

# Exploring Escalation of Commitment Situation in the Internet C2C Auction

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## Abstract

Most Internet auction studies have focused on examining the determinants of auction success or closing price. However, there has been little previous research which investigates dark-side factors such as overbidding behavior in the Internet C2C transactions. For this reason, this study attempts to find situations with the escalation of commitment to bids using Internet auction systems and also examines whether the bidder's bidding is irrational. Therefore, this study applies escalation of commitment to explain the auction process such as the "going, going, gone period" with competition in Internet C2C auctions.

In order to describe the auction process in terms of escalation of commitment, this study proposes psychological sunk costs, completion effect, and self-justification as the key factors of escalation of commitment and also willingness to continue bidding reflecting the decision maker's escalation behavior in terms of persistence perspective as final dependent variable. The results of PLS analysis indicate that a bidder's overbidding behavior is explained by the escalation of commitment.

## Keywords:

Psychological Sunk Costs, Self-Justification, Completion Effect, Competition Intensity, Willingness to Continue Bidding

## 1. Introduction

Until now, Internet C2C auction studies have focused on rationality and economical efficiency since most bidders try to behave rationally in order to optimize their own economic benefits in Internet auction markets (Banpa et al., 2004; Gilkeson and Reynolds, 2003). On the other hand, other previous studies presented evidence that bidders are likely to behave irrationally (Gilkeson and Reynolds, 2003; Oh, 2002). Namely, there exist possibilities in generating the irrational and non-economic behavior of bidders in Internet auctions.

There has been, however, little research on a bidder's irrational behavior including biased decision-making process in the new frontier of Internet auctions. Thus, we will investigate a bidder's irrational behavior in the auction fever phenomenon by introducing Staw's (1981) escalation of commitment, which has been cited in psychology and organizational behavior. Similar to Ku et al.'s (2005) study, we also had assumed that bidders who invested lots of time, bids, and effort in specific auctions may be conscious of their need to justify their bids and escalate their commitments. In particular, it can be explained by applying escalation of commitment in order to explain the auction process such as the "going, going, gone period" with competition in internet C2C auctions. Therefore, we contribute to the literature by explaining the following research questions:

- 1) Is a bidder's willingness to continue to bid influenced by the determinant of escalation of commitment?
- 2) Is there a bidder's difference in escalation of commitment

depending upon the level of competition intensity?

## 2. Literature Review

### 2.1 Escalation of Commitment

Escalation of commitment has been noted in organizational behavior (Bowen, 1987; Staw and Ross, 1987), social psychology (Staw, 1981), and IS research (Keil et al., 2000a, 2000b). It can be the escalation of a situation in which a decision-maker who is personally responsible for negative decision outcomes consistently commits a greater amount of resources (Staw, 1981). It may be generated when a decision-maker continuously commits a task although there is negative feedback related to his or her own course of action (Staw and Ross, 1987). It can be the locked-in situation under escalation situation and can be called the syndrome of decision errors (Staw, 1981). Based upon these studies, we assume that generating escalation of commitment can be identically explained in the Internet auction surroundings in terms of changing a bidder's decision-making pattern through the escalation situation. It explains that bidders may make errors due to the auction fever phenomenon so that they may become fallible decision-makers. Therefore, we consider the escalation of commitment as a key factor to explain biased decision-making processes in Internet C2C auction markets.

#### 2.1.1 Psychological Sunk Costs

The effect of psychological sunk costs has been manifested in a greater tendency to continue an endeavor once an investment in money, effort, or time has been made (Staw, 1976). Recently, many studies have observed the level of sunk costs and the level of completion in the progress-related decision dilemmas and how these will influence the decision-making process. Among these studies, Moon (2001a) suggested that the effect of sunk costs and completion of a project influenced the escalation behavior and that sunk cost and needs of completion could simultaneously affect the level of a decision-maker's commitment. Therefore, sunk costs play a critical decisive role in the escalation of commitment for a specific task. Namely it can be the determinant of peoples' irrational economic behavior and an important factor in whether they decide to continue or not in the decision-making process (Arkes and Blumer, 1985; Brokner, 1992; Staw, 1997). Based upon these findings, there is a similar situation in the Internet auction process. Therefore, we assume that the sunk cost occurs when a bidder takes a lot of time and effort to gain a specific product and influences the bidder's willingness to continue to bid or not.

