



Online auction service failures in Taiwan: Typologies and recovery strategies

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ARTICLE INFO

Article history:

Received 7 February 2009

Received in revised form 10 September 2009

Accepted 10 September 2009

Available online 15 September 2009

Keywords:

Online auction

Service failure

Service recovery

Critical incident technique

ABSTRACT

Online auctions are a new trading model that integrates auction mechanisms and the Internet. However, during the interaction between buyers and sellers, service failures inevitably occur. When service failures occur, selecting an effective service recovery strategy to correct the failure is an important issue. In this study, 867 failure incidents from buyers of online auction service encounters are classified into eighteen categories in three main groups, and the recovery strategies are classified into 10 types. An effective strategy is also identified for each service failure. Moreover, this study proposes the “service failure severity – post-recovery repeat purchase intention matrix” to rank the service failures that should be avoided. This study can help online auction sellers understand buyer perceptions of service failure and recovery strategies to improve service quality, avoid negligence and make proper recovery decisions.

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1. Introduction

Due to the characteristics of intangibility, inseparability and variability of service, failures are inevitable (Goodwin and Ross 1992; Levesque and McDougall 2000), and the services are rarely flawless. However, defects or dissatisfaction in any encounter during service delivery may cause negative responses of customers, such as negative word-of-mouth, hatred of sellers or reluctance to repeat purchase, all of which may potentially harm business profitability or reputation (Kelley and Davis 1994; Johnston and Hewa 1997). Thus, when service failure occurs, service providers must take immediate recoveries to retain their customers.

Studies of service failure and service recovery are numerous, but most have focused on physical service suppliers (e.g., brick-and mortar retail stores, airline companies, hotels and restaurants). Due to the rapid development of e-commerce and the growing importance of online shopping, recent studies have introduced new perspectives of online shopping. In e-commerce and online shopping environments, the lack of significant switching costs enables customers to simply use their mouse to switch to a different service provider. Therefore, service quality is even more important in these environments than in others (Holloway and Beatty 2003). Besides, online shopping is still a new business model. Compared with brick-and mortar retail stores, more problems may occur during service delivery (Harris et al. 2006), which is why scholars

have begun to analyze service failure and service recovery (Meuter et al. 2000; Holloway and Beatty 2003; Forbes et al. 2005; Massad et al. 2006) or reasons for satisfaction or dissatisfaction (Holloway and Beatty 2008) in cyberspace.

Notably, although online shopping involves placing orders on shopping websites and bidding on auction websites, these two issues have not been separately discussed in prior studies. In fact, these two trading environments markedly differ. The trading environment of shopping websites involves only the website operator and buyers, and the products sold in this environment are provided solely by the website operators. The trading environment of online auctions involves website operators, sellers and buyers. The products sold in online auctions are provided by sellers rather than by the website operators. Website operators serve only as middlemen who provide trading platforms so that buyers and sellers can complete a deal. They are not involved in the payment and delivery of the product. Additionally, online auctions emphasize interpersonal interactions. Common practices of online auctions, such as online Q&A, bargaining, face-to-face transaction and post-purchase evaluation all require complicated interactions between buyers and sellers. In contrast, shopping websites require pure service encounters between human and technology. Therefore, the two environments markedly differ. An auction website offers trading functions for both buyers and sellers to successfully settle a deal. On this platform, different sellers use different management styles. Certainly, multiple and complicated failures may occur in the service delivery process. Different sellers may use different service recovery strategies for correcting the same service failures.

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So far, studies on service failure and recovery in online shopping and online auctions are still rare. Thus, this study explores service failures and recovery strategies in online auction to fill this important gap. In addition, this study proposes the “service failure severity – post-recovery repeat purchase intention matrix” to rank the service failures that should be avoided. This analytical method provides a deeper understanding about service failures and recovery strategies in online auction and also avoids the incomplete information obtained by ranking service failures by severity alone. According to the above research background and motivation, the objectives of this study are to (1) apply the critical incident technique (CIT) to collect and classify data for online auction service failures and recovery strategies; (2) find the critical failures by using the “service failure severity – post-recovery repeat purchase intention analysis”; (3) analyze buyer satisfaction, repeat purchase intention and effect of recovery strategies; and (4) provide suggestions for future researchers and online auction sellers.

The remainder of this paper is structured as follows: Section 2 reviews related studies, particularly on brick-and-mortar and online retail service failures and recoveries. Section 3 describes the research methodology. The analytical results are reported and discussed in Sections 4 and 5. Conclusions and suggestions are finally drawn in Section 6.

2. Literature review

In this section, we review the theoretical foundation of this study such as service failures and recoveries and online retail service failures and recoveries.

2.1. Service failures and recoveries

A service failure is an incident that causes customer dissatisfaction during a service encounter or service delivery (Maxham 2001). During service encounters, possible failures include poor service, delays and other core failures (Bitner et al. 1990). Service failures may differ in time, severity and frequency (Kelley and Davis 1994). Hence, classification of service failures is essential. From a customer perspective, Bitner et al. (1990) employed CIT to collect 699 incidents of service failure in restaurants, hotels and aviation companies and classified them into three main groups including employee response to service delivery system failures, employee response to customer needs and requests, and unprompted and unsolicited employee actions. Their study (Bitner et al. 1990) is widely considered as a predecessor in the research of service failures using CIT.

Subsequent researchers (e.g., Kelley et al. 1993; Hoffman et al. 1995; Chell and Pittaway 1998; Forbes et al. 2005) then used these three groups of service failures as the basis of classification and employed CIT to investigate other issues associated with service failure. For instance, Kelley et al. (1993) focused on the retail industry and interviewed 456 consumers who had experienced service failures. Based on the 661 incidents collected, service failures were classified into fifteen categories in three main groups. One is employee responses to service delivery system and product failures due to policy failures, slow or unavailable services, system pricing, packaging errors, out of stock conditions, product defects, alterations and repairs and bad information. A second is employee responses to customer needs and requests, including the order or requests and instances of firm-side customer error. A third is unprompted and unsolicited employee actions, where consumers are improperly charged or accused of shoplifting, and other issues. Among the above service failures, “product defect” was the most frequent failure while “accused of shoplifting” was least frequent.

Bitner et al. (1994) further probed service failures from the perspective of employees in an attempt to examine service failures when incidents are collected from different perspectives. They also compared their results with the findings of Bitner et al. (1990). In addition to the existing three groups (Bitner et al. 1990), they added a new group called “problem customer behavior”, which encompassed drunkenness, verbal and physical abuse, breaking company policies or laws, and uncooperative customers. This addition was a result of surveying incidents from the perspective of “employees”. In the previous study which focused on the perspective of “customers”, the surveyed customers did not view themselves as being responsible for service failures.

