



Satisfaction and dissatisfaction in online auctions: an empirical analysis

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Abstract

Purpose – The purpose of this paper is to empirically test the validity of a two-factor theory for seller service quality in the online auction context.

Design/methodology/approach – A sample of 2,000 buyer feedbacks about seller performance (1,000 positive and 1,000 negative) was collected from eBay. Content analysis of positive and negative feedback was conducted and the frequencies of mention of specific service quality attributes were compared.

Findings – Analysis of total mentions and exclusive mentions of service quality attributes showed significantly different content for positive and negative feedback, supporting the validity of two-factor theory in this context and adding to the understanding of customer expectations in this environment.

Practical implications – The paper's findings can guide sellers' allocation of efforts in service design, so they can establish and maintain the reputation necessary to attract bidders and successfully compete in high-risk online environments like eBay.

Originality/value – The paper extends the understanding of quality determinants in a service environment substantially different to traditional environments because of the risks to which buyers are exposed, information asymmetry, and the lack of previous experience with buyers. In addition, the finding of support for two-factor theory is in a direct contrast with the conventional, one-factor model subscribed by most quality researchers in the operations management field, and highlights the importance of investigating customer satisfaction and dissatisfaction separately in the online auction environment.

Keywords Customer services quality, Auctions, Customer satisfaction, Internet shopping

Paper type Research paper

1. Introduction

The identification of the determinants of quality has been the focus of research for many years. While researchers have attempted to identify a common set of determining factors to better define quality, most agree that quality is defined differently in different situations (Reeves and Bednar, 1994; Sousa and Voss, 2002). With the advent of the internet, the situations to which customers are exposed have changed substantially from those examined by early quality researchers. A number of new channels have emerged, one of which is the online auction, most notably, eBay. eBay (2008) currently is the largest online auction house with a sales volume over \$60 billion and an average of 81 million unique visitors per month. Despite its growth and popularity, the online auction environment is risky, especially to online auction buyers, when compared to traditional brick and mortar channels. Much of this risk has its roots in an increasing lack of familiarity between the buyer and seller, which creates an anonymous market. In such a market, a buyer faces two dominant risks: being the victim of fraud (paying for,



but never receiving, the product) and receiving goods that were not as expected. The great risk exposure in these markets makes a buyer's feedback on seller important information for potential buyers.

Online auction houses typically use reputation systems to communicate a seller's performance history to potential buyers. However, it also provides the seller an opportunity to identify and understand the determinants of customer satisfaction and dissatisfaction. One framework for an improved understanding of customer satisfaction is to apply two-factor theory to the service quality setting. Researchers have tested two-factor theory with varying levels of agreement, arguing that customers have different satisfiers and dissatisfiers that reflect their different expectations of service experiences (Swan and Combs, 1976). However, this theory was developed largely in a conventional service setting, making it unclear as to whether the theory is valid in a high-risk online action environment. In addition, little is known as to which dimensions of service quality are important to customer satisfaction and dissatisfaction in the online auction context.

Notably, two-factor theory contradicts the conventional view in the existing online service quality literature in the operations management (OM) field. Two-factor theory argues that satisfaction and dissatisfaction are not necessarily the same constructs, each of which can be caused by various facets of interaction between the individual and different stimuli (e.g. service quality dimensions). In contrast, the view held by most OM researchers studying online service quality is a traditional, one-factor theory that postulates satisfaction and dissatisfaction as opposite on a single, bipolar continuum. Proponents of the one-factor theory do not differentiate between various service quality dimensions that may lead to customer satisfaction and/or customer dissatisfaction. Consequently, no inquiries have been made to investigate the roles of different online service quality dimensions on customer satisfaction and dissatisfaction.

These two divergent views, two-factor versus one-factor theory, lead to our central research question: Is there systematic evidence indicating that service quality dimensions play different roles in customer satisfaction and dissatisfaction? Specifically, this exploratory study is designed to extend the understanding of customer satisfaction determinants in high-risk online auction environments by investigating whether buyers' evaluation of seller service performance can be explained by a two-factor model, i.e. that those service quality attributes of online auction sellers that dissatisfy customers are not simply mirror images of those attributes that satisfy them. An in-depth understanding of the determinants of customer satisfaction and dissatisfaction with seller service quality in the online auction environment will provide insight for these sellers to prioritize aspects of their service design, enhance reputations, attract more potential buyers, and eventually improve their profitability. In addition, this research will form a foundation for future research. Precise identification of the determinants of customer satisfaction and dissatisfaction in emerging environments is necessary if these environments are to thrive and grow. This research objective is accomplished through empirical investigation of a sample of 2,000 buyer feedbacks about seller performance (1,000 positive and 1,000 negative) collected from eBay. Results provide strong support for the existence of different determinants of satisfaction and dissatisfaction, contributing to a better understanding of customer satisfaction and dissatisfaction in this emerging environment. The finding of support for two-factor theory also calls for investigation of customer satisfaction and dissatisfaction separately in the online auction environment.