#### 2.1.2 Self-Justification

Within the perspective provided by self-justification theory, individuals have behavioral tendencies to escalate their commitment in an effort to self-justify their initial behavior (Bobocel and Meyer, 1994). It has been an assumption that individuals seek to find rationality in their prior behaviors against cognitive bias in the decision-making process. Under this assumption, escalation behavior is regarded as "retrospective

rationality” on profits or losses from a specific behavior related to decision-making in the past. Under the retrospective rationality, decision-makers tend to behave rationally in order to prove their own justified behaviors. It is based on psychological self-justification (Heung et al, 2003; Keil et al., 2000b). Namely, the expression of self-justification can affect the persistence of a specific behavior because decision-makers tend to show their rationality (Schaubroeck and Williams, 1993). In sum, it has a significant impact on persistent behaviors; thus, the process of justification can generate or reinforce escalation tendencies. In this view, escalation can be seen as the continuation of the same psychological motivating forces and can reflect persistence in a course of action despite surroundings that argue against continued investment. Thus, it can explain decision-makers’ rationality by showing the justification process because it has been evoked only when they believe their personal performance is in question.

### 2.1.3 Completion Effects

The perceived completion effect reflects the concept that “motivation to gain a goal increases as an individual gets closer to that goal” (Conlon and Garland, 1993; Keil et al., 2000b). Several experimental studies presented reliable evidence suggesting that the completion effect affects the decision-making process. Especially, several previous studies also suggested that escalation behavior that had been previously characterized as the sunk cost effect may be motivated by the completion effect (Conlon and Garland, 1993; Garland and Conlon, 1998; Keil et al., 1995, 2000b). It can be related to a kind of pressure to end a task (Moon, 2001a). Namely, it can be represented as the pressure to complete the task and also further presents a creation of tension. It also presented the social desirability to finish what the driver of behavior already started (Moon, 2001a; 2001b). Ultimately, the completion effect may have a strong impact on generating escalation of commitment (Keil et al., 2000a).

## 3. Research model and Hypotheses

As indicated in Figure 1, we assume that a bidder will have willingness to continue bidding during a specific auction. Especially, if a bidder continues to make lots of efforts at bidding, he or she can accumulate a kind of level of psychological sunk costs so that he or she may be facing the situation under escalation of commitment (Garland and Conlon, 1998; Garland and Neport, 1991; (Keil et al., 2000b; Ku et al., 2005; Moon et al., 2001a).

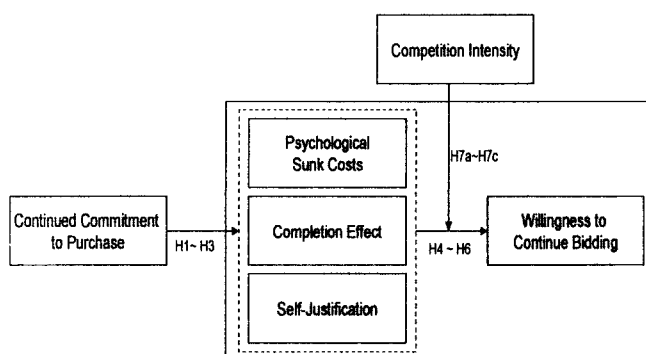


Figure 1. The proposed research model

Moon (2001a) presented the idea that escalation situations were defined by two elements, such as sunk costs and level of project completion. These two factors have been argued as explanations for escalation behavior (Moon 2001b). When it is applied to the Internet auction process, if a bidder is absorbed in purchasing a

product under escalating commitment to purchase, he or she can spend a lot of time and effort. It means that he or she accumulates his or her own psychological sunk costs. Based upon this relationship between psychological sunk costs and continued commitment to purchase a product, we proposed the following hypothesis:

*Hypothesis 1: Continued commitment to purchase will be positively associated with the psychological sunk costs.*

