

An Individual's Two Thinking Systems in Online C2C Auctions

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Keywords: Two Thinking Systems, Escalation of Commitment, Cognitive Absorption, Online Auction.

Abstract: With regard to dealing with an individual decision processing approach, little empirical work has been conducted to explain bidders' behavior by adopting two thinking systems processes, such as the controlled and uncontrolled thinking systems. Therefore, this research attempts to address the two thinking system architecture of an individual's decision in online bidding context. By constructing our research model from the perspective of two thinking systems, this study can provide an alternative theoretical lens by which online bidders may be viewed, thus bolstering our current understanding as to how willingness to continue bidding is driven.

1 INTRODUCTION

For a long time, economists have maintained that human behavior is best described by the rational economic model, which basically holds that man is self-interested and capable of perfectly weighing the costs and benefits in every decision he makes, thus enabling him to optimize the outcomes (Ariley, 2008). Although human beings do, in fact, frequently make rational decisions; this does not necessarily mean that they do this all, or even most of the time. They often tend to make intuitive or impulsive decisions, as well. For instance, people frequently continue to make bets, even though they know they may lose money by gambling. Therefore, it is critically important to take both rational and irrational aspects of decision-making into consideration, so as to more completely understand the decision-making processes of human beings.

Despite the effective transaction mechanism that exists among sellers and buyers in many online auction sites such as eBay, some bidders behave irrationally by making continuous bids, even when the bidding price has reached a much higher price than the reference price. Furthermore, some bidders tend to lose track of time while they are engaged in auctions, use auctions to alter their moods, and spend far more money than they had initially expected, in a fashion similar to the gambling situation referenced above (Peter and Bodkin, 2007). Hence, in an effort to elucidate online bidding behavior involving uncontrolled decision-making as

well as rational decision making, we have attempted to address both the irrational and rational architecture of an individual's decision-making in the context of online bidding.

Previous literature concerning online auctions has relied principally on economic theories in making predictions regarding continuous bidding behavior, assuming the rationality of human beings. Empirical studies of auction outcomes have principally been described in terms of the rational decision model, in which auction design, seller feedback, and bidder behaviors affect auction outcomes (Bapna et al., 2004; John and Zaichkowsky, 2003). Despite often-voiced concerns regarding online bidding behavior associated with the controlled and uncontrolled decision approaches, surprisingly little research has been conducted thus far into the factors that may lead to such behaviors.

Hence, this study attempts to answer the following research questions, in order to provide a more complete picture of the bidding process and to fill gaps in the previous relevant literature:

- 1) What are the controlled and uncontrolled factors affecting bidders' willingness to continue bidding as bidders increase?
- 2) To what extent do these determinants explain a bidder's willingness to continue bidding by depending on product involvement?

In an effort to evaluate these research objectives, this study has adopted a dual approach including two types of human nature, such as the automatic and the controlled decision-making system. According to

Thaler and Sunstein (2009), as the mechanisms relevant to human brains are complex and mysterious, the behavior of human beings is frequently paradoxical, appearing simultaneously “smart” and “dumb”. In order to systematically approach this complexity, Thaler and Sunstein have proposed two systems of thinking: the automatic system based on intuitive thinking, and the controlled (reflective) system based on rational thinking. Some of the relevant psychological literature also refers to these two systems as Systems 1 and 2. The automatic system is both rapid and instinctive, and is not generally associated with actual thinking. On the other hand, the reflective system is the thinking system; it is more deliberate and self-conscious than the other system. In the context of this dual architecture of human brains, this study has identified several constructs—such as escalation of commitment, cognitive absorption, perceived usefulness and ease of use—as antecedents of willingness to continue bidding.

2 BACKGROUND

2.1 Online Bidder’s Behavior

Although auctions have been extensively studied in previous economics and management literature (John and Zaichkowsky, 2003), many research questions of relevance to online auctions, such as continuous online bidding behavior, remain. Table 1 lists several studies seeking to identify the factors that affect auction outcomes.

One stream of empirical research is focused principally on econometric models in which auction design, seller feedback, or a bidder’s strategy affects the outcomes (Angst et al., 2008; Banpa et al., 2004; Gilkeson and Reynolds, 2003). This stream assumes bidders’ controlled behavior.