The remainder of the paper is organized as follows. First, we review the relevant literature and develop our hypotheses. Next, we describe our data collection and coding process, followed by data analysis and discussion. Finally, we present contributions, limitations, and future research, and conclude with managerial implications of the study.

2. Literature review and research hypotheses

2.1 Defining service quality dimensions

Many service quality dimensions have been proposed in the existing literature (Parasuraman *et al.*, 1988; Fitzsimmons and Fitzsimmons, 2000). Some researchers contend that a universal set of dimensions does not exist. Instead, they have recommended that different definitions of quality should be used for different contexts (Carman, 1990; Reeves and Bednar, 1994; Dotchin and Oakland, 1994; Harrison-Walker, 2002; Seth and Deshmukh, 2005; Chowdhary and Prakash, 2005). Prior studies have discovered that in the online context some traditional service quality dimensions may not be relevant and additional ones may be necessary (Torkzadeh and Dhillon, 2002; Burke, 2002; Parasuraman *et al.*, 2005).

An extensive literature review of studies that focus on service quality dimensions in online contexts shows that, although the list of service quality dimensions is not identical across different studies, a similar set of dimensions has been emphasized in both existing academic literature (Wolfenbarger and Gilly, 2003; Field *et al.*, 2004; Behara and Gundersen, 2001; Parasuraman and Zeithaml, 2002) and the major online rating sites (Table I). In general, these quality dimensions can be classified into two categories. The first category captures the quality of the web site interface, which includes web site design and security/privacy. Web site design connotes consumers' experience at the web sites (except for customer service), including navigation, information search, order processing, appropriate personalization, and product selection. Security/privacy refers to the security of payment and privacy of shared information.

The second category goes beyond the web site interface and emphasizes the service delivery process. Among these dimensions are fulfilment reliability, fulfilment speed, and customer service. Customer service describes the seller's willingness to respond to customers' needs quickly and helpfully. Fulfilment reliability emphasizes that customers receive what they thought they ordered within an expected time frame. Fulfilment speed indicates how fast the product is delivered to the customers. Some previous studies combine fulfilment reliability and fulfilment speed into one category. For instance, Field *et al.* (2004) define fulfilment/reliability as accurate product representation so that customers receive the right products, and delivery speed. We believe it is important to separate fulfilment speed from fulfilment reliability. The differences between speed and reliability have been highlighted in the traditional service quality literature, where reliability (i.e. the ability to perform the promised service dependably and accurately) and responsiveness (i.e. the ability to provide prompt service) are proposed as distinct dimensions (Parasuraman *et al.*, 2005).

Following Sousa and Voss's (2002) statement, that quality dimensions should be consistent with relevant dimensions of organizational output, we find that some of the service quality dimensions listed in Table I lose relevance in the context of eBay sellers' service quality. Different from traditional e-service settings, eBay's web-user interface is designed to be the same for all eBay sellers. As a result, the quality of the web site

E-service quality dimensions	Definition	Academy literature										Online rating sites			
		1	2	3	4	5	6	7	8	9	10				
<i>Quality of the web site interface</i>															
Web site design	Consumer's experience at the web site (except for customer service), including navigation, information search, order processing, appropriate personalization, and product selection	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Security/privacy	Security of payment and privacy of shared information	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Beyond the web site interface</i>															
Fulfillment/reliability	Accurate display and description of products and delivery of the right product within the time frame promised	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fulfillment speed	Responsible, helpful, willing service that responds to customer inquiries quickly	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Customer service		X	X	X	X	X	X	X	X	X	X	X	X	X	X

Sources: 1 – Wolfmarger and Gilly (2003); 2 – Field *et al.* (2004); 3 – Parasuraman *et al.* (2005); 4 – Heim and Simha (2001); 5 – Cai and Jun (2003); 6 – Yen and Lu (2008); 7 – Francis (2007); 8 – ePublic eye; 9 – BizRate; 10 – Rating wonders