Kiesler (1971) defined commitment as the binding of an individual to behavioral acts or the state of mind that holds individuals to a line of behavior (Salancik, 1977) or active counterforce to change (Staw, 1982). The commitment is quite similar to these definitions. When continued commitment to purchase a product induces a bidder to complete bids that benefit him or her, then continued commitment to purchase is a kind of good thing (Nulden, 1996). We demonstrated that a bidder has a tendency to complete a progressive bidding process near to the end time because of the bidder’s commitment to continue to choose a product. Therefore, we suggested a research hypothesis based on the relationship between continued commitment to purchase and the completion effects:

*Hypothesis 2: Continued commitment to purchase will be positively associated with the completion effect.*

We consider continued commitment to purchase can be the one of the determinants of self-justification in the traditional escalation bias paradigm. If self-justification is indeed a mediator of escalation bias, then the magnitude of escalation bias should be greatest under commitment to choice (Bobocel and Meyer, 1994). Also, Schoorman and Holahan (1996) provided the evidence for psychological commitment and self-justification processes as major mechanisms of escalation bias. Based on the results of studies, we posited the following research hypothesis:

*Hypothesis 3: Continued commitment to purchase will be positively associated with self-Justification.*

Psychological sunk costs refer to the continuance-progress without rational withdrawal in spite of negative feedback (Ku et al., 2005). As opposed to an individual’s rational choice, auction fever phenomenon is generally derived from the escalation of commitment because a bidder continues bidding based upon psychological sunk costs that he or she cannot recover (Ku et al., 2005; Gilkeson and Reynold, 2003). As the level of psychological sunk cost increases, decision-makers tend to over-commit to a specific task (Moon, 2001; Keil et al., 2000b). Thus, we assumed that a decision-maker has the tendency toward escalation behavior when the level of psychological sunk cost increases. Based on the results of prior studies, we posited the following hypothesis:

*Hypothesis 4: Psychological sunk cost will be positively associated with willingness to continue bidding.*

Fox and Hoffman (2002) proposed escalation behavior as a specific case of goal-directed activity in the persistence paradigm perspective. Especially, they regarded clarity of completion as the key concept for persistence. Moreover, Keil et al. (2000) demonstrated that as a decision-maker has tended to perceive the effect of project completion, the willingness to continue a project also increased. And also, Moon’s (2001) study showed that the completion effect can be explained as a great impact on behavior with escalation of commitments. In actuality, it can be presented as social desirability that has been treated as a powerful driver of

behavior in order to finish what individuals have started. It can be assumed that the completion effect can be considered as a strong driver of generating escalation of commitment (Keil et al., 2000b). Thus, we assumed that as the timing of bid gets closer to the end, a bidder's willingness to continue bidding also increases. Thus, we posited the following research hypothesis:

*Hypothesis 5: Completion effect will be positively associated with willingness to continue bidding.*

In general, individuals are likely to act rationally from the perspective of the persistence paradigm (Fox and Hoffman, 2002; Moon, 2001b). It has been widely regarded as explaining a psychological process that leads to escalation bias (Schoorman and Holanhan, 1996). Especially, escalation studies explained that tendencies to escalate were generated or highlighted by justification processes so that psychological self-justification played an important role in describing escalation of commitment (Whyte, 1991; Staw and Ross, 1987). Therefore, psychological self-justification can be a syndrome of decision-making and influence escalation biases. In application in this study, it is assumed that a bidder can make a decision about his or her willingness to continue bidding when his or her psychological self-justification increases. Thus, we posited the following research hypothesis:

*Hypothesis 6: Self-Justification will be positively associated with willingness to continue bidding.*

In general, a bidder's motivation for bidding is often stimulated by competition with others (Gilkeson and Reynolds, 2003). Competition can be regarded as being an extremely important variable in determining bidding behavior (Gilkeson and Reynolds, 2003; Johns and Zaichkowsky, 2003). Most bidders who have planned to participate in an auction perceive the listed products' value to be a certain amount. It means that their personal valuation and the amount for which that person believes the listed products will be sold (Johns and Zaichkowsky, 2003). That is, the bidders' own decision-making can be affected depending on the competition in the Internet auction (Ku et al., 2005). Based on the results of prior studies, bidders may deduct that fierce competition intensity gives the signals which the listed products are very attractive. Based upon this logic, we proposed the following hypothesis:

*Hypothesis 7a: The impact of psychological sunk costs on willingness to continue bidding will be greater with high level of competition intensity rather than low level of competition intensity.*

