior theories. It is argued that while there is substantial value in each of these research forms for advancing marketing knowledge, theory deepening has perhaps been the least popular form of research conducted in online environments thus far, but it may yet turn out to be the most significant and enduring form in the long run.*

**Key Words** ● concept discovery ● consumer behaviour ● digital marketing theory ● e-marketing theory ● online auctions ● process explanation ● theory deepening

It is now more than a decade since the commercialization of the internet, and its adoption by marketers and consumers. For about as much time, academics have been interested in better understanding how to market through the internet, and have conducted an immense number of theoretical investigations and empirical research studies to this end. There is still no widespread agreement regarding the nomenclature used to describe what is being studied. For instance, terms such as *hypermedia marketing* (e.g. Hoffman and Novak, 1996), *digital marketing* (e.g. Wind and Mahajan, 1999), *online marketing* (e.g. Dholakia and Simonson, 2004) and *e-marketing* (e.g. Kalyanam and McIntyre, 2002), have all been used at one time or another. But unanimous among all these researchers is the sense that the internet offers a fundamentally important and a substantially unique setting, with

multi-varied capabilities for consumers and marketers. From a research standpoint, it provides an avenue not only for generating knowledge that is useful in a practical sense, but also for developing and deepening marketing and consumer behavior theories.

The objective in the present commentary is to elaborate on this understanding, by distinguishing between research that aims to discover and describe new concepts or phenomena; research that provides a better understanding of the processes underlying these concepts or phenomena; and research that tests and/or deepens general marketing or consumer behavior theories with the online environment serving as the setting or context for doing so. The case of recent consumer research on online auctions is employed to frame this discussion. Furthermore, it is argued that each of these types of research is worthwhile for the advancement of marketing knowledge, by serving different purposes. Whereas most existing e-marketing research can be characterized as either involving *concept discovery* and/or *process explanation*, the online environment offers ample opportunities to researchers interested in *testing and deepening general marketing and consumer behavior theories*. In the long run, this third research form may yet prove to be the most significant and enduring form of e-marketing research.

## Concept discovery research in online auctions

Long before the first item was ever auctioned off on the internet, a vast amount of academic literature had studied auctions, most of it in the economics literature (e.g. Milgrom and Weber, 1982; Vickrey, 1961). Much of this work had constructed elaborate mathematical theories regarding such things as optimal bidding strategies under different conditions of bidder valuations, the procedures through which auctions should take place, and so on. However, the human factor, in other words, the psychological and social underpinnings of auction participation, or their consequences for auction outcomes, had not received much attention (but see Smith, 1989, for an exception).

As online auctions became popular and entered into the consumer mainstream in the late 1990s, not only experimental economists but also many consumer researchers were drawn to them, for at least two reasons. First, the setting seemed unique, quite different from any other exchange or consumption venue (even physical auctions). It therefore offered tantalizing prospects of occurrence of new phenomena that might be interesting and practically important in their own right. Second, and from a procedural standpoint, online auctions were (and continue to be) 'open books', allowing researchers to observe, orchestrate, and record the evolution of real transactions, and to conduct real-life field experiments (e.g. Dholakia and Simonson, 2004).

Early research on online auctions tended to leverage the uniqueness of the auction venue, and focused on discovering interesting phenomena therein. For instance, in a study conducted with my colleague Kerry Soltysinski in 2000, we found that many bidders are susceptible to biased decision making in the sense



that they tend to gravitate toward items that already have bids, steering clear of equivalent and lower-priced items without any bids (Dholakia and Soltysinski, 2001). Since the underlying reason for such decision making seems to be the use of others' previous bids as being diagnostic of the item's quality and/or the seller's reliability, we called this phenomenon the *herd behavior bias*. Such a bias arises from several unique aspects of online auctions such as a noisy and cluttered environment with significant variation in both the quality of items being auctioned and the reliability of sellers auctioning them. It also arises because of the (relatively) long-drawn bidding process, whereby bidders have ample time to observe, think about, and act on, others' behavior. Consequently, while the herd behavior bias is descriptive of bidders' behaviors on eBay, it is less if at all applicable to a consumer's purchase of packaged cookies in a grocery store, or one's purchase of a car at a dealership.