Service recovery is adopted by a service provider in response to service negligence or failure (Gronroos 1988). Many studies (e.g., Kelley et al. 1993; Kelley and Davis 1994; Johnston and Hewa 1997; Mattila 2001) have employed this definition of service recovery. That is, service recovery enables enterprises to solve customer complaints, correct customer dissatisfaction and establish customer trust through effect complaint handling (Harris et al. 2006). Such strategy is directly related to customer trust, repeat purchase intention, commitment and word-of-mouth (Goodwin and Ross 1992; Mohr and Bitner, 1995; Blodgett et al. 1997). A good recovery strategy can return dissatisfied customers to a state of satisfaction (Michael 2001), enhance customer retention rate (McCollough et al. 2000) and even help build long-term relationships (Kelley et al. 1993) that make customers loyal (Boshoff 1997). However, service recovery is often difficult. Bitner et al. (1994) mentioned that service providers with good service recovery strategies are rare, and more than half of the customers who have experienced service failures are very unsatisfied with their service recovery experiences (Zeithaml et al. 1990). Improper handling of customer complaints may reinforce the negative impression of an enterprise in unsatisfied customers and further result in double deviation (Bitner et al. 1990). Customers who switch to other service providers are rarely affected by the failure of core services. They are usually affected by the employee response and service recovery method (Keaveney 1995).

In terms of the recovery behavior, service recovery strategies can be divided into explanation, apology, assistance and compensation (Colon and Murray 1996; Davidow 2000; Levesque and McDougall 2000). Explanation is the articulated cause of a service failure (Colon and Murray 1996; Davidow 2000); apology is a verbal expression of regret for loss of customer (Colon and Murray 1996; Tax et al. 1998; Davidow 2000); assistance means that the service provider take pragmatic actions to solve service failures such as redo of service or product replacement (Tax et al. 1998; Levesque and McDougall 2000); compensation is a monetary reimbursement for inconvenience caused to customers or failure that cannot be resolved (Colon and Murray 1996; Tax et al. 1998; Davidow 2000; Levesque and McDougall 2000; Mattila 2001). Besides, in terms of tangibility, service recovery strategies can be classified as mental recovery and physical recovery (Miller et al. 2000). Mental recovery measures such as apology and explanation refer to actions that can directly improve psychological dissatisfaction. These measures are simple, economical and effective, but if not properly used, they can also have negative effects. Physical recovery measures are material compensations (e.g., free service, refund, gift, discount and coupon) capable of alleviating the practical loss of the consumer.

Kelley et al. (1993) surveyed the service recovery strategies adopted in retail stores and customer satisfaction and repeat purchase intention after service recovery. They classified service recovery strategies into twelve categories. Of these strategies, “discount”, “correction”, “manager/employee intervention”, “correction plus”, “replacement”, “apology”, and “refund” were considered satisfactory strategies while “customer initiated correc-

tion”, “store credit”, “unsatisfactory correction”, “failure escalation”, and “nothing” were considered dissatisfied strategies. In the retail industry, “replacement” was most commonly used while “customer initiated correction” was least common. Besides, “correction” was considered the most effective for retaining customer patronage, and “nothing” as the least effective.

Hoffman et al. (1995) classified the collected strategies into eight categories. “Free food”, “replacement”, “discount”, “coupons”, “managerial intervention”, and “correction” were considered effective in appeasing customers. “Apology” and “nothing” were considered dissatisfied to customers. Among these items, “replacement” and “coupon” were least frequently used, “managerial intervention” could lead to more frequent customer repeat purchase rates.

2.2. Online retail service failures and recoveries

Holloway and Beatty (2003) proposed the typology of online retailing service failures including delivery problems, website design problems, customer service problems, payment problems, security problems, and miscellaneous. “Delivery problems” were the most frequent online service failures among the above six types and most online retailers were failing to effectively manage their service recoveries. They further classified the dimensions of dissatisfiers and satisfiers in the online environment (Holloway and Beatty 2008). Four dimensions including website design/interaction, fulfillment/reliability, customer service, and security/privacy were proposed. The dimension indicating the greatest lack of satisfaction was fulfillment/reliability, and the dimension indicating the most satisfaction was website design/interaction.

Forbes et al. (2005) explored the typologies of service failures and recovery strategies of shopping websites by surveying customers who had experienced service failure and recovery. They collected 382 critical incidents. According to the typology proposed by Kelley et al. (1993), service failures were classified into two groups and ten categories, including (1) response to service delivery system/product failure: slow/unavailable service, system pricing, packaging errors, out of stock, product defect, bad information, and web site system failure; and (2) response to customer needs and requests: special order/request, customer error, and size variation. Among these items, “packaging error” was the most common, and “size variation” was the most significant cause of dissatisfaction. Unlike other studies (Bitner et al. 1990; Kelley et al. 1993), Forbes et al. (2005) excluded “unprompted/unsolicited employee actions” from their typology because these service failures occur only during interpersonal encounters rather than technology-based service encounters. Therefore, exclusion of this group in their research was reasonable. They classified eleven service recoveries, including discount, correction, correction plus, replacement, apology, refund, store credit, unsatisfactory correction, failure escalation, nothing, and replace at brick-and-mortar. Among these items, only “replace at brick-and-mortar” proved effective for retaining customers who had experienced service failure, and the remaining strategies more or less caused customers to switch to other competitors. Notably, after a service failure in online shopping has occurred, customer repeat purchase intentions are low, regardless of the service recovery strategy applied.

3. Research methodology

This study applied the critical incident technique (CIT) to explore service failure typologies and service recovery strategies in online auction. CIT was introduced by Flanagan (1954) as a set

of systematic procedures for collecting incidents and human behaviors led to the success or failure of a particular task (Flanagan 1954; Ronan and Latham 1974; Bitner et al. 1990; Grove and Fisk 1997). The reliability and validity of CIT is empirically proven (Flanagan 1954; Ronan and Latham 1974; Mallalieu 1999; Meuter et al. 2000), and CIT is widely used to investigate service-related issues such as service failures and recoveries (Bitner et al. 1990, 1994; Kelley et al. 1993; Hoffman et al. 1995; Forbes et al. 2005). Therefore, CIT was employed for survey and analysis in this study.

3.1. Questionnaire design

After reviewing previous studies (Kelley et al. 1993; Hoffman et al. 1995; Forbes et al. 2005) as well as the operations styles of online auction sellers, a questionnaire was designed to gather information related to failure and recovery. To ensure the adequacy and linguistic articulation of the questionnaire content, before the questionnaire investigation was executed, a pretest was given to two experts and ten undergraduate/graduate students who were familiar with online auction. After that, the questionnaire was refined and finalized for the formal investigation.

The formal questionnaire was comprised of three sections. (1) Respondents were asked to describe the most impressive service failure incident and recovery method they experienced in online auction that had resulted in a satisfactory recovery. An open-ended question was designed. Respondents were also asked to evaluate the severity of the described incident, their satisfaction level with the recovery method and their post-recovery repeat purchase intention. (2) Respondents were asked in an open-ended question to describe the most impressive service failure incident and recovery method they experienced in online auction that resulted in an unsatisfactory recovery. Respondents also evaluated the severity of the described incident, their satisfaction level with the recovery method and post-recovery repeat purchase intention. The severity, satisfaction level and repeat purchase intention were measured on 10-point Likert scale in which higher points indicated increased severity, satisfaction or repeat purchase intention. (3) This section was intended to reveal respondent demographic information including gender, age, education, monthly income and number of online auction transactions made during the past six months. Nominal scales were used.