*Hypothesis 7b: The impact of completion effect on willingness to continue bidding will be greater with high level of competition intensity rather than low level of competition intensity.*

*Hypothesis 7c: The impact of self-justification on willingness to continue bidding will be greater with high level of competition intensity rather than low level of competition intensity.*

#### 4. Research method and results

We conducted a survey from online bidders using URL([http://pors.2.pollever.com/researchservice/sample\\_test/pollever.asp?pkey=S22235501](http://pors.2.pollever.com/researchservice/sample_test/pollever.asp?pkey=S22235501)) link that brought up the web-based survey instrument. Totally, the sample comprised 500 responses were collected and final response were 479 through screening out

missing values for analyzing the research model.

#### 4.1 Research Methodology

We adopted partial least squares (PLS) to analyze the data collected from online survey. PLS was selected to test the hypotheses for two reasons. First, it is not contingent upon data having multivariate normal distributions and interval nature (Fornell and Bookstein 1982). In general, it is better suited for handling manipulated constructs such as psychological sunk costs. Second, it is appropriate for testing theories in the early stages of development (Fornell and Bookstein 1982). Given that this study is an early attempt to advance a theoretical model on a bidder's willingness to continue biddings, PLS can be used to analyze the data. Many previous studies (Palvou and Gefen, 2004; Keil et al., 2000a) on information systems have used to PLS to test early versions of theoretical models.

#### 4.2 Results

##### 4.2.1 Sample Characteristics

Most respondents were in almost from early 20s to late 30s(n=348). And 242 of respondents (50.6%) tended to visit internet auction sites for purchasing a product at least 1-3 times a month. And also, 400 of total respondents tended to make bids 1~5 times for getting a product. Most respondents used Auction ([www.auction.co.kr](http://www.auction.co.kr)) (n=393, 82.2%), G-market ([www.gmarket.co.kr](http://www.gmarket.co.kr))(n=75, 15.7%), Onket ([www.onket.com](http://www.onket.com)) (n=10, 2%).

##### 4.2.2 Testing the Measurement Model

Internal consistencies of all variables are, as shown in Table 1, considered acceptable because composite reliabilities in this measurement model range from 0.907 to 0.954(Nunnally, 1978). The Cronbach's alpha of all the scales in this pretest-questionnaire was acceptable (psychological sunk costs = 0.940, willingness to continue bidding = 0.881, Completion effects= 0.867, competition intensity = 0.912, Self-justification = 0.795, continued commitment of purchase=0.868) (Nunnally and Bernstein 1994).

Table 1. Results of Testing Convergent Validity (n=479)

Constructs	Items	Factor loadings	C.R.	AVE
Psychological Sunk costs	SC1	0.840	0.954	0.806
	SC2	0.889		
	SC3	0.927		
	SC4	0.925		
	SC5	0.897		
Self-Justification	SJ1	0.911	0.907	0.830
	SJ2	0.910		
Continued Commitment to Purchase	CCP1	0.897	0.919	0.791
	CCP2	0.896		
	CCP3	0.874		
Willingness to Continue Bidding	WCB1	0.852	0.931	0.773
	WCB2	0.888		
	WCB3	0.871		
	WCB4	0.824		
Completion Effects	CE1	0.813	0.918	0.738
	CE2	0.825		
	CE3	0.910		
	CE4	0.872		
Competition Intensity	CI1	0.910	0.948	0.807
	CI2	0.935		
	CI3	0.901		

As shown in Table 1 and 2, all factor loadings for the items in the measurement model exceeded 0.70 in each group and all average variances extracted were greater than 0.50, thereby demonstrating adequate convergent validity (Fornell and Larcker, 1981). In verifying discriminant validity, the square root of all AVEs is much larger than all other cross correlations. The results provide support for discriminant validity (see table 3). Jointly, these findings suggest appropriate convergent and discriminant validity for construct validity.