The other stream of research describes some irrational bidding behaviors (Park et al., 2012). Ariely and Simonson (2003) demonstrated previously that overpayment in online auctions can be conceptualized as an uncontrolled bidding behavior, as the bidders lose their self-control or overparticipate in the bidding process. In the case of bidders’ uncontrolled decision-making, it is possible that even an ordinary person (not an addicted individual) can make bids and may behave not only in accordance with their own goal-oriented mindsets, but also as a reaction to competitors in a bidding process. However, neither the former nor the latter explanation is adequate to elucidate why continuous

bidding behavior appears to occur simultaneously from both controlled and uncontrolled decision perspectives.

Therefore, this study attempted to explain why a bidder continues to bid during a bidding process, via a dual-system approach. This study considers the controlled decision-making view to encompass rational decision-making, whereas the automatic decision view entails irrational decision-making.

2.2 Two Thinking Systems

The information processing approach is a framework that provides characteristics of perception, memory, decision, and attention. Schneider and Shiffrin (1977) asserted that human performance, in terms of information processing, is the consequence of two different processes: automatic and controlled processing. These qualitatively different processes are reviewed with an emphasis on applications to research. For example, automatic processing is a rapid and parallel process, which is not limited by short-term memory. Furthermore, it requires little subject effort, and permits little direct subject control, but requires extensive and consistent training to develop. On the other hand, controlled processing is a comparatively glacial and serial process, which is limited by short-term memory and also requires subject effort and permits a large degree of subject control, although it requires little training to develop. That is, automatic processes are assumed to be involuntary, to require no attention, and to be relatively rapid, whereas controlled processes are assumed to be voluntary, to require attention, and to be relatively slow.

Moors and De Houwer (2006) also reviewed the characteristics that distinguish automatic processes from controlled processes, as follows: First, one of the most important distinctions between automatic and controlled processes is the degree to which actions are subject to conscious control. Control is the ability or propensity to monitor, alter, change, or discontinue engaging in a specific behavior. It can reduce the degree to which a task can be automatically performed. The second difference is the degree to which conscious intention is present. When peoples’ activities are automatic, they tend to be more likely to occur autonomously—in that they appear to occur on their own in the absence of central control—as the actor does not actually consciously intend to engage in those activities. A third characteristic of the automatic process is its inherent attentional efficiency. Generally speaking, activities associated with automatic processes occur

with a minimum of attentional capacity, which leaves more capacity for the performance of other tasks. Another major distinction between automatic and controlled processes is a sort of increased speed approach (Schneider and Shiffrin, 1977). As the performance of a task may involve automatic processes, people tend to learn to carry out their tasks with increasing rapidity. According to the instance-based view adopted by Logan (1998), the way that a task is performed tends to change fundamentally as the performers of those tasks become increasingly practiced. The performance of a task in the initial stage tends to be conscious and deliberate, involving memory efforts and information searches. After sufficient practice, the performance of the task changes from the deliberate mode to the quick and simple mode. Therefore, people can perform their tasks more quickly by optimizing the retrieval of information, which is made possible by extensive practice. On the other hand, automatic processes can be quite difficult to stop or modify, owing partly to the fact that they involve relatively little in the way of conscious monitoring. Therefore, people frequently make absentminded mistakes when engaged in automatic processing.

After all, this study can apply this dual decision process, which includes automatic and controlled processes, to online bidding behaviors such as willingness to continue bidding. Within the context of bidding surroundings, bidders tend to make further bids when they are engaged in automatic or controlled decision processes. Meanwhile, as bidders are operating in accordance with the controlled decision process, their bidding behavior tends to be both conscious and deliberate, involving arduous memory and information searches during the bidding process. Therefore, bidders generally attempt to take into consideration whether or not the online bidding process will prove useful for them, due to the degree of their product involvement. As shown in Table 1, this study attempts to explain online bidding behavior via the application of the above two thinking systems.

As for the automatic process, this study has identified cognitive absorption; as for the controlled process, this study has identified the escalation of commitment.

2.2.1 Escalation of Commitment

As mentioned previously, according to Logan's instance-based view, the performance of a task in its early stages tends to be conscious, deliberate, and

Table 1: Applications of two thinking processes to online bidding behavior.