3.2. Data collection

As this study explored service failures and recovery strategies in online auctions, the research subjects were selected from buyers with practical experience in service failure and service recovery in online auction. So far, many studies have produced good results using web-based CIT (Meuter et al. 2000; Huang et al. 2004; Massad et al. 2006), and online questionnaires are convenient and attractive to buyers in online auction. Therefore, web-based CIT was employed to collect a representative sample. In Taiwan, Yahoo! Kimo Auction (tw.bid.yahoo.com), Ruten Auction (www.ruten.com.tw) and Roodo! Auction (auction.roodo.com) are the top three auction websites. Hence, the link to the web-based questionnaire was placed on the buyer experience exchange forum of each of these auction platforms so that interested buyers could participate in the survey. Each respondent was asked to provide one failure incident he or she had experienced that had resulted in a satisfactory recovery as well as a failure that had resulted in an unsatisfactory recovery. Out of 524 questionnaires collected, excluding invalid responses (responses containing ambiguous expressions or unclear data), 490 valid responses were collected. From these responses, a total of 867 incidents of service failures were obtained. Of these incidents, recovery was satisfac-

tory and unsatisfactory in 407 and 460 incidents of service failure, respectively.

3.3. Data analysis

The critical incident sorting process was a modification of the methods adopted by Bitner et al. (1990), Kelley et al. (1993) and Forbes et al. (2005). The process involved the following steps and was conducted jointly by two of the three authors of this study:

1. Classification of all 867 incidents into categories: Each failure incident was systematically classified into one of the ten e-tail service failure categories developed by Forbes et al. (2005). Online auction incidents could not be classified into one of the ten existing categories were classified through the establishment of new categories. After initial sorting and classification, eighteen failure categories were identified for online auction failures.
2. Identification of the groups of service failure categories: Because a deal must be settled through interpersonal interactions between the buyers and the seller in online auction environment, “unprompted and unsolicited seller actions” group was added to two groups used by Forbes et al. (2005) for e-tail. Each failure categories was classified into one of the three service failure groups.
3. Classification of recovery strategies: The recovery strategies used in each incident were classified referring to the typology developed by Kelley et al. (1993) for brick-and-mortar retail stores and the typology developed by Forbes et al. (2005) for online shopping. In this step, ten recovery strategies were derived.

3.4. Reliability

Most previous studies adopted inter-judge reliability to test reliability (Bitner et al. 1990; Kelley et al. 1993; Hoffman et al. 1995). According to Hunt (1991), a prudent classification has to go through the test of reliability by various judges so as to ensure inter-subjectivity. Therefore, two researchers were arranged to perform the above-mentioned classification. The typologies of service failures and recovery strategies were obtained through their repeated careful reading, discussion and classification. An independent judge (an expert in online auction and service quality management) was then asked to assist with the classification. The research objective and meanings of typologies were carefully explained to the independent judge, who then classified all service failure incidents and recovery strategies using the given typologies. Finally, the inter-rater agreement between the two classification results was examined. This task resulted in agreement rates of 85.4%, 87.8% and 88.5% for the failure categories included in the three main groups. The recovery agreement rate was 88.8%. In addition, the reliability index *I_r* developed by Perreault and Leigh (1989) was computed. The *I_r* values for the three main groups of service failure incidents were 91.4%, 91.5% and 92.5%, respectively, and that of recovery strategies was 93.6%. All *I_r* values exceeded 0.8, indicating acceptable reliability for the groups established in the sorting process (Perreault and Leigh 1989).

4. Research results

4.1. Sample characteristics

Table 1 shows the respondent demographics. The data show that most respondents were female (64.1%) and aged 20–29 years

Table 1

Demographic characteristics of respondents (*n* = 490).

Variable		No.	%
Gender	Male	176	35.9
	Female	314	64.1
Age	20 or below	61	12.4
	20–29	405	82.7
	30–39	22	4.5
	40–49	2	0.4
Education level	High school or below	15	3.1
	University/college	347	70.8
	Graduate school	128	26.1
Monthly income (NTD)	15,000 or below	352	71.9
	15,000–30,000	84	17.1
	30,001–45,000	42	8.6
	45,001–60,000	7	1.4
	60,001–75,000	3	0.6
	75,001–90,000	1	0.2
	90,001 or above	1	0.2
Number of online auction transactions made during the past six months	5 or below	149	30.4
	5–10	189	38.6
	10 or above	152	31.0

(82.7%). In terms of education level, most were university or college educated (70.8%), and those with graduate school education accounted for the second largest group (26.1%). The average monthly income of most (71.8%) buyers was below NTD15000. Over the past six months, most (38.6%) had completed five to ten auction transactions; those who had completed fewer than five transactions comprised the smallest proportion (30.4%).

4.2. Typology of service failures

The 867 incidents of service failures were classified into the following three groups and eighteen service failure categories (Table 2).

1. Service delivery system failures

Service delivery system failures are failures that caused buyer dissatisfaction during the delivery of core services, and 660

Table 2

Categories of online auction service failures.

Type of service failure	No.	%
<i>Group 1. Service delivery system failures</i>		
Packaging problem	207	23.9
Slow or unavailable	157	18.1
Product defect	142	16.4
Out of stock	61	7.1
Bad information	41	4.7
Alterations and repairs	18	2.1
Hold disaster	14	1.6
Pricing failure	10	1.2
Policy failure	10	1.2
Subtotal, Group 1	660	76.3
<i>Group 2. Buyer needs and requests</i>		
Gap between expectation and perception	83	9.6
Size variation	16	1.8
Special order or request	13	1.5
Admitted buyer error	3	0.3
Subtotal, Group 2	115	13.2
<i>Group 3. Unprompted and unsolicited seller actions</i>		
Seller attention failures	39	4.5
Seller-created embarrassments	22	2.5
Seller fraud problem	21	2.4
Mischarged	8	0.9
Leak of personal data	2	0.2
Subtotal, Group 3	92	10.5
Total	867	100

incidents (76.3%) were classified into this group including nine categories:

- (1) Packaging problem (23.9%): Failures associated with packaging and delivery of commodities. This was the most common service failure. For instance, due to incorrect packaging by the seller, the buyer receives only a portion of the purchased product or the wrong product; the address or name of the recipient was incorrectly written and prevented delivery of the good; moreover, improper packaging also causes damage of the product during transportation.
- (2) Slow/unavailable service (18.1%): Incidents included in this category refer to failure resulting from seller delays or non-fulfillment of service delivery. For instance, the good has not been delivered within the expected time; the seller does not show up for face-to-face transaction; and the seller reply to email or Q&A messages is too slow.
- (3) Product defect (16.4%): In this category the incidents refer to flaws, malfunction or damage of a delivered product. For instance, a newly purchased computer cannot be used; clothes are seriously damaged; batteries cannot hold a charge; and there are scratches on a purchased CD.
- (4) Out of stock (7.1%): This failure refers to ordered products that are not currently available. For instance, the buyer is unaware that the product is unavailable before the order is placed; the buyer does not know the demanded quantity of a product cannot be delivered before the order is placed, and the goods are delivered in batches.
- (5) Bad information (4.7%): This failure refers to poor, incorrect or false product information provided by the seller. For instance, the seller claims that a mobile phone has Bluetooth capability, but the function is actually absent.
- (6) Alterations and repairs (2.1%): This failure occurs during product replacement or repair. For instance, a defected shirt is returned for replacement, but the replaced one is still defective; the buyer receives the wrong product and must wait a long time for replacement.
- (7) Hold disasters (1.6%): These disasters occur when the bid winner cannot purchase the product due to certain problems of the seller. For instance, the seller has lost the good; the seller has not properly taken care of the good, so the good cannot be sent to the buyer.
- (8) Pricing failure (1.2%): This failure refers to inconsistency between the actual price and the bidding price shown on the website. For instance, a product starting price originally worth \$1900 is tagged with a starting price of only \$190, and the bid winner is asked to pay more.
- (9) Policy failure (1.2%): This failure occurs when a policy is considered unfair by the buyer. For instance, a good auctioned at the starting price of \$1 requires a higher shipping fee; the seller refuses to replace sold goods.

2. Buyer needs and requests

Failures in this group cause dissatisfaction when special requests or personal preferences of buyers cannot be satisfied. The 115 incidents (13.2%) classified into this group including four categories as follows:

- (1) Gap between expectation and perception (9.6%): This failure occurs when there is a gap between buyer expectation and realistic experience, and the gap is large enough to cause dissatisfaction. For instance, clothing items may look different from the pictures shown on the webpage. The buyer and seller have different perceptions of how old a second-hand good is.

- (2) Size variation (1.8%): This failure occurs in two situations. The first situation is when the seller has sent the good in correct size to the buyer. Due to use of a different scale by the manufacturer, the good does not actually fit the buyer. Another situation is when the buyer provides personal measures to the seller, hoping that the seller can help determine the size of the product. However, the delivered good does not really fit the buyer.
- (3) Special order or request (1.5%): This failure occurs when a product or service is customizable, and the result does not meet the original request of the buyer. For instance, the print on a T-shirt is not the same as that requested by the buyer. The seller promises to deliver the order at a specific time but fails to do so.
- (4) Admitted buyer error (0.3%): This failure is attributed to action by the specific buyer. For instance, the buyer gives a wrong address, which causes misdelivery of the order, the buyer does not remit the payment in time or the buyer drops the bid.

3. Unprompted and unsolicited seller actions

Failures in this group are unassociated with the delivery system or special buyer requests. These failures are mainly caused by the seller service attitude and service behavior. Ninety-two (10.5%) incidents were classified into this group, and categorized into the following five categories:

- (1) Seller attention failures (4.5%): Buyer dissatisfaction is caused by an unpleasant seller attitude such as arrogance or unstable emotions. For instance, the seller is unfriendly during the transaction or keeps urging the buyer to give a positive evaluation after the transaction.
- (2) Seller-created embarrassments (2.5%): This failure is unintentionally caused by the carelessness of the seller. For instance, the seller has an unpleasant transaction with a certain buyer but negatively evaluates the wrong one. The seller email system is unstable and emails are frequently lost. The seller mistakenly believes that the buyer is not tacking action to complete the transaction and continues urging the buyer to act.
- (3) Seller fraud problem (2.4%): The buyer does not receive the good after remitting the payment and cannot reach the seller.
- (4) Mischarged (0.9%): This occurs when the refunded amount is incorrect or a correct discount is not given for products on sale. For instance, the seller agrees to give a \$20 rebate if the order is placed on the same day the product is shelved. However, the seller is not actually given the rebate. For particular reasons, the seller cannot complete the deal and is willing to refund. However, the amount returned is incorrect.
- (5) Leak of personal data (0.2%): This refers to intentional or unintentional leak of personal data to other people. This happens least frequently. For instance, the personal data of buyers are leaked to fraudulent groups, insurance salespersons or other sellers.

4.3. Severity of service failures, satisfaction with recovery and repeat purchase intention

Buyers have different judgments of the severity of each service failure type and also evaluate their satisfaction with the service recovery and repeat purchase intention. As Table 3 shows, among the three groups of service failures, “unprompted and unsolicited seller action” had the highest level of severity (8.0), in which “leak

Table 3
Severity of service failures, satisfaction and repeat purchase intention with recovery.

Type of service failure	Severity of service failures	Satisfaction with recovery	Repeat purchase intention with recovery
<i>Group 1 service delivery system failures</i>			
Packaging problem	7.1 ^a (2.5) ^b	6.3 (3.1)	5.9 (3.1)
Slow/unavailable service	6.9 (2.5)	4.9 (3.1)	4.4 (3.2)
Product defect	7.5 (2.6)	5.5 (3.4)	4.9 (3.4)
Out of stock	7.2 (2.3)	5.3 (2.9)	5.1 (3.3)
Bad information	7.7 (2.4)	4.2 (3.2)	3.6 (3.1)
Alterations and repairs	8.1 (2.7)	2.2 (2.2)	2.0 (1.9)
Hold disaster	7.8 (1.8)	2.6 (1.7)	3.0 (2.1)
Pricing failure	7.8 (3.0)	5.2 (3.6)	5.7 (3.6)
Policy failure	7.1 (2.1)	3.7 (2.9)	3.2 (2.8)
Subtotal, Group 1	7.2 (2.5)	5.3 (3.2)	4.9 (3.3)
<i>Group 2 Buyer needs and requests</i>			
Gap between expectation and perception	7.9 (2.2)	2.7 (2.6)	2.4 (2.5)
Size variation	6.7 (2.0)	5.9 (3.6)	5.9 (3.6)
Special order or request	8.6 (1.6)	3.5 (3.5)	3.3 (3.1)
Admitted buyer error	4.0 (1.7)	5.7 (2.1)	4.0 (3.5)
Subtotal, Group 2	7.7 (2.2)	3.3 (3.0)	3.0 (3.0)
<i>Group 3 Unprompted and unsolicited seller actions</i>			
Seller attention failures	7.6 (2.4)	3.5 (2.8)	3.3 (2.8)
Seller-created embarrassments	7.7 (2.8)	3.5 (2.7)	3.8 (3.1)
Seller fraud problem	9.4 (1.2)	1.1 (0.4)	1.0 (0.0)
Mischarged	6.8 (2.9)	5.4 (4.0)	5.2 (3.9)
Leak of personal data	9.5 (0.7)	1.0 (0.0)	1.0 (0.0)
Subtotal, Group 3	8.0 (2.4)	3.1 (2.8)	3.0 (2.9)
Total	7.4 (2.5)	4.8 (3.3)	4.4 (3.3)

^a Mean.