Table 2. Results of Testing Convergent Validity in Each subgroup

Constructs	Items	High competition intensity (n=233) (above 4.79)			Low competition intensity (n=246) (below 4.79)		
		Loadings	C.R.	AVE	Loadings	C.R.	AVE
Psychological Sunk Costs	SC1	0.830			0.767		
	SC2	0.885			0.833		
	SC3	0.901	0.906	0.762	0.912	0.935	0.743
	SC4	0.920			0.910		
	SC5	0.858			0.876		
Self-Justification	SJ1	0.904	0.908	0.712	0.912	0.879	0.785
	SJ2	0.916			0.867		
Continued Commitment to Purchase	CCP1	0.879			0.890		
	CCP2	0.887	0.906	0.828	0.887	0.909	0.768
	CCP3	0.858			0.849		
Willingness to Continue Bidding	WCB1	0.839	0.931	0.818	0.817	0.903	0.700
	WCB2	0.875			0.872		
	WCB3	0.868			0.843		
	WCB4	0.795			0.815		
Completion Effects	CE1	0.809	0.907	0.709	0.741	0.895	0.682
	CE2	0.806			0.775		
	CE3	0.880			0.916		
	CE4	0.851			0.858		

Table 3. Results of Testing Discriminant Validity using AVE)

	Mean	STD	SC	SJ	CCP	WCB	CE	CI
SC	4.90	1.06	<b>0.806</b>					
SJ	4.68	0.95	0.566	<b>0.830</b>				
CCP	4.47	1.08	0.527	0.474	<b>0.791</b>			
WCB	4.74	0.99	0.616	0.561	0.528	<b>0.773</b>		
CE	4.50	0.94	0.633	0.579	0.621	0.632	<b>0.738</b>	
CI	4.79	1.05	0.445	0.434	0.525	0.446	0.365	<b>0.807</b>

	C.R.	High competition					C.R.	Low competition				
		CCP	SC	SJ	CE	WCB		CCP	SC	SJ	CE	WCB
CCP	0.91	<b>0.83</b>					0.91	<b>0.77</b>				
SC	0.91	0.47	<b>0.76</b>				0.94	0.24	<b>0.74</b>			
SJ	0.91	0.36	0.47	<b>0.71</b>			0.88	0.41	0.47	<b>0.79</b>		
CE	0.91	0.52	0.61	0.47	<b>0.71</b>		0.90	0.38	0.46	0.53	<b>0.68</b>	
WCB	0.93	0.48	0.51	0.52	0.57	<b>0.82</b>	0.90	0.38	0.56	0.45	0.41	<b>0.70</b>

The diagonal elements (in bold) represents the AVE

#### 4.2.3 Testing the Structural Model

With satisfactory results in the measurement model, we then examined the structural model to test the relationships among constructs. After computing path estimates in the structural model using the entire sample, PLS used a jackknifing technique to

obtain the corresponding T-values. Each hypothesis (H1 to H6) corresponded to a path in the structural model (see Figure 2). Support for each hypothesis could be determined by examining the positive sign and statistical significance of the T-value for its corresponding path.

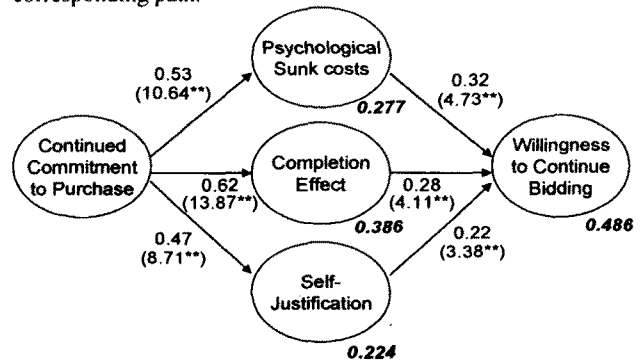


Figure 2. PLS Results for the Proposed Research Model

#### 4.2.4 Testing the Moderating Role of Competition Intensity

To test moderating effects, we estimated a series of structural models for each subgroup. We closely patterned our analysis after Keil et al (2000) to test the moderating effect of competition intensity and then tested for differences across those models using the test for differences suggested by Chin (2003) and implemented by Keil et al (2000). Because we met assumptions for comparing gamma's suggested by Carte and Russell (2003), we used procedures described by Chin et al. (2003) as follows<sup>1</sup>:

$$t_{ij} = \frac{p_i - p_j}{\sqrt{\frac{(n_i - 1) \times SE_i^2 + (n_j - 1) \times SE_j^2}{n_i + n_j - 2} \times \frac{1}{n_i} + \frac{1}{n_j}}}$$