Uncontrolled decision process	Application of the automatic process to online bidding behavior
Uncontrolled	Bidders may not control their bidding behavior during the bidding stage
Effortless	Bidders tend to automatically make bids without efforts such as comparing the prices of listed items.
Associate	Bidders are considering obtaining the items as winning the bidding among the bidding competition.
Fast	Bidders tend to make decisions more quickly.
Unconscious	Bidders tend to precede their biddings without consciousness.
Controlled decision process system	Application of the controlled process to online bidding behavior
Controlled	In considering bidding behavior, bidders can control their own behavior.
Effortful	Bidders tend to make lots of efforts to make bids with prudence.
Deductive	Bidders tend to participate in the bidding process by recognizing the bidding patterns of other bidders.
Slow	The speed of bidders' decision making is quite slow.
Self-aware	Based on the controlled thinking system, bidders who are self-aware tend to make decision whether they make bids further.

arduous. After achieving sufficient practice, task performance shifts from the deliberate mode to the quick and simple mode. Thus, it can prove quite difficult to halt or modify the performance of the task. Thus, the escalation of commitment involving continued commitment can be explained in accordance with the characteristics of Logan's instance view.

Escalation has traditionally been defined as a continued commitment to a previously selected course of action, despite negative feedback regarding the viability of such a course of action (Keil et al., 2000). The models of an individual's escalating commitment to failing courses of action have a long history in the disciplines of management and psychology (Ku et al., 2005). Psychologically speaking, the escalation of commitment is defined as a situation in which "investment decisions have gone astray when standing before setback or loss, [and thus] the decision maker faces a painful dilemma"(Fox and Hoffman, 2002). Escalation of commitment has been previously referenced in a

number of situations, including loan decisions, competitive bidding and entrapment situations.

Considering the characteristics of the escalation of commitment, this study proposes three key constructs derived from three prominent theories on the basis of individuals' judgment process in the literature regarding escalation: the prospect theory, the self-justification theory, and the approach avoidance theory (Festinger, 1957; Kahneman and Tversky, 1979).

First, psychological sunk costs constitute the core component of the prospect theory. In this study, psychological sunk costs are defined as the extent to which the psychological losses generated from the discontinuance of bidding are regarded as a reason for a bidder to bid. In accordance with this perspective, previous efforts and time for bidding are manifestly sunk costs (Ku et al., 2005). That is, the bidders would continue their bidding because they had already invested time and effort in the bidding process. As such, psychological sunk costs lead to escalation behavior.

Secondly, the self-justification theory holds that people tend to escalate their bid because they feel compelled to prove the rationality of their prior decision to others. Therefore, this study extracts the self-justification construct derived from the self-justification theory (Keil et al., 1995). Self-justification is defined as the extent to which a bidder attempts to defend himself psychologically against perceived errors in judgment. We may surmise that bidders continue to bid because they are attempting to convince themselves that their initial bid for the item was, indeed, a sound idea.

Finally, the approach avoidance theory holds that people tend to persistently encourage their own behavior, owing to their proximity to the goal (Brokner and Rubin, 1985). The completion effect, which is derived from the approach avoidance theory, claims that the motivation to attain a goal increases as an individual draws closer to his original objective. In this study, this study regards the completion effect as one of the principal motivations for the escalation of commitment, reflecting pressures to end an auction. The completion effect is defined as the degree to which a bidder perceives that a sound rationale exists for continuing the bidding process at the end of the auction period. Bidders tend to be willing to finish their bidding process prior to the closing of the auction, as a result of the pressure to complete such a process.

2.2.2 Cognitive Absorption

This study also considers cognitive absorption to be a determinant of the uncontrolled decision-making process on bidders' willingness to continue bidding. As cognitive absorption can be a deep commitment without controlling actions, this study can regard cognitive absorption as one of the most salient factors from the automatic processes perspective.

Cognitive absorption is derived from three theoretical bases in individual psychology (Agarwal and Karahanna, 2000): theories regarding absorption, the state of flow (Csikszentimihalyi, 1990), and the notion of cognitive engagement (Agarwal and Karahanna, 2000).