Similarly, other researchers studied and documented evidence for 'sniping', in other words, waiting until the last moments of the auction before placing a bid (e.g. Roth and Ockenfels, 2002); 'bidding frenzy', in other words, getting caught up in the excitement of the auction and bidding multiple times on the same item, often overpaying for it (e.g. Häubl and Popkowski-Leszczyc, 2002; Ku et al., 2003); 'nibbling', in other words, bidding the lowest possible increment multiple times instead of bidding one's reservation price just once, in order to get a good deal (e.g. Marcoux, 2003); and so on. Still other researchers considered questions of practical importance such as whether sellers should set a high or low starting price on their items (e.g. Ariely and Simonson, 2003), what information should be included in a reputation mechanism to increase its usefulness for sellers (Dholakia, 2004), and so on.

These and other research studies not only provided interesting insights into how bidders think and behave within online auctions, but they often provided unambiguous direction to auction participants, whether bidders, sellers, or online auctioneers, *regarding what they should do*. Consequently, it may be asserted that they created useful knowledge regarding online auctions for practitioners. Such studies can be labeled as *concept discovery research* in the sense that they uncovered phenomena occurring within, and specific to, the then novel venue of the online auction.

An initial research focus on concept discovery that aims to explore a specific aspect of the subject domain is not unique to online auctions. For instance, in their survey of the discipline, Simonson et al. observe that in the initial years of consumer research, 'one is struck by the emphasis on topics that are specific . . . such as occupation and social services, and the omission of more general issues, such as persuasion and choice' (2001: 251).

## Process explanation research in online auctions

Soon after this initial flurry of concept discovery research (or in some cases, even concurrently with it), online auction researchers moved on to studying ‘when’ and ‘why’ questions pertaining to the concepts they had discovered. For instance, with my colleagues, I investigated moderators of the herd behavior bias (Dholakia et al., 2002), finding that the degree to which such a bias occurs is a function of both auction attributes such as volume of listing activity (it follows a U-shaped pattern), as well as agent characteristics such as participants’ experience with online auctions (it decreases with experience). Such a study tells us more about the psychological and interpersonal processes underlying the herd behavior bias, and may be said to advance theory regarding the herd behavior bias in online auctions.

Ariely et al. (2002) conducted lab experiments to better understand how sniping by auction participants is influenced by the auction’s stopping rule. They found that sniping was more frequent when auctions had a ‘hard close’ such as those on eBay, when compared to auctions such as Amazon.com which close only when no bids are received for a stipulated time period. Furthermore, their results showed that bidders in eBay-like auctions also learnt to snipe to a greater extent over time, relative to those participating in Amazon.com-like auctions. This research helped us to better understand participants’ motivations for sniping and was instrumental in formulating a process explanation for the phenomenon of sniping within online auctions.

Häubl and Popkowski-Leszcyc (2003) found that the intensity of competitive interaction as defined by the frequency of arrival of bids by other auction participants, and the perceived total number of bidders participating in the auction, dictate the participants’ experienced level of bidding frenzy. Ku and her colleagues (2003) further showed that frenzied bidding tends to increase as the time remaining in the auction diminishes, when auctions are earlier in a sequence, and bidding frenzy seems to be accentuated in live auctions relative to comparable online auctions. Moreover, these authors also showed that an escalation of commitment seems to drive bidding frenzy at the individual bidder level. These findings all provide a better understanding of the processes underlying the concept of bidding frenzy.

Ariely and Simonson (2003) proposed an analytical framework of online auction bidding behavior, classifying the auction into three stages – auction choice and entry into the auction, its middle phase and its end. They elaborated on the value signals employed by bidders, as well as the decision processes and dynamics involved in each phase. They also reported results of field studies used to test some aspects of their proposed framework, and found that within the context of the online auction, bidders under-searched for the best option, and also higher starting prices led to higher winning bids for items.

These studies are all examples of *process explanation research*, in other words, development and testing of theories that tell us more about when, why, and how bidders choose and bid within online auctions. In many cases, such research



elaborates and builds on a concept discovered earlier by the same or other researchers, and helps explain the processes underlying it. One common aspect of such research is that it builds theory regarding the consumer psychology of online auctions. However, it is also noteworthy that while such research may use theories from other, more established paradigms in formulating the process explanation, it does not emphasize generalizability as its contribution, in particular, the application of the theory developed by the research, to other contexts or domains.

## **Theory deepening research in online auctions**

In addition to the two types of research described above, online auctions offer a promising venue to develop, test, and deepen general theories of consumer behavior. Consider the typical decision-making process of bidders when purchasing in online auctions. This process may be characterized as *hierarchical* – since bidders must make decisions at different levels, such as which category to buy from, which items within the chosen category to examine in more detail, whether to bid on a particular item once examined, and how much to bid. Because of such a hierarchical process, bidders not only make *sequential* decisions but also make *multiple* decisions over time, as the auction unfolds.