Table 5. Statistical Comparison of Paths

From → To	high subgroup			Low subgroup			Statistical Comparisons of Paths
	path	std error	t-value	path	std error	t-value	
CCP → SC	0.47	0.045	6.69	0.37	0.049	5.95	23.23***
CCP → SJ	0.36	0.045	5.20	0.41	0.046	7.08	12.02***
CCP → CE	0.52	0.040	8.71	0.58	0.039	10.83	16.62***
SC → WCB	0.38	0.048	5.56	0.17	0.048	2.16	47.86***
SJ → WCB	0.26	0.044	4.21	0.15	0.049	2.08	25.80***
CE → WCB	0.34	0.045	5.03	0.23	0.058	2.42	23.10***

As shown in Table 5, comparing high competition intensity and low competition intensity, there are some remarkable findings. The impacts of the relationship between psychological sunk costs, self justification, completion effects and willingness to continue bidding in high competition subgroup were stronger than low competition subgroup. Thus, H7a, H7b and H7c were supported. Figure 3 and 4 have shown the statistical comparison of paths among each group.

<sup>1</sup> where,

$p_i$ : path coefficient in structural model of involvement  $i$  or trust  $i$

$n_i$ : sample size of dataset for involvement  $i$  or trust  $i$

$SE_i$ : standard error of path in structural model for involvement  $i$  or trust  $i$

$t_{ij}$ : t-statistic with  $N1 + N2 - 2$  degrees of freedom

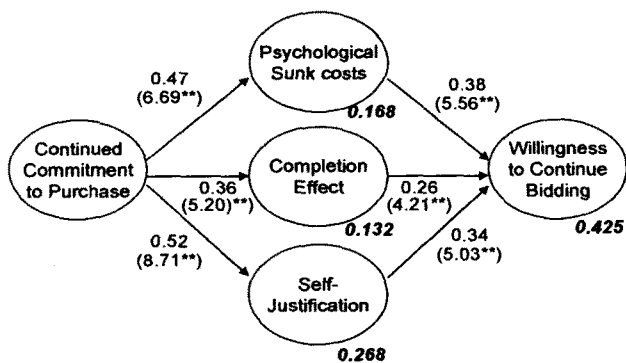


Figure 3. High competition intensity

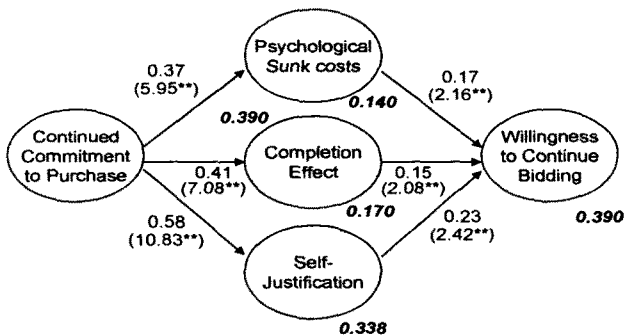


Figure 4 Low competition intensity

## 5. Discussions

### 5.1 Interpretations

We have several key findings from testing the research hypothesis. First, there were also significant relations from continued commitment to purchase to psychological sunk costs, self-justification and completion effects. If bidders are absorbed in purchasing a product under escalating commitment to purchase, they can spend a lot of time and efforts. It means that they accumulated their own psychological sunk costs. Therefore, we verified the positive relationship between continued commitment to purchase a product and bidder's psychological sunk costs. As mentioned earlier, H1 was supported. If bidders are absorbed in purchasing a product under escalating of commitment to purchase, they can spend a lot of time and efforts. It means that they accumulated their own psychological sunk costs. Therefore, we verified the positive relationship between continued commitment to purchase a product and bidder's psychological sunk costs.

In the case of supporting H2, it demonstrated that bidders had tendencies to complete a progressive bidding process near to the end of time because of their continued commitment to purchase a product. In traditional paradigm of determinant of escalation bias, self-justification was influenced by commitment to choice (Schoorman and Holahan, 1996). It means that a bidder has tendencies to escalate his or her commitments to purchase a product in order to self justify his or her previous behavior (Keil et al., 2000b). Based upon the result of H3, we revealed that bidders can make decisions about their willingness to continue bidding when their psychological self-justification increases.