^b Standard deviation.

of personal data” and “seller fraud problem” were considered the two most severe failures (9.5 and 9.4, respectively). The group that ranked second was “buyer needs and requests” (7.7), in which “special order or request” was considered the most severe (8.6) and “admitted buyer error was considered the least severe (4.0). This item was also the least severe of all categories. The severity of “service and delivery system failures” ranked third (7.2), in which “alterations and repairs” was considered the most severe (8.1), and “slow or unavailable” was considered the least severe (6.9).

Regarding buyer satisfaction with service recovery, among the three groups of service failures, “service delivery system failures” ranked first (5.3), in which “packaging problem” was given the highest post-recovery satisfaction (6.3), and “hold disaster” and “alterations and repairs” were still unsatisfactory to buyers after recovery measures were taken. The “buyer needs and requests”

group ranked second (3.3), where “size variation” and “admitted buyer error” could be more easily remediated with the post-recovery satisfaction between 5–6, and “gap between expectation and perception” was given the lowest satisfaction level (2.7). “Unprompted and unsolicited seller action” ranked third (3.1), where “mischarged” could be more easily remediated, with a post-recovery satisfaction level of 5.4. “Seller fraud problem” and “leak of personal data” were considered unsatisfactory to buyers even recovery measures were used. For both items, satisfaction level was below 2, and “leak of personal data” was given the lowest level among all categories.

In terms of buyer repeat purchase intentions after service recovery, among the three groups, “service delivery system failures” ranked highest (4.9), where “pricing failure”, “packaging problem” and “out of stock” were considered least influential to buyer repeat purchase intentions after remedial measures were taken. The repeat purchase intention levels for these three categories were between 5–6, indicating that buyers were still willing to repeat purchase the product from the same seller. However, “alternative and repairs” was considered most influential on buyer repeat purchase intention. “Buyer needs and requests” and “unprompted and unsolicited seller action” were given the same level of post-recovery repeat purchase intention (3.0). In the “buyer needs and requests” group, the buyers showed highest repeat purchase intention for remediated “size variation” (5.9) and lowest for remediated “gap between expectation and perception” (2.4). In “unprompted and unsolicited seller action”, “mischarged” was considered the least influential on repeat purchase intention after remediation (5.2) while “seller fraud problem” and “leak of personal data” were considered the most influential even after remediation (1.0).

4.4. Typology of service recovery strategies

After classifying the incidents with regard to failures, the next step was to classify the online auction recovery strategies

Table 4
Categories of online auction service recovery strategies.

Recovery strategy	No. (%)	No. of satisfactory recovery	No. of dissatisfactory recovery	Satisfaction with recovery	Retention with recovery
Correction	280 ^a (32.3) ^b	228 ^a (81.4) ^b	52 ^a (18.6) ^b	7.2 ^c (2.4) ^d	6.6 ^c (2.7) ^d
Correction plus	82 (9.5)	77 (93.9)	5 (6.1)	7.7 (2.1)	7.6 (2.5)
Discount	26 (3.0)	23 (88.5)	3 (11.5)	7.0 (2.2)	6.0 (2.9)
Replacement	14 (1.6)	2 (14.3)	12 (85.7)	3.4 (2.7)	3.5 (2.7)
Store credit	16 (1.8)	9 (56.3)	7 (43.7)	6.1 (2.9)	6.4 (2.7)
Apology	54 (6.2)	20 (37.0)	34 (63.0)	3.7 (2.6)	3.4 (2.6)
Refund	67 (7.7)	42 (62.7)	25 (37.3)	6.4 (2.9)	5.2 (3.1)
Unsatisfactory correction	182 (21.0)	0 (0)	182 (100.0)	1.9 (1.3)	1.8 (1.6)
Failure	39 (4.5)	0 (0)	39 (100)	1.3 (0.9)	1.3 (0.9)
Escalation	107 (12.4)	0 (0)	107 (100)	1.7 (1.2)	1.7 (1.6)
Nothing					
Total	867 (100)	407 (46.9)	460 (53.1)	4.8 (3.3)	4.4 (3.3)

^a Number.

^b %.

^c Mean.

^d Standard deviation.

described by the respondents. Ten service recovery strategies (Table 4) in online auction were derived as follows:

1. Correction (32.3%): 81.4% of the buyers felt satisfied with this recovery strategy. This strategy refers to simple and uncomplicated correction of mistakes such as by replacing misdelivered products, increasing repair speed and providing reasonable explanation without extra compensation. Buyer satisfaction for this strategy was 7.2, and repeat purchase intention (after applying this strategy) was 6.6.
2. Correction plus (9.5%): 93.9% of the buyers felt satisfied with this recovery strategy. This strategy is to not only correct mistakes but also to provide compensation such as providing a free upgrade or free gift. Buyer satisfaction with this strategy was 7.7, and the repeat purchase intention was 7.6, both of which were the highest among all strategies.
3. Discount (3.0%): 88.5% of the buyers felt satisfied with this recovery strategy. This strategy was to let the buyer purchase the good at a low-cost or without paying shipping fee. The buyer satisfaction for this strategy was 7.0, and the repeat purchase intention was 6.0.
4. Replacement (1.5%): 14.3% of the buyers felt satisfied with this recovery strategy. This strategy was to replace a defected or out of stock product with a good one whose price equaled or exceeded that of the originally ordered product. The satisfaction level and repeat purchase intention for this strategy were 3.4 and 3.5, respectively.
5. Store credit (1.8%): 56.3% of the buyers felt satisfied with this recovery strategy. This strategy was to provide coupons as compensation for the failure and to allow buyers to exchange them for a rebate or reduced shipping fee. The satisfaction level and repeat purchase intention for this strategy were 6.1 and 6.4, respectively.
6. Apology (6.2%): 37.0% of the buyers felt satisfied with this recovery strategy. This strategy was to provide verbal expression of remorse or regret for a mistake made. The buyer satisfaction with this strategy was 3.7, and repeat purchase intention after this strategy was 3.4.
7. Refund (7.6%): 62.7% of the buyers felt satisfied with this recovery strategy. This strategy was to ask the buyer to return the good for a return of the payment. The buyer satisfaction for this strategy was 6.4, and repeat purchase intention was 5.2.
8. Unsatisfactory correction (21.0%): No buyer was satisfied with this strategy. Rather, this strategy consumed extra time and money of the buyers. For instance, the seller requests the buyer to pay for the shipping of the product to be replaced or substantial time and cost is required to repair or replace the defected product. The satisfaction level for this strategy was 1.9, and the repeat purchase intention was 1.8.
9. Failure escalation (4.5%): No buyer was satisfied with this strategy. Using this strategy may further escalate the seriousness of the situation and even cause conflicts between the two parties, including pinning blame on the customers, giving negative evaluations to buyers, and having inappropriate attitudes toward buyers. Both the satisfaction and purchase intention levels for this item were 1.3, which was the lowest amongst all.
10. Nothing (12.4%): No buyer was satisfied with this strategy. This strategy is to do nothing to the service failure by the seller, or due to the waste of time, money and effort, the buyer maybe unwilling to ask for remedial action by the seller. Both the satisfaction and repeat purchase intention levels for this strategy were 1.7.