Table I.
E-service quality dimensions identified in existing literature

interface (which includes both web site design and security/privacy) is not within the seller's control. The service quality dimensions that are relevant to eBay sellers are fulfilment reliability, fulfilment speed, and customer service. Since most customer service activities in eBay involve the timeliness and effectiveness of communications between buyers and sellers, we modified the customer service dimension to be a more specific communication dimension. This communication dimension is similar to the contact dimension in Yen and Lu (2008), the responsiveness dimension discussed in Madu and Madu (2002), and the access dimension in the service quality literature (Parasuraman and Zeithaml, 2002).

In sum, we propose fulfilment speed, fulfilment reliability, and communication to be the key service quality attributes of sellers in the online auction environment. Our conceptualization is aligned with that of recent studies such as Field *et al.* (2004) and Yen and Lu (2008). Their importance is also evidenced by major online rating sites.

2.2 Online feedback systems

The presence of online feedback systems has offered a unique data source for academia and practitioners to investigate service quality issues, which in turn affect seller reputation. The importance of online feedback has been substantiated by prior research finding a significantly positive relationship between sellers' reputation and selling prices (Ba and Pavlou, 2002; Melnik and Alm, 2002). Unfortunately, beyond research devoted to finding links between seller reputation and price, little research has examined the actual feedback to understand service quality issues, except for the seminal work by Finch (2007). In that study, however, service quality was treated as an aggregate variable, and the investigation of specific service quality dimensions mentioned in the feedback system is lacking. Moreover, Finch only investigated service quality associated with customer satisfaction. The relationship between service quality and customer dissatisfaction has yet to be explored.

2.3 Two-factor theory and research hypotheses

2.3.1 Two-factor theory literature in quality management. One framework for understanding the various dimensions of service quality related to customer satisfaction and dissatisfaction is two-factor theory, which postulates that satisfying a customer and dissatisfying a customer are not simply mirror images of each other. The application of two-factor theory to quality research was started by Swan and Combs (1976). The authors found that only satisfactory expressive performance produced customer satisfaction, while unsatisfactory instrumental performance led to customer dissatisfaction.

In research devoted to service quality, Cadotte and Turgeon (1988) were among the first to extend the research into the service context with an analysis of compliments and complaints in a restaurant context. They identified dissatisfiers that, when performance was poor, led to dissatisfaction and complaints, but when performance was high did not cause compliments. They identified satisfiers in which very good performance resulted in satisfaction and compliments. Poor performance or absence of a satisfier did not result in dissatisfaction and complaints. They also identified "critical" attributes that elicited positive and negative feelings and acted as both satisfiers and dissatisfiers. Other studies that support the existence of two-factor theory in specific service contexts include Jones *et al.* (1999) in the hotel setting, and Johnston (1995) in the bank setting.

Overall, previous studies highlight differences between causes of customer satisfaction and dissatisfaction, and provide ample evidence supporting the existence of two-factor theory in traditional brick-mortar service quality contexts. In addition, the existing literature also suggests that the two-factor theory in service quality can manifest itself in several different ways:

- some service quality attributes may be exclusively dissatisfiers or satisfiers (Swan and Combs, 1976);
- some service quality attributes may not be exclusively dissatisfiers or satisfiers, but may be more important as one or the other (Johnston, 1995; Chowdhary and Prakash, 2005); and
- some service quality attributes may be equally important as satisfiers and dissatisfiers (Cadotte and Turgeon, 1988).

2.3.2 Literature in online auction setting. Even though two-factor theory has been proven valid in the traditional service quality setting, all of the existing e-quality literature in the OM field has focused on the linkage between various service quality dimensions and customer satisfaction only. For instance, Heim and Sinha (2001) showed that quality dimensions associated with both order fulfilment and order procurement contribute to customer loyalty in the context of electronic food retailers. Boyer and Frohlick (2006) found that service quality and time savings are the two most important predictors for online customer future-buying behaviour. Altogether, OM e-quality research has subscribed to the conventional, one-factor model and implicitly assumed determinants of satisfaction and dissatisfaction to be simple mirror images.