As shown in the results of testing H4, it found that bidders may not abandon their bidding processes because of the many sunk costs involved in any prior investment of efforts or time (Ku et al., 2005). Thus, a higher the level of a bidder's psychological sunk costs affect bidder's willingness to continue bids. In general, prior studies mentioned that a decision-maker had a tendency to

perceive the effect of project completion, the willingness to continue a project increased (Heung et al., 2003; Keil et al, 2000).

We also found that the bidder's willingness to continue bidding would increase as the auction got closer to the ending time. Thus, bidders should be more likely to bid past their limits towards the end of the auction when there is little time left.

In the H6 case, a bidder tends to escalate his or her commitment to a course of action to self-justify his or her prior behavior grounded in Keil et al.(2000b)'s study. According to prior studies (Fox and Hoffman, 2002; Moon, 2001b), individuals are likely to act rationally from the perspective of the persistence paradigm. Based upon this statement, we found that bidders made decisions about their willingness to continue bids when increasing their psychological self-justification.

Based upon these results of hypotheses related to escalation of commitment, bidders more continue bidding because of their psychological sunk costs (they have already invested time in the bidding process), self-justification (they are trying to convince themselves that making and initial bids for the item was good) and completion effect (they lose sight of their limits and bid because of time pressures). Namely, there exist the escalation satiations, which may be an irrational, multiply determined process, in the internet auction market.

Finally, considering the moderating effect of competition intensity, H7a, H7b and H7c were significant. Some previous studies mentioned that a bidder's motivation for bidding can be often stimulated by competition with others (Gikeson and Reynolds, 2003; Johns and Zaichkowsky, 2003). On the basis of result of moderating effect,, an increase of the competition intensity may emanate continuous attractive signals to the bidders so that they perceive more values from the listed products. In the different angle, it can be explained by decision-making under dynamic environments from the perspective of decision-making under stress. Decision making behavior is considerably affected by the dynamics of environment, because most natural dynamic situations contain much uncertainty (Kerstholt, 1994). During a dynamic situation, critical judgments are frequently made under conditions of acute temporary or prolonged stress. According to Kowalski-Trakofler et al.(2003)s' study, they proposed the definition of stress had been "a process by which certain work demands evoke an appraisal process in which perceived demand exceed resources and result in undesirable physiological, emotional, cognitive and social changes". Weiss(1983) also mentioned that stress was defined as any condition that causes an individual to have a generalized psychophysiological response which deviators from a state of equilibrium. Thus, the effect of stressful conditions on human judgment is of importance.

Therefore, we can suggest the understanding of the interplay between stress and a bidder's judgment and decision making activities would a better understanding of how they reach the choices they make in emergent situations. In this context, in dealing with the uncertainty of a continually changing environment like bidding processes, a bidder must make a decision whether continue to bids or not especially under stress situations because bidding in auctions usually requires a series of rapid decisions, often succession.

### 5.2 Theoretical Implications

Based on the empirical findings, we have some theoretical implications.

First, auction fever phenomenon may require models like the escalation of commitment situations. This escalation of commitment processes can affect overbidding behavior which was irrational. Thus, bidders could irrationally exceed their limits as more people continued bidding or considered their sunk costs,

completion effect and self-justification as the determinants of the escalation of commitment situations.

Second, previous views in escalation of commitment (Keil et al., 2000b, Ku et al., 2005; Moon, 2001a) have tended to display escalation as an outcome of emotional or logical distortion in the orderly course of rational decision-making. In consistent with prior studies, we viewed overbidding behaviors as highly influenced by the past sunk costs and also approached to escalation as an irrational product of human motivational systems.

Finally, from a descriptive standpoint, the integration of the determinants such as psychological sunk costs, completion effect and self-justification of escalation of commitment results in a more predictive model that better explains irrational overbidding behavior in the internet auction markets.

### 5.3 Practical Implications

We synthetically suggested internet auction sites in providing a kind of personalized services to help bidders' biased decision making processes. If bidders purchase the listed product which they did not want to purchase it with undesirable auction prices, it can be generating problems regarding a revisiting the websites or maintaining customer loyalty to the websites.