5. Discussion

5.1. Typology of service failures

The service failures in online auction were classified into three groups and eighteen categories. Except for “admitted buyer error”, all other categories revealed a severity level above 5. Therefore, all service failures in online auction were considered critical incidents. Forbes et al. (2005) also pointed out that most incidents identified by CIT were those viewed by respondents as most critical or most important. When asked to identify impressive incidents, respondents tended to recall relatively more important incidents. As a result, incidents with severity greater than 5 were easily collected. This outcome has also been described in previous studies (Hoffman et al. 1995; Forbes et al. 2005).

As Table 3 shows, the most severe service failures were “leak of personal data” (9.5), “seller fraud problem” (9.4) and “special order or request” (8.6). The first two categories were in the “unprompted and unsolicited seller action” group while the last one was in the “buyer needs and requests” group. “Seller fraud problem” was also highlighted as a significant loophole in online auction. The anonymity and convenience of registering a new account on the Internet increases the likelihood of fraud. When fraud occurs, most buyers attribute the fraud to misfortune rather than failure by the seller and rarely seek redress due to the inconvenience and the typically low amount of money involved. Such attitudes have fueled the growth of the “seller fraud problem”. Besides, a “leak of personal data” could also be caused by the seller who is not responsible for safeguarding the personal data of buyer and leak the data to other businesspersons for profits or unintentionally. However, this failure was reported by only 0.2% of respondents. The respondents were most displeased with the above two service failures and also gave the highest severity levels to these two categories. Bitner et al. (2000) pointed out that customers who buy special or customized products on the Internet usually hold high expectations. The customized products are considered unacceptable if the requested criteria are not satisfied. Therefore, the service failure of “special order or request” was also viewed as a critical situation by the buyers.

“Admitted buyer error” (4.0) and “size variation” (6.7) were the items rated least severe. “Admitted buyer error” occurred mainly because of the factors of the buyer. Therefore, the severity of this failure was reasonably low. “Size variation” was also given a low level of severity, probably because buyers were mentally prepared that “size” would be a problem since they could not try it before purchasing. Their acceptance of this failure would be higher, resulting in a lower severity level of this failure. These survey results are consistent with the finding of Forbes et al. (2005).

5.2. Severity of service failure – post-recovery repeat purchase intention matrix

Regarding the severity of service failure, previous studies usually rank the service failures by mean severity level and provide the result as a reference for service providers. However, the data may be misleading if the effect of service recovery is not considered. Thus, the “severity of service failure – post-recovery repeat purchase intention matrix” was proposed in this study (Fig. 1). In Fig. 1, the X-axis indicates the severity of each service failure while the Y-axis indicates the repeat purchase intention of buyers after service recovery. The median (5 points) of the measurement scale (Likert 10-point scale) divides this chart into four quadrants. Fig. 1 reveals the relationship between severity of service failure and post-recovery repeat purchase intention, which further reveals the underlying cause of severity of service failure.

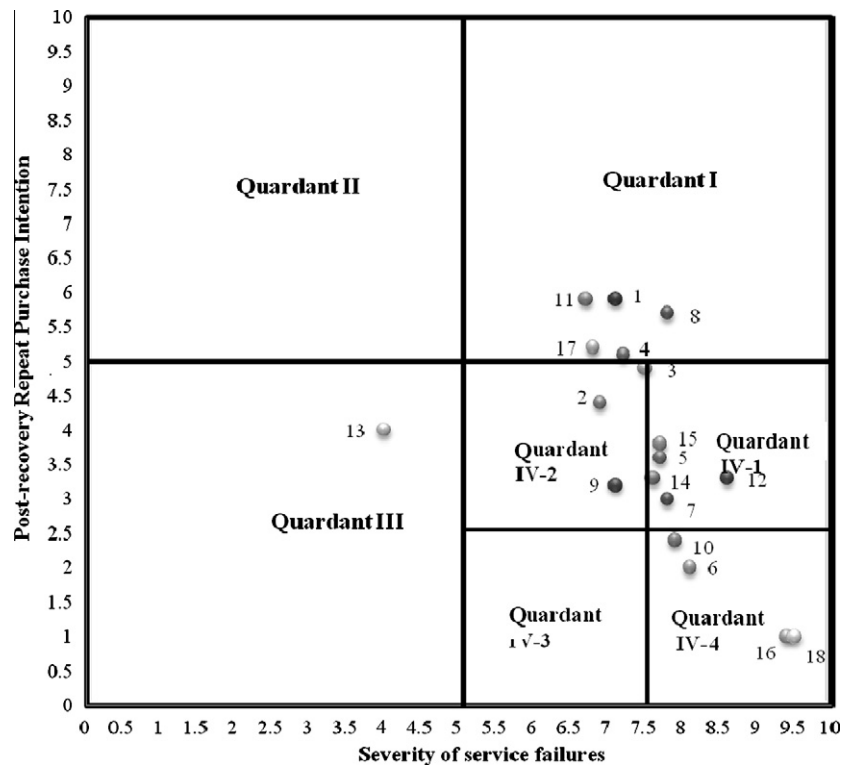


Fig. 1. Severity of service failures – post-recovery repeat purchase intention matrix Notes: 1. Packaging problem, 2. Slow/unavailable service, 3. Product defect, 4. Out of stock, 5. Bad information, 6. Alterations and repairs, 7. Hold disaster, 8. Pricing failure, 9. Policy failure, 10. Gap between expectation and perception, 11. Size variation, 12. Special order or request, 13. Admitted buyer error, 14. Seller attention failures, 15. Seller-created embarrassments, 16. Seller fraud problem, 17. Mischarged, 18. Leak of personal data.

1. Quadrant I

The first quadrant encompasses five service failures, including “pricing failure”, “packaging problem”, “size variation”, “mis-charged” and “out of stock”. Although these failures are all severe, they can be properly mediated to maintain customer repeat purchase intention.

2. Quadrant II

Service failures in this quadrant are not very severe, and proper recovery strategies can be used to effectively maintain customer repeat purchase intention. In this study, no item falls into this quadrant.

3. Quadrant III

Items in this quadrant are slightly severe failures, but remediation cannot increase consumer repeat purchase intention. “Admitted buyer error” is the only item in this quadrant.