Departing from this one-factor model, research findings from several online auction studies detect the existence of different patterns when it comes to customer satisfaction and dissatisfaction. For example, Standifird (2001) found no significant relationship between positive rating and price, but a strong inverse relationship between negative rating and price, when analyzing eBay feedback data. Unfortunately, most online auction research is limited to exploring the link between price and positive rating (reflecting customer satisfaction) and negative rating (reflecting customer dissatisfaction). Whether different patterns exist in terms of quality determinants of positive rating and negative rating in this environment still remains unclear. A related area of research devoted to the complimenting and complaining behaviour of customers using third-party consumer evaluation web sites, however, provides further insight (Friman and Edvardsson, 2003; Hogarth *et al.*, 2001). The most relevant study, Goetzinger *et al.* (2006), explored complaints and compliments (analogous to negative and positive feedback) left by consumers from more than 32,000 e-stores. They found that some specific themes applied only to compliments or only to complaints, but others applied to both compliments and complaints. Topics were categorized as bivalent satisfiers if they applied to compliments and complaints, and monovalent satisfiers if they applied only to compliments. Monovalent dissatisfiers applied only to complaints. This study suggests the need to separately analyze customer feedback related to customer satisfaction and dissatisfaction.

In summary, our literature review reveals a great need and support to investigate the two-factor theory in the online auction environment. First, while existing literature on e-service quality contributes to our understanding of quality determinants of customer satisfaction in the online environment, it also fails to examine the underlying

assumption of the conventional one-factor model before adopting it. As a result, this approach limits the potentials of research findings. Second, previous studies in online auction settings, and compliment and complaint literature, suggest that customer satisfaction and dissatisfaction have different patterns, emphasizing the necessity to investigate customer satisfaction and dissatisfaction, separately. Because two-factor theory evaluates quality determinants in both positive and negative experiences, it provides a useful theoretical lens to decode buyer satisfaction and dissatisfaction embedded in positive and negative feedback in the online auction setting.

2.3.3 Research context and hypotheses. The design of eBay's feedback system provides a natural setting to conduct this research. In eBay's feedback system, buyers are allowed to record their feedback regarding the seller for the specific transaction as either "positive," "neutral" or "negative." This overall assessment of the specific transaction by online auction buyers indicates either customer satisfaction (as labelled "positive") or customer dissatisfaction (as labelled "negative"). (Neutral is an expression of a mixed reaction or no opinion one way or the other. We exclude these feedbacks. More explanation is provided later.)

eBay also allows buyers to leave any specific comments that follow their initial evaluation of "positive" or "negative." These feedback contents offer us determinants of the buyer's satisfaction or dissatisfaction. Building upon the literature reviewed previously, we propose that seller's service quality dimensions that satisfy online auction buyers are not simple mirror images of those that dissatisfy buyers. When some manifestation of two-factor theory is present, we expect to see a content difference between positive and negative feedback. Specifically, for each service quality dimension identified earlier, if the likelihood of mentioning it in positive feedback and the likelihood of mentioning it in negative feedback are statistically different, it indicates that the role of this particular service quality dimension in generating customer satisfaction and dissatisfaction is different. We use two approaches to operationalize the likelihood of mentioning each of the quality dimensions. The first is to use total frequencies as indicators:

- H1.* The total frequencies of positive feedback mentioning fulfilment speed (fulfilment reliability/communication) will differ significantly from the total frequencies of negative feedback mentioning fulfilment speed (fulfilment reliability/communication) in the online auction environment.

In an individual feedback post, each service quality dimension can be mentioned alone or jointly with others. The first approach does not differentiate those two. As long as a dimension is mentioned, jointly or alone, it indicates that the dimension is important. The second approach, however, focuses on exclusive mention of a dimension. The assumption is that when a buyer mentions two dimensions in a negative feedback post, for instance, it indicates that both are important enough to be mentioned, but it is possible that one alone would not be sufficient to result in an overall negative feedback. In other words, exclusive mention of a dimension captures the unique contribution of it in generating customer satisfaction and dissatisfaction, which provides further investigation on the existence of the two-factor theory. Thus, we present *H2*:

- H2.* The frequencies of positive feedback exclusively mentioning fulfilment speed (fulfilment reliability/communication) will differ significantly from the frequencies of negative feedback mentioning fulfilment speed (fulfilment reliability/communication) in the online auction environment.

3. Data collection and coding

The data were collected in 2007, consisting of the 50 most recent positive and negative feedback posts from a sample of 20 sellers (a total of 2,000 feedback posts, with 1,000 positive and 1,000 negative). Neutral feedback was not included since buyers did not treat a neutral classification consistently. A review of neutral feedback showed that it was impossible to clearly conclude “neutral” comments as customer satisfaction or dissatisfaction. To ensure that the data suitably represented actual businesses, the sellers selected were the 20 largest US-based ones on the top 10,000 eBay sellers list (www.Sellathon.com 2006).