Thus, internet auction sites need to provide warnings services such as personalized e-mail services to bidders when bidders tend to have overbidding behaviors in the bidding process. Based upon this service, it can be important for internet auction sites to notify bidders to provide personalized services to them for purchasing products with reasonable prices. As internet auction sites help bidders' right decision-making in the bidding process, they can reinforce maintaining trust which can reduce a tremendous barrier to online transactions.

### 5.4 Limitations and Suggestions for Future Research

Our findings provided remarkable conclusions considering a bidder's initial intention to bid and willingness to continue to bidding in terms of his or her decision-making processes. Otherwise, we have several limitations for the followings and several areas remaining for future research to overcome these limitations.

First, the questionnaires could not be filled in right after the completion of a bidding a round. Afterwards, the questionnaires were administered as bidders were leaving the auction. Thus, the recall may not have been completely accurate, as the respondents may have bid on many items, and were asked to recall only one. In attempt to coordinate this challenge, it needs to ask for the respondents to recall the last item they bid on. Because we used retrospective measurements which require respondents to recall their processes after having performed a particular task, it results in difficulty to recall facts which were not internalized in long term memory. But, this method has the advantage of not interfering with ongoing problem solving process (Todd and Benbasat, 1987). We focused on assessing individual judgment and choice with in the human judgment processing to predict an individual's output based on the input cues being processed. Thus, this approach can be appropriate for this research although respondents' recall may not have been completely accurate.

Second, strictly speaking, auction processes should be explained by a longitudinal study using an experiment of internet bidding behavior. And also, it needs to reflect the starting bidding price, starting time and closing time for explaining the sophisticated bidding processes. Therefore, it will be considered as these factors to conduct future research via focusing on the longitudinal approach using an experiment. Although we did not conduct longitudinal approach at the moment because of the

absence of economic risk in experimental settings (Kagel, and Levin, 2002), it can have salvage values as the follows; it investigates into factors of decision to enter a bid. And also, it explains the systematic relationships on the escalation of commitment process by applying psychological sunk costs, completion effect and self-justification in the internet auction from the interdisciplinary perspectives. Based on these results, we revealed that bidders could not always make informed and rational decisions during bidding process.

Nevertheless, considering the future research to overcome these limitations, the future study could be expanded in several ways. An interesting perspective could be to view the auction process as a continuous and repeated game like a gambling. It may explain bidding behaviors as the entertainment, or hedonic aspect of internet auctions. Therefore, it would be interesting to show how the bidders behave in terms of hedonic, enjoyment and thrill derived from the participation. It also can be these factors affecting the price a bidder is willing to pay.

As mentioned earlier, internet bidders cannot always show their rational behaviors. According to Oh(2002), it can be closely related to their own search costs. A bidder's lack of search skills or abilities is a source of unreliable and imprecise search results. Ariely and Simonson (2003) also showed that bidders often under search and overpay in online auctions and ignore easily accessible cues on comparable fixed price offers. Thus, we can suggest that perceived searching costs of a bidder need to be considered as a critical factor to account for escalation of commitment in the future research.

And also, additional research can propose more comprehensive model on a basis of decision-making that includes both cognitive and emotional components. Thus, it needs to organize the extended research model to broader view with these findings by exploring other factors that can influence bidding decisions. Therefore, the next step in a systematic investigation is to examine the relationships between the specific emotions such as anxiety, regret and depression or decision-making under stress and escalation of commitment. It will provide a better understanding of the influence of feelings about auction mechanisms on a bidder's behavior.

## 6. Conclusions

While most Internet auction studies have focused on examining the determinants of auction success or closing price, there has been little previous research which investigates dark-side factors such as overbidding behavior in the Internet C2C transactions. For this reason, this study attempts to find situations with the escalation of commitment to bids using Internet auction systems and also examines whether the bidder's bidding is irrational. Therefore, this study applies escalation of commitment to explain the auction process such as the "going, going, gone period" with competition in Internet C2C auctions.

In order to describe the auction process in terms of escalation of commitment, this study proposes psychological sunk costs, completion effect, and self-justification as the key factors of escalation of commitment and also willingness to continue bidding reflecting the decision maker's escalation behavior in terms of persistence perspective as final dependent variable. The results of PLS analysis indicate that a bidder's overbidding behavior is explained by the escalation of commitment

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