4. Quadrant IV

This quadrant includes most service failures, including “product defect”, “slow/unavailable service”, “seller-created embarrassments”, “bad information”, “special order or request”, “seller attention failures”, “policy failure”, “hold disasters”, “gap between expectation and perception”, “alterations and repairs”, “seller fraud problem” and “leak of personal data”. The above service items are severe service failures. Even if remedial strategies have been used, buyer repeat purchase intentions cannot be effectively enhanced after these service failures have occurred. The failures

in this quadrant should be avoided. Therefore, remediation of the failures cannot help increase customer repeat purchase intention. As this quadrant includes numerous items, the medians of this scale ($X = 7.5$ and $Y = 2.5$) are further used to divide the quadrant into four areas to understand the severity of each item. Quadrant IV-1 includes “special order or request”, “hold disasters”, “seller attention failures”, “bad information”, and “seller-created embarrassments”. Quadrant IV-2 includes “slow/unavailable service” and “policy failure”. The severity of “product defect” is 7.5 and buyer repeat purchase intention is 5 after service recovery. Thus, this item is also incorporated into Quadrant IV-2. Quadrant IV-4 includes “alterations and repairs”, “gap between expectation and perception”, “seller fraud problem”, and “leak of personal data”. In this research, there is no item in Quadrant IV-3.

Table 3 shows that the service failures buyers consider most important to avoid are, in order of severity, “pricing failure”, “bad information”, “seller-created embarrassments”, “seller attention failures”, “product defect”, “policy failure”, and “slow/unavailable service”. However, sellers are less concerned about the absolute severity of the failure than they are about enhancing buyer repeat purchase intentions after performing a recovery measure. Adding the dimension of post-recovery repeat purchase intention reveals that all items in Quadrant IV are critical service failures and are difficult to remediate. Therefore, sellers should pay extra attention to these critical items. The most critical are items in Quadrant IV-4 followed by those in Quadrant IV-1. Failures in Quadrant III are of secondary severity. In this quadrant, “admitted buyer error” is not a severe failure, and correcting this failure can only rarely enhance buyer repeat purchase intentions. The main reason is that, when “admitted buyer error” occurs, the seller may blame the buyer or even negatively evaluate the buyer, which lowers repeat purchase intention of the buyer. Moreover,

the Quadrant I items are severe failures, but correcting them can effectively enhance buyer repeat purchase intentions. Thus, items in this quadrant are relatively less critical than those in Quadrants III and IV.

In sum, if sellers consider only how buyers subjectively judge the severity of service failures, they become excessively prudent and make false decisions, which may thus undermine their profitability. The findings of this study suggest that failures that are

Table 5

Failure types and corresponding recovery strategies.

Failure type	Recovery strategy									
	Correction	Correction plus	Store credit	Discount	Apology	Replacement	Refund	Unsatisfactory correction	Failure escalation	Nothing
Policy failure	3 ^a	0	1	0	0	0	0	4	1	1
	7.3 ^b		6.0					1.5	1.0	2.0
	6.7 ^c		5.0					1.0	1.0	2.0
Slow or unavailable	45	22	2	10	19	2	7	37	3	10
	6.8	7.7	6.0	6.2	4.8	1.0	4.3	1.9	3.3	1.8
	5.8	7.1	7.0	4.9	4.6	1.0	3.1	1.9	2.0	1.5
Pricing failure	1	5	0	0	0	0	1	2	0	1
	8.0	7.8					1.0	1.5		1.0
	5.0	8.4					1.0	4.0		1.0
Packaging problem	117	26	6	2	5	1	9	22	5	14
	7.3	8.3	7.3	7.5	3.0	2.0	6.8	2.4	1.0	2.3
	6.8	8.3	6.2	7.0	2.8	3.0	5.9	2.0	1.0	2.5
Out of stock	15	7	2	2	3	4	18	7	1	2
	7.0	7.1	7.5	7.5	1.7	6.5	4.8	2.3	2.0	1.0
	6.6	8.0	9.5	8.0	1.0	6.3	4.0	1.7	5.0	1.0
Product defect	47	13	0	8	3	1	16	39	2	13
	7.6	7.6		7.3	5.0	5.0	8.7	2.0	1.0	2.1
	7.0	7.6		6.8	5.0	5.0	6.9	1.6	1.0	1.8
Hold disaster	0	1	1	0	2	3	1	2	3	1
		5.0	6.0		1.5	2.3	5.0	3.0	1.3	1.0
		7.0	6.0		1.0	3.3	5.0	3.0	1.7	1.0
Alterations and repairs	2	1	0	0	2	0	1	7	0	5
	4.0	9.0			1.5		5.0	1.3		1.0
	1.0	8.0			2.0		5.0	1.3		1.6
Bad information	13	1	1	1	5	1	2	4	8	5
	7.1	10.0	6.0	8.0	3.4	1.0	6.5	1.8	1.3	1.8
	5.7	9.0	8.0	4.0	2.6	1.0	7.0	1.5	1.1	2.2
Special order or request	2	1	1	0	0	0	2	4	3	0
	7.0	7.0	2.0				5.5	2	1.0	
	7.5	9.0	2.0				3.5	1.3	1.7	
Admitted buyer error	0	0	0	0	1	0	0	1	0	1
					8.0			4.0		5.0
					8.0			2.0		2.0
Size failure	9	0	0	0	0	0	0	7	0	0
	8.7							2.3		
	8.8							2.3		
Gap between expectation and perception	7	1	0	2	1	2	7	32	7	24
	5.6	5.0		7.5	3.0	2	7.9	1.6	1.0	1.7
	5.3	6.0		6.5	1.0	1.5	5.4	1.7	1.0	1.7
Mischarged	2	0	1	0	2	0	2	1	0	0
	9.0		4.0		1.0		9.0	1.0		
	9.0		5.0		1.0		8.0	1.0		
Embarrassments	6	1	1	0	6	0	1	3	1	3
	5.0	5.0	3.0		4.0		7.0	1.0	1.0	1.7
	5.2	6.0	7.0		4.7		3.0	1.0	1.0	1.3
Attention failures	11	3	0	1	5	0	0	7	5	7
	6.1	6.3		8.0	3.0			1.7	1.0	1.3
	4.9	6.0		7.0	1.6			2.3	1.0	3.1
Fraud problem	0	0	0	0	0	0	0	3	0	18
								1.0		1.2
								1.0		1.0
Leak of personal data	0	0	0	0	0	0	0	0	0	2
										1.0
										1.0

^a Count.^b Satisfaction with recovery (mean).^c Retention with recovery (mean).

difficult to remediate should be prevented from occurring in the first place.

5.3. Effects of satisfaction, repeat purchase intention and recovery strategies

According to Table 4, the satisfaction for service recovery strategies were between 1.3 (failure escalation) and 7.7 (correction plus). Among these strategies, “correction”, “correction plus”, “discount”, “store credit” and “refund” were given a level greater than 5. Apparently, positive service recovery strategies generally maintain customer satisfaction. Besides, the above-mentioned service recovery strategies also enhanced buyers repeat purchase intentions. The repeat purchase intention levels all exceeded 5. However, online customers can easily switch to another service provider by simply clicking their mouse, so the time and effort required to switch service providers are substantially reduced (Bergeron 2001). For instance, collecting information about service providers becomes less effort-taking, and there is no emotional cost of switching since there is no interpersonal interaction in online shopping (Price and Arnould 1999). Therefore, compared with shopping in brick-and-mortar stores, online shopping entails much lower switching costs (Bergeron 2001). For this reason, the likelihood of a buyer repurchasing goods from a seller after experiencing a previous service failure is very low (Forbes et al. 2005). However, the current study revealed different findings. As Fig. 1 shows, in cases of “pricing failure”, “packaging problem”, “size variation”, “mischarged” and “out of stock”, proper recovery strategies substantially enhanced buyer repeat purchase intentions.