Two graduate student scorers were trained to code each feedback post against three service quality dimensions – fulfilment speed, fulfilment reliability, and communication. Each dimension was coded using a dichotomous, mentioned/not-mentioned, scale. The scorers were given specific written instructions including keywords to follow. Keywords such as fast delivery, fast/quick shipping, fast service, and quick turnaround resulted in a coding of one for “fulfilment speed” for a feedback post. Fulfilment reliability was recorded when feedback comments referred to the seller doing what was promised. Examples included phrases commenting the seller meeting promises implied by the accurate display and the description of the product being auctioned, as well as promises regarding delivery time. When a feedback post mention delivery time, fulfilment speed is coded when it is related to how long a delivery took, and fulfilment reliability is recorded when it refers to the product being delivered when it was promised. Finally, communication was coded as “1” when the feedback included comments that referred to the seller being responsive to e-mails, helpful, and providing willing service that responded to customer requests or inquiries. Samples of categorized feedback posts are provided in Table II.

As a part of their training, the scorers coded a test sample of feedback posts using the instructions. Their performance was evaluated by the researchers, who then provided clarifying instructions to minimize errors and eliminate ambiguity. Following the training, the two scorers independently coded each of the 2,000 feedback posts. The inter-rater reliability is very high with the total agreement exceeding 97 percent. Table III provides the agreement percentages, by category. Disagreement on the scoring of any feedback post resulted another evaluation round, in which a consensus was reached after discussion.

Feedback text	Coding		
	Fulfilment speed	Fulfilment reliability	Communication
Product exactly as described. Just as what I wanted		1	
Quick shipping, great e-mails	1		1
Good communication/fast delivery	1		1
Never received product. Seller does not respond to e-mails		1	1
Not the same model as pictured in auction		1	
Great seller. A+ + + ^a			

Note: ^aThis feedback post did not have specific comments related to any of the three service dimensions. Therefore, for this post each service attribute was coded as 0

Table II.
Sample of categorized feedback posts

4. Analysis and results

The unit of analysis was at the individual feedback level. Table IV reports the frequency of total and exclusive mention of each service quality dimension among the 1,000 positive and 1,000 negative feedback posts. To test *H1*, for each service quality dimension we performed a two-sample *z*-test for sample proportions between the positive and the negative feedback sample (Bowerman *et al.*, 2004). It is worth noting that the data collection method used here is similar to the “critical incidents” technique in which people leave comments about things that they recall rather than provide answers to questions specifically raised by the researchers. Hence, conventional analysis methods such as regression are not appropriate. In addition, for each feedback post the three service quality categories are not mutually exclusive, thus the chi-square test is not appropriate either.

Results of these *z*-tests are shown in Table V. Highly significant differences between negative and positive feedbacks for the proportions of fulfilment speed, fulfilment reliability, and communication ($p = 0.000$) were found, supporting *H1*. Specifically, the likelihood of mentioning fulfilment speed is higher in positive feedbacks than in negative feedbacks. About 41.9 percent of the positive feedbacks mentioned fulfilment speed, while only 7.7 percent of the negative feedbacks mentioned it. For fulfilment reliability and communication, the possibility of mentioning them is higher in negative feedbacks than in positive feedbacks. A total of 44.3 and 2.9 percent of the positive

Table III.
Summary of
inter-rater reliability

Quality dimension	Fulfilment speed	Fulfilment reliability	Communication
Percent agreement	99.23	93.47	98.87

Table IV.
Descriptive statistics

Type of feedback	<i>n</i>	Frequency of total mention	Frequency of exclusive mention
<i>Fulfilment speed</i>			
Positive	1,000	419	236
Negative	1,000	77	35
<i>Fulfilment reliability</i>			
Positive	1,000	443	263
Negative	1,000	728	436
<i>Communication</i>			
Positive	1,000	29	5
Negative	1,000	359	72

	<i>z</i>	Mean difference	SE difference	Significance (two-tailed)
Fulfilment speed	19.275	0.342	0.018	0.000
Fulfilment reliability	-13.507	-0.285	0.021	0.000
Communication	-13.507	-0.330	0.016	0.000

Table V.