Finally, bidder decision making within online auctions may also be viewed as *constructive* in the sense that much of the information used in making these decisions is available only after the bidder has entered the auction site. Utilizing the opportunity to design and conduct field experiments – for example, manipulate prices; set secret reservation prices; list blocks of items next to each other; customize item descriptions; research questions pertaining to hierarchical, sequential, and constructive decision making; all of which are active research areas within behavioral decision-making and consumer behavior areas (e.g. Bettman et al., 1998; Dholakia et al., 2004; Ofek et al., 2002), can be fruitfully studied in online auctions.

As a specific example of this type of research, we (Dholakia and Simonson, 2004) recently conducted a field experiment on eBay to study the role of explicit reference points, in other words, explicitly suggesting comparisons to specific reference points to consumers, on behaviors of online auction bidders. Our results showed that when compared to the condition where comparisons between auction listings were made spontaneously by bidders, encouraging comparisons through an explicit instruction led to more cautious bidding behaviors, marked by bidders submitting fewer, lower, and later bids. Furthermore, we generalized these findings outside the online auction context by finding similar results in a laboratory experiment involving choices. In this case then, the online auction provided a convenient and effective venue to conduct a field experiment and to test our hypotheses using a large number of dependent measures, in order to build and test a general theory of consumer behavior. The results from this online auction experiment are relevant to other marketing contexts such as in-store displays, comparative advertising, etc.



Online auctions also lend themselves to studying other types of general research questions, such as those pertaining to the role of trust and credibility in relational marketing (e.g. through the role of reputation ratings); information search (e.g. through bidders' search behaviours); multi-channel management (e.g. through studying how sellers reconcile their listings within online auctions with other retail and interpersonal channels); and so on.

These examples all characterize a third form of research that can be conducted within online auctions; that which seeks to deepen theories of decision making and consumer behavior that apply not only to bidding behaviors, but also to other decision-making and consumer-behavior contexts as well. Note that unlike concept discovery and process explanation, where the research questions concerned online auctions specifically, in this case, online auctions simply provide a setting that enables researchers to do things which are difficult or infeasible in other settings, in order to conduct generalizable research.

## **Lessons for e-marketing research**

This brief and admittedly incomplete review of recent online auctions research nevertheless reveals three interesting forms of e-marketing research. In particular, the review suggests that much of the research regarding online auctions thus far can be characterized as either involving concept discovery or as process explanation. In contrast, relatively little research can be classified as being of the third form, concerned with developing or deepening general marketing and consumer behavior theories, using the tools and affordances available in the online setting to accomplish this broader goal. These findings regarding research on online auctions apply to other domains of e-marketing as well. Most e-marketing research thus far falls into the first two categories of concept discovery and process explanation, and relatively little into the theory deepening form.

Each of these three forms of e-marketing research is worthwhile, plays a significant role in advancing knowledge, and serves different purposes that marketing researchers should be cognizant of. Concept discovery research sometimes tends to be unjustly devalued by academic researchers in the marketing discipline, perhaps because it is this form which has the most direct managerial relevance, and also because it is often the most appealing to non-academic audiences. But at the same time, it is important to realize that such research is often a necessary first step toward understanding the new e-marketing domain better, whether it is online auctions, virtual communities, recommendation systems or some other domain of the online environment.

Concept discovery research naturally reveals insights leading to the process explanation form of research, which helps build theory regarding the 'when' and 'why' aspects of the discovered concept. Furthermore, process explanation research may help to uncover broader applicability of the new concept to other domains. As an example, the herd behavior bias (Dholakia and Soltysinski, 2001) initially formulated to explain the choices of online auction bidders, was found to



have parallels in other unrelated areas such as the idea of *informational cascades* in finance (Bikhchandani et al., 1992), once investigations into the underlying process commenced. Both concept discovery and process explanation research forms require that researchers remain abreast of new technological developments and their adoption by innovative consumers such as lead users.

Just as established firms initially tended to view the internet as a discontinuous technology, suited only for start-up 'new economy' companies and irrelevant for their own functioning, many marketing researchers have tended to view the subject of e-marketing as unique, and removed from their established research streams. Perhaps such a mental demarcation helps explain the glut of the first two forms of research in e-marketing, and a paucity of the third form of research involving theory deepening. But the established firms soon found the internet percolating into every process and function performed by them, changing the way they operate fundamentally, in numerous large and small ways. In a similar fashion, we researchers may soon find that the demarcation we have created between e-marketing research and other areas of academic marketing research to be an illusion. Online environments may influence the conduct of our research in many ways, large and small, serving as flexible and multi-functional settings for testing general theories such as those of decision making or competition, and advancing the theoretical moorings of our discipline in hitherto unforeseen fashions. It may be that the theory deepening form of research which is the least popular form thus far, may turn out to be the most significant and enduring form of e-marketing research in the long run.