5.4. Service failures and corresponding recovery strategies

Table 5 shows the results of further analyses to explore the frequency and effect of various recovery strategies for each service failure, buyer satisfaction and repeat purchase intention. For example, all strategies were used to correct “slow/unavailable service” failures. “Correction” was the most frequently used followed by “unsatisfactory correction” and “correction plus”. Of all the strategies, “correction plus” was most effective (satisfaction 7.7 and repeat purchase intention 7.1), and the effect of “store credit” was also considerable (satisfaction 6.0 and repeat purchase intention 7.0). “Correction” tended to result in good satisfaction (6.8) but not repeat purchase intention (5.8). The rest of the recovery strategies indicated that they should be avoided.

6. Conclusions and suggestions

6.1. Conclusions and implications

This study probed the service failures generated in the delivery of online auction services and recovery strategies adopted to correct the failures. Three groups and eighteen categories of service failures as well as ten recovery strategies were obtained. Analysis of “service failure severity – post-recovery repeat purchase intention matrix”, revealed that “alterations and repairs”, “gap between expectations and perceptions”, “seller fraud problem”, and “leak of personal data” are failures that should be imperatively avoided, because correction of these failures could not effectively enhance buyers’ repeat purchase intention. That is, sellers have great difficulty regaining buyer repeat purchase intention through service recovery after one of the above failures occurs. Other effective recovery strategies may be developed in the future. However, until then no strategy can be considered effective for correcting these service failures. Thus, sellers should pay extra attention to these four failures, strive to avoid them, and try to develop new and proper strategies.

“Pricing failure”, “packaging problem”, “size variation”, “mischarged” and “out of stock” are critical failures, but effective recovery can actually increase buyer repeat purchase intentions. Thus, the harm caused by these failures to service providers can be effectively reduced. Through this analysis, we were allowed to have deeper understanding about service failures and recoveries in online auction and also avoided the incomplete information obtained by only ranking the severity of service failures.

Many similarities and dissimilarities were noted between service failures and recovery strategies among brick-and-mortar retail stores (Kelley et al. 1993), shopping websites (Forbes et al. 2005), and online auctions. Compared with brick-and-mortar retail stores (Kelley et al. 1993), online auctions have extra four different service failure categories, including “size variation”, “gap between expectation and perception”, “seller fraud problem”, and “leak of personal data”. Failure of “accused of shoplifting” is nonexistent in online auction. The service recovery in online auctions revealed no new strategy, but “manager intervention” and “customer (buyer)-initiated correction” were not occurred in online auction. Compared with shopping websites (Forbes et al. 2005), online auction revealed a new group of failures, “unprompted and unsolicited seller actions”, and four different categories, including “policy failure”, “hold disaster”, “alterations and repairs” and “gap between expectation and perception”. However, “website system failure” in shopping websites is absent in online auction. In terms of service recovery, the “replace at brick-and-mortar” strategy was absent in online auction. The above comparison indicates that, because online auctions require interpersonal interaction, more service failure categories occur in online auction than in shopping websites. In addition, online auction recoveries are similar with the recoveries used in brick-and-mortar retail stores and shopping websites. Online auction sellers have not developed their own recovery strategies, and most of their strategies have been borrowed from brick-and-mortar retail stores. Thus, in the online auction trading environment, sellers should make more efforts to manage their auctions in professional manners, so as to avoid the negative impact of service failures.

Online auction sellers may use different recovery strategies for the same service failure, and different strategies have different correction effects. Hence, if a service failure occurs during the service delivery process, sellers should first identify the failure and later refer to the recovery effects (satisfaction and post-recovery repeat purchase intention in Table 5) of this study to select an optimal strategy. Through this procedure, the service recovery quality in online auction can be enhanced and developed.

6.2. Limitations and future research

Most respondents surveyed in this study were aged between 20 and 29 years old (82.7%) and few were aged above 30 years old. Possible reasons for the difficulty in collecting responses from buyers aged over 30 years old include the following. (1) Web-based CIT requires respondents to type answers on a computer. However, some older respondents found typing was inconvenient (especially typing in Chinese), affecting their willingness to participate. (2) Buyers aged over 30 years old are often busy with work and enjoy a relatively good economic situation. However, owing to financial limitations, this study only offered 225 NTD100 store gift certificates as lucky draw prizes to successful respondents. Respondents thus had only a relatively low incentive to complete the questionnaire, and many likely preferred to use their precious time for other more important activities. The subjects are mainly young with low income. The failure severity and recovery satisfaction scores are affected by customer involvement with the product, and the study subjects may be inclined to purchase low-cost products. Purchasing cost is one determinant of involvement level, and

may disturb severity mean and render it valid only for the specific group of young people that buy low-cost products via online auctions. Because of the respondents' age and income level bias, follow-up studies can extend sample scope into other demographics. Besides, in web-based CIT survey, responses cannot be as detailed as those obtained through in-person interview. Sometimes, the researchers could hardly grasp the message that respondents attempted to convey. The difficulty in classification was increased as a result.

This study focused on buyer perspectives of online auctions, nevertheless, previous studies indicate that buyer-initiated service failures cannot be obtained if the failures are analyzed from the buyers (Bitner et al. 1994). The service failures discussed in this study were mostly seller-initiated, and only 0.3% of the failures were initiated by buyers (admitted buyer error). However, in practical scenarios, buyer-initiated failures may take a much higher proportion. Thus, the drawback of identifying failures from the buyer perspective only is that not all service failures in online auction are revealed.

This study recommends conducting further studies to test the relationship between service failure severity and repeat purchase intention, and also between satisfaction with recovery and repeat purchase intention, differentiating between groups. Additionally, a follow-up study can clarify how service recovery strategies affect customer loyalty and word-of-mouth. Variables affecting consumer behaviors can also be taken and examined to clarify their moderating effects on the influence of service failure types, severity levels, attributes and customer involvement in recovery strategy, perceived justice and overall satisfaction. Integrating these data with the current findings would provide additional insight. Finally, the service failure incidents discussed in this study were collected from the buyer perspective. Future studies can collect service failure types and recovery strategies from the seller perspective. This approach would obtain new findings and provide more comprehensive information regarding the service failures and service recovery in online auction.

Acknowledgements

This research is supported by a grant to the first author from National Science Council (NSC 97-2410-H-390-014-MY2), Taiwan. The authors thank Professor Robert J. Kauffman, Professor Charles A. Wood and two anonymous reviewers for their helpful comments on earlier versions of this manuscript.

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