Note: Results of comparison of frequency for total mention of fulfilment speed, fulfilment reliability, and communication between positive and negative feedback samples

feedbacks mentioned fulfilment reliability and communication, respectively; about 72.8 and 35.9 percent of the negative feedbacks mentioned them, respectively.

H2 extends the feedback analysis by evaluating each service quality dimension's unique contribution to buyer satisfaction and dissatisfaction. Similarly, we conducted a series of two-sample *z*-tests to compare the proportion of exclusive mention of each service quality dimension out of the 1,000 positive and 1,000 negative feedbacks (Table VI). Our analysis showed that the power of each service quality dimension alone in triggering buyer satisfaction versus dissatisfaction is significantly different ($p = 0.000$). Of the positive feedback posts, 23.6 percent exclusively mentioned fulfilment speed, 26.3 percent exclusively mentioned fulfilment reliability, and 0.5 percent exclusively mentioned communication. Of the negative feedback posts, 3.5 percent exclusively mentioned fulfilment speed, 43.6 percent exclusively mentioned fulfilment reliability, and 7.2 percent exclusively mentioned communication. Therefore, *H2* is also supported.

5. Discussion

Overall, our study found strong support for the existence of two-factor theory in the online auction context, with empirical evidence indicating that sellers' performance on fulfilment speed, fulfilment reliability, and communication contribute differently to buyer satisfaction and dissatisfaction. Specifically, fulfilment speed appears to be more important as a satisfier than as a dissatisfier. Fulfilment reliability and communication, on the other hand, appear to be stronger dissatisfiers than satisfiers. These results are consistent with some earlier two-factor studies, which suggest that service quality dimensions may not be exclusively dissatisfiers or satisfiers, but may just be more important as one or the other (Johnston, 1995; Goetzinger *et al.*, 2006).

Furthermore, communication is rarely mentioned exclusively in feedback. Of the negative feedbacks mentioning communication, only 20 percent of them mentioned it exclusively. In contrast, 60 percent of the negative feedbacks that mentioned fulfilment reliability expressed dissatisfaction with fulfilment reliability exclusively. A potential explanation of the differences behind these two cases is the notion of "means to ends" versus "ends" *per se* (Swan and Combs, 1976). Receiving the exact product as the customer wants, which is captured by fulfilment reliability, is the ends of the transactions. It is important on its own. Good communication is only a means leading to the ends. It alone is not necessarily important enough, but if other issues are raised, it is often added to the feedback. Hence, communication can be viewed as a "qualifying" factor and fulfilment reliability is similar to the "vantage" factor as described by Chowdhary and Prakash (2005). This finding also concurs with Keeney's (1999) conceptualization of means objectives versus fundamental objectives when classifying the value of internet commerce.

	<i>z</i>	Mean difference	SE difference	Significance (two-tailed)
Fulfilment speed	13.731	0.201	0.015	0.000
Fulfilment reliability	-8.246	-0.173	0.021	0.000
Communication	-7.904	-0.067	0.008	0.000

Note: Results of comparison of frequency for exclusive mention of fulfilment speed, fulfilment reliability, and communication between positive and negative feedback samples

Table VI.

In addition, we conducted *ad hoc* analyses to explore the relative importance of each dimension compared to others. Bonferroni multiple pairwise comparisons on the frequencies of exclusive mentions of each dimension within the positive and negative feedback samples showed significant differences across all dimensions. In both positive and negative samples, fulfilment reliability was found to be the most important dimension, and identified as “critical” (Cadotte and Turgeon, 1988). The relative importance of fulfilment speed and communication switched, however, as the sample changed from positive to negative feedback. Fulfilment speed was more important in positive feedback, while communication was more important in negative feedback. This supports early findings that fulfilment speed is more of a satisfier and communication is more of a dissatisfier.

6. Conclusions, limitations, and future research

This research explores “if” and “how” two-factor theory manifests itself in the context of online auctions. Four important contributions are made to the existing literature. First, this research is one of the first to make separate inquiries on the service quality determinants of customer satisfaction and customer dissatisfaction in the newly emerging online auction environment. The findings of empirical support for the two-factor theory in the online auction environment not only prove the applicability of the theory in a new environment, but also challenge the traditional one-factor theory adopted by the majority of OM service quality research in internet settings. It highlights the importance of investigating customer satisfaction and customer dissatisfaction separately. More importantly, it calls for researcher’s attention to examine the underlying assumptions of the theories before they use them.