First, the trait of absorption describes a state of deep attention, in which the individual is utterly absorbed in the event being experienced. Some have a propensity to experience this state to a more profound degree than others. Absorption has been defined as an individual disposition or trait, or an intrinsic dimension of personality, which results in episodes of total attention in which the totality of an individual's attentional resources are consumed by the object of attention. Secondly, the theory of flow is closely related to cognitive absorption. Csikszentimihalyi (1990) first proposed the notion of flow experience, and developed the flow theory. According to the definition proposed by Csikszentimihalyi, flow is a state in which an individual is so immersed in an activity that nothing else seems to matter. The dimensions of flow include intense concentration, a sense of being in control, a loss of self-consciousness, and a transformation of time. Furthermore, Trevino and Webster (1992) previously noted that flow might constitute a critical factor in interactions between humans and computers, and further suggested that the dimensions of flow experience in the IT context included control, attention focus, curiosity, and intrinsic interest.

Finally, the notion of engagement is associated with perceived playfulness. From the perspective of cognitive engagement, engagement is associated with the state of playfulness, and the state of playfulness corresponds directly to the flow experience. Webster and Ho (1997) presented the engagement as flow without the notion of control. Therefore, the engagement has been proposed to be multi-dimensional, but is limited to the dimensions of intrinsic interest, curiosity, and attention focus. When reviewing the literature relevant to the notion of cognitive absorption, there appears to be considerable overlap among studies, despite certain

discrepancies in conceptualization. Consistent with prior research arguing for a multi-dimensional conceptualization of this construct, Agarwal and Karahanna (2000) defined cognitive absorption as “a state of involvement with software” that occurs in five dimensions: temporal dissociation, focused immersion, heightened enjoyment, control, and curiosity. Their definitions of the sub-constructs of cognitive absorption are as follows:

“Temporal dissociation was defined as the inability to register the passage of time while engaged in interaction. Focused immersion was defined as the experience of total engagement where other attentional demands are ignored. Heightened enjoyment was defined as capturing the pleasurable aspects of the interactions. Control was defined as representing the user’s perception of being in charge of the interaction. And finally, curiosity was defined as tapping into the extent to which the experience arouses an individual’s sensory and cognitive curiosity” (Agarwal and Karahanna, 2000).

In the online bidding context, Peter and Bodkin (2007) asserted that some bidders tend to lose track of time while they are engaged in online auctions, use auctions to alter their moods, and spend far more money than they initially expected. Thus, this study can apply cognitive absorption to explain online bidders’ behavior, since it is a combination of the retention and maintenance of one’s curiosity, the feeling of being in control, losing track of time, being focused, and having fun (Agarwal and Karahanna, 2000). As this definition has been broadly accepted by researchers in the field, therefore, this study has also adopted this definition of cognitive absorption, which consists of temporal dissociation, focused immersion, heightened enjoyment, control, and curiosity as the primary factors that influence bidder’s willingness to continue bidding as an uncontrolled decision process in the context of the online auction.

2.2.3 Product Involvement

Product involvement can be considered a critical function in the consumer persuasive process (Zaichkowsky, 1985). It has been referred to as perceived personal importance or the degree of perceived personal relevance toward a specific object (Zaichkowsky, 1985).

According to the theoretical background of product involvement, it is a psychological construct proposed by Sherif and Cantril (1947), who described involvement as the state of an organism when presented with any ego-central stimulus, or

when any stimulus is either consciously or subconsciously related to the ego. They also presented what is known as social judgment theory, which explained individuals’ contrast and assimilation effects in terms of the adaptation level (latitude of rejection, latitude of non-commitment, and latitude of acceptance). In particular, the theory also predicts that as involvement (the perceived relevance or importance of an issue) increases, the latitude of acceptance decreases and the latitude of rejection increases. Namely, the range of decisions that are regarded as acceptable or unacceptable varies depending on the level of involvement. Thus, the central idea of this theory is that attitude change is mediated by the judgmental processes and effects used to persuade people.

Next, the elaboration likelihood model (ELM) could be a theoretical basis of product involvement. ELM involves multiple persuasion processes, such as changes in attitudes (Petty et al., 1983). This theory holds that a specific variable can function to either increase or reduce persuasion, depending on its contextual role (Petty et al., 1983). According to ELM, when individuals’ levels of motivation or personal relevance are low, their attitude can be altered by relatively low-effect processes, which are referred to as the peripheral route to persuasion. On the other hand, individuals’ attitudes can be altered by relatively high-effect processes which are referred to as the central route to persuasion, when their motivation or own level of relevance is high.