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## References

- Ariely, D. and Simonson, I. (2003) 'Buying, Bidding, Playing, or Competing? Value Assessment and Decision Dynamics in Online Auctions', *Journal of Consumer Psychology* 13(1–2): 113–23.
- Ariely, D., Ockenfels, A. and Roth, A.E. (2002) 'An Experimental Analysis of Ending Rules in Internet Auctions', Unpublished manuscript, Harvard University.
- Bettman, J.R., Luce, M.F. and Payne, J.W. (1998) 'Constructive Consumer Choice Processes', *Journal of Consumer Research* 25 (December): 187–217.
- Bikhchandani, S., Hirshleifer, D. and Welch, I. (1992) 'A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades', *Journal of Political Economy* 100(5): 992–1026.
- Dholakia, U.M. (2004) 'A Proposal for Increasing Usefulness of Bidders' Reputation Ratings to Sellers in Online Auctions', Working paper, Rice University.
- Dholakia, U.M. and Simonson, I. (2004) 'The Effect of Explicit Reference Points on Online Bidding Behavior', Working paper, Rice University.
- Dholakia, U.M. and Soltysinski, K. (2001) 'Coveted or Overlooked? The Psychology of Bidding for Comparable Listings in Digital Auctions', *Marketing Letters* 12(3): 225–37.



- Dholakia, U.M., Bagozzi, R.P. and Gopinath, M. (2004) 'The Role of Desires in Sequential Impulsive Choices', Working paper, Rice University.
- Dholakia, U.M., Basuroy, S. and Soltysinski, K. (2002) 'Auction or Agent (or Both)? A Study of Moderators of the Herding Bias in Digital Auctions', *International Journal of Research in Marketing* 19: 115–30.
- Häubl, G. and Popkowski-Leszcyc, P. (2002) 'Bidding Frenzy and Product Valuation in Online Auctions', Working paper, University of Alberta.
- Häubl, G. and Popkowski-Leszcyc, P. (2003) 'Bidding Frenzy: Intensity of Competitive Interaction among Bidders and Product Valuation in Online Auctions', Paper presented at 2003 ACR Conference, October, Toronto, Canada.
- Hoffman, D.L. and Novak, T.P. (1996) 'Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations', *Journal of Marketing* 60 (July): 50–68.
- Kalyanam, K. and McIntyre, S. (2002) 'The E-Marketing Mix: A Contribution of the E-Tailing Wars', *Journal of the Academy of Marketing Science* 30(4): 487–99.
- Ku, G., Malhotra, D. and Murnighan, J.K. (2003) 'Competitive Arousal in Live and Internet Auctions: Emotional Decision Making in Action', Working paper, Northwestern University.
- Marcoux, A.M. (2003) 'Snipers, Stalkers, and Nibblers: Online Auction Business Ethics', *Journal of Business Ethics* 46(2): 163–73.
- Milgrom, P. and Weber, R.J. (1982) 'A Theory of Auctions and Competitive Bidding', *Econometrica* 50(5): 1089–122.
- Ofek, E., Yildiz, M. and Haruvy, E. (2002) 'Sequential Decision Making: How Prior Choices Affect Subsequent Valuations', MIT Department of Economics Working paper no. 02–40.
- Roth, A.E. and Ockenfels, A. (2002) 'Last-Minute Bidding and the Rules for Ending Second-Price Auctions: Evidence from Ebay and Amazon Auctions on the Internet', *American Economic Review* 92(4): 1093–103.
- Simonson, I., Carmon, Z., Dhar, R., Drolet, A. and Nowlis, S.M. (2001) 'Consumer Research: In Search of Identity', *Annual Review of Psychology* 52: 249–75.
- Smith, C.W. (1989) *Auctions: The Social Construction of Value*. Berkeley: University of California Press.
- Vickrey, W. (1961) 'Counterspeculation, Auctions, and Competitive Sealed Tenders', *Journal of Finance* 16(1): 8–37.
- Wind, J. and Mahajan, V. (1999) *Digital Marketing: Global Strategies from the World's Leading Experts*. New York: Wiley.

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