Second, this study extends the existing online auction literature which largely focuses on the link between a seller’s overall reputation and the selling price, to analyze the specific feedback content stored by eBay’s feedback system and provides an example of how eBay feedback data can be used to expand our understanding of the relationships between online auction seller’s service quality and customer satisfaction/dissatisfaction.

Third, this study adds to our understanding of the two-factor theory in the online auction environment by going beyond its primary hypotheses related to the question of “if” two-factor theory exists in this environment and begins to explore “how” two-factor theory manifests itself in this context. Our analyses suggest that the role and importance of fulfilment reliability, fulfilment speed, and communication are different in triggering customer satisfaction and dissatisfaction, thereby paving ways for future research. Building upon this exploratory work, future research can theorize “why” these service quality dimensions are different and “what” factors may lead to the changes of these differences.

Fourth, in contrast to traditional research methods employed in empirical OM research, this study relies on customer’s voluntary feedback to analyze seller’s service quality contributing to customer satisfaction and dissatisfaction. The use of these unobtrusive data collected directly from eBay provides an opportunity to triangulate research findings with those obtained from traditional data collection methods like surveys. Future research can consider replicating the same study using other data collection methods to further assess the validity of the findings.

Finally, it is important to recognize the scope and limitations of this study. One limitation could be our focus of three service quality dimensions. Even though fulfilment

speed, fulfilment reliability, and communication have been recognized as important quality dimensions in our research setting, other aspects of quality also could exist. Our content analysis revealed that buyers sometimes comment on product quality or “service” in general. In both cases, these comments were coded as zero for the three service quality dimensions investigated in this research and were too general for meaningful empirical analysis to be performed. Future research could follow up with buyers who left general comments and discover what exactly they referred to. Such efforts may result in the discovery of more service quality dimensions contributing to online auction buyer’s satisfaction and dissatisfaction.

One also could argue that the types of products being sold may impact the importance of service quality dimensions. Although interesting, the investigation of the role of product type is beyond the scope of this research. Instead, we chose to compare positive and negative feedback collected from the same sellers. By doing so, we controlled for the potential variations related to the product type. Future research could further investigate online auction buyer satisfiers and dissatisfiers related to specific product categories.

Online auctions present sellers with both opportunities and challenges. On one hand, online auctions allow sellers to reach a large number of new customers, creating business opportunities. On the other hand, the risk associated with doing business with strangers in this anonymous environment influences buyers’ willingness to participate. In order to attract buyers, sellers must promote their service quality and prove their reputation. To that end, this research has important managerial implications for online auction sellers by helping them better understand customers’ expectations and shedding light on the most effective ways to design their service. This research provides online auction sellers with insights regarding the prioritization of their efforts to maximize customer satisfaction and minimize customer dissatisfaction, both of which have been shown to affect selling price.

First, this study found that fulfilment reliability, fulfilment speed, and communication are all important for sellers wishing to improve their quality, reputation, and, ultimately, their profitability in the online auction environment. eBay, in its recently updated feedback system, has expanded seller choices beyond just providing a negative/positive/neutral evaluation with a comment. The new system also allows users to rate performance (from one to five “stars”) on description accuracy, seller communication, speed of shipment, and shipping handling charges. It is interesting to note that three of the four categories created in eBay’s new reputation system (i.e. description accuracy, seller communication, and speed of shipment) coincide with the three service quality dimensions identified in this study – fulfilment reliability, communication, and fulfilment speed, which provides additional support for the validity of our findings.

Furthermore, our study provides several guidelines for the seller regarding the role of each service quality dimension:

- fast delivery pleases customers, but is not necessary to avoid negative feedback;
- poor fulfilment reliability is sufficient, on its own, to generate a complaint; and
- poor communication is not important to the buyer unless there is another problem with the transaction, in which case it will add to the buyer’s frustration and dissatisfaction.

When sellers are faced with a tradeoff between fulfilment reliability and fulfilment speed, these guidelines may be particularly useful. For example, suppose a seller has a

choice between sending a product that is not exactly what the buyer expects or waiting a few days to send the desired product. Sending a less desirable product in order to perform highly on fulfilment speed, while sacrificing fulfilment reliability, would not be a wise choice. Likewise, devoting resources to elaborate communication exchanges is not likely to result in enhanced reputation, but a structured recovery system, which communicates effectively whenever problems arise, would be more in line with customer expectations.

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