Namely, people tend to follow the central route when their attitudes change due to relatively large quantities of issue-relevant elaboration, while people are more likely to follow the peripheral route when attitudes change as the result of relatively low quantities of issue-relevant elaboration. In sum, the central route involves attitude changes requiring a great deal of effort and thought to make a decision, whereas the peripheral route involves attitudinal changes when elaboration is low (Petty et al., 1983).

By applying the ELM into our research context, highly-involved bidders tend to make further bids, as they tend to be more interested in their own perception of the relevance of a product. On the other hand, less-involved bidders often attempt to react via the peripheral route, such as the attributes of cognitive absorption, rather than the relevance of the product’s attributes during the auction.

Many relevant studies on product involvement have illustrated that the degree of involvement can affect the consumers’ learning process (Doong et al., 2010). According to Novak et al. (2000), product involvement exerts a significant impact on a

consumer's experiences and behavior in the context of online purchasing. From our review of the relevant literature, this study can surmise that there exists a significant role in product involvement in terms of the process of bidding decision-making in the online auction.

Thus, this study anticipates that online bidders with high levels of product involvement tend to make multiple bids based on controlled decision-making, whereas bidders with a lesser degree of product involvement are more likely to be affected by cognitive absorption based on uncontrolled (automatic) decision-making, as opposed to the essential characteristics of a product.

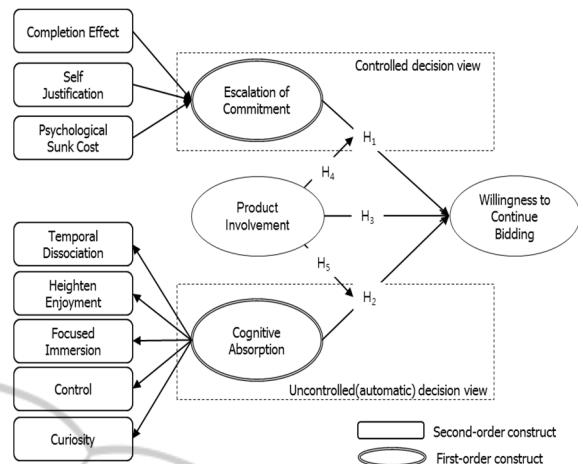


Figure 1: A proposed research model.

3 RESEARCH MODEL

In an effort to evaluate a bidder's willingness to continue bidding, this study explores herein why online bidders make more bids during the bidding process on the basis of uncontrolled and controlled processes. This study regards the construct of cognitive absorption as proposed by Agarwal and Karahanna (2000) to be a reflective construct, as it consists of multiple dimensions, whereas the escalation of commitment deriving from three different theories--prospect theory, justification theory, and approach avoidance theory--will be regarded as a formative construct.

This study also regards product involvement as the critical role in bidders' decision-making process, like controlled or uncontrolled factors. The dependent variable in this study, the willingness to continue to bid, is defined as the extent to which a bidder intends to bid again, even though the bidding process already evidences poor prospects for success. The relevant research model is shown in Figure 1.

4 EXPECTED CONTRIBUTIONS

This study attempts to explain the bidder's bidding behavior from the perspectives of controlled and uncontrolled decision-making processes. Much of the previous work conducted thus far regarding online auctions has neglected to examine online bidding behavior from both controlled and uncontrolled decision-making perspectives.

In comparison with each characteristic of these two processes, this study applied them to online bidding behavior by illustrating the escalation of

commitment from the controlled process view as well as by presenting cognitive absorption from the automatic process view. By applying these constructs to online auction surroundings, this study attempted to present both controlled and uncontrolled decision processes in order to determine why bidders continue to make bids. This may constitute a significant theoretical improvement in tracing the determinants of a bidder's willingness to continue bidding. The principal contribution of this study, in fact, was that both views have been clarified and refined, and thus can now better explain a bidder's behavior.

In particular, this study evaluated the concept of the escalation of commitment from three prominent theories on the basis of an individual's judgment process in the escalation literature: the prospect theory, the approach avoidance theory, and the self-justification theory as representative constructs, involving the controlled decision process perspective.

Additionally, this study has proposed that online bidders' behaviors can be evaluated on the basis of their cognitive absorption, on the basis of the uncontrolled decision process perspective. As this study attempted to apply cognitive absorption, which consists of five sub-constructs in the uncontrolled decision process, this study found that bidders might precede their bidding unconsciously during the auction.

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