

Assessing and managing e-commerce service convenience

Jung-Yu Lai · Khire Rushikesh Ulhas · Jian-Da Lin

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Abstract Due to the burgeoning growth of electronic commerce (EC or e-commerce), online shopping has become a key competitive strategy for online retailers (e-retailers) to attract more customers, expand market boundaries, and create more benefits. Service convenience (SERVCON), a concept of benefit and related to customer satisfaction and retention, has received increasing attention and is now treated as an important factor in shopping behavior. Unfortunately, the literature on convenience has explored only traditional retailers. Thus, this research attempts to apply the results of marketing and information management (IM) research concerning customer service convenience with e-retailers. Based on a survey of 304 online shoppers (e-shoppers) in Taiwan, a 14-item e-commerce service convenience (EC-SERVCON) instrument was constructed. We then construct an EC-SERVCON managerial grid for managers to use in formulating strategy for improving service convenience. The instrument, findings, and implications of this study will be valuable to researchers and practitioners interested in designing, implementing, and managing e-commerce.

Keywords E-commerce · E-retailer · Online shopping · Scale development · Service convenience

J.-Y. Lai (✉) · K. R. Ulhas · J.-D. Lin
Graduate Institute of Technology Management, National Chung Hsing University,
No. 250, Kuo Kuang Road,
Taichung 402, Taiwan
e-mail: jyulai@nchu.edu.tw

K. R. Ulhas
e-mail: manukhire@gmail.com

J.-D. Lin
e-mail: daniels828@gmail.com

1 Introduction

With the growth of Internet technology, e-commerce now enables retailers to market products and complete transactions over the world-wide web (WWW). E-commerce has become an alternative for customers who are pressed for time. Furthermore, progress in Internet technology has provided heightened levels of interaction on websites, and consumers expect an equivalent response when shopping online. These new and better experiences encompass online collaboration, social networking and closer simulation of the in-store shopping experience. According to one survey, US online retail sales reached \$175 billion in 2007 and are projected to grow to \$335 billion by 2012 (Forrester Research 2008). Business-to-consumer (B2C) EC continues its double-digit year-over-year growth rate, in part because sales are shifting away from stores and in part because e-shoppers are less sensitive to adverse economic conditions than the average US consumer (Forrester Research 2008). A boom in online shopping has pushed online sales up in recent years, with experts predicting greater momentum in upcoming years (Matthew 2011). Despite the continuing growth of the channel, online retailers face several challenges. From the consumer standpoint, online stores are broadly perceived as a second choice for shoppers, online retail is becoming increasingly seasonal, and e-shoppers rarely admit to browsing. Therefore, building a new strategy for e-retailers to attract and retain e-shoppers becomes an increasingly important issue for e-commerce management (Mulpuru 2008).

Needless to say, location-independent service pooling is possible through e-commerce (Herden et al. 2003). While the bargain hunting is still a strong incentive for logging on and spending, the principle motivation is now convenience (Matthew 2011), as it enables consumers

to engage in e-commerce activities such as online shopping and interact with online vendors. Moreover, consumers can conveniently exploit round-the-clock online services with the least expenditure of time, effort, and money (Hofacker 2001). However, time and effort spent on searching for product information, accessing website locations, selecting products, browsing the website, completing transactions, and payment via electronic devices trouble e-shoppers (Abdul-Muhmin 2011). Because time and effort are becoming increasingly scarce, today's consumers not only search for convenience but truly need it (Seiders et al. 2000). Previous studies also show that the likelihood of online purchase increases as consumers' perception of online shopping convenience increases (Bhatnagar et al. 2000; Kwek 2010). Moreover, online consumers are driving national economic development (Matthew 2011). Therefore, explicit elucidation of the constituents of the service convenience from the consumer standpoint is indispensable.

Empirical research shows that firm performance increases with competition, eventually boosting the quality of the service delivered (Seiders et al. 2007). Technology induced competition has shifted the power balance from quality of service to convenience of service, exhibiting a tradeoff between consumers' perceived quality of service and convenience (Capps 2009). Prior studies, however, have mainly concentrated on investigating service quality in an e-commerce context. The literature supports the notion that consumers are likely to draw incorrect inferences while analyzing electronic services since unobservable quality functions are viewed through the lens of observable convenience (Kim and Park 2011). Competition in the online shopping arena is high, forcing retailers to offer high service quality, thus shifting consumers' idea of quality to convenience (Capps 2009). This contradicts the view common in the literature that convenience is the sole driver of consumer choice (Kim and Park 2011). This study thus adapts and refines the original SERVCON using the perceptions-minus-expectations (P-E) gap approach for assessing and managing customer service convenience in the e-commerce context. Additionally, relationships between e-commerce service convenience and its antecedents and consequents were evaluated. As a result, we are able to offer insights useful for guiding practitioners in how to improve e-commerce service convenience.

2 Domain of e-commerce service convenience

2.1 Using the P-E approach to measure EC-SERVCON

Since service organizations create value for consumers through service performance (Berry et al. 2002), service

providers must offer a certain level of procedural complexity instead of perfect convenience, which might mislead consumers (Kim and Park 2011) as well as e-retailers. The perception minus expectation (P-E) approach allows better understanding of the dynamics of customer assessment pertinent to services, meaning that greater explanation of the variance would be expected (Parasuraman et al. 1993). Therefore, for explicit characterization of the scale, the present study adopts the perception minus expectation approach. Despite its advantages, the P-E approach has stimulated debates concerning dimensionality (Carman 1990; Finn et al. 1996), the need to measure expectations (Babakus and Boller 1992; Cronin and Taylor 1992; 1994), the reliability and validity of difference-score formulation (Babakus and Boller 1992; Brown et al. 1993), and the interpretation and operationalization of expectations (Teas 1993a, b, 1994). However, developers have presented counterarguments, clarifications, and additional evidence to reaffirm the instrument's psychometric soundness and practical value for these issues (Parasuraman et al. 1991a; 1993; Parasuraman et al. 1994). Moreover, Parasuraman et al. (1994) argued that scores which identified service gaps have superior value, and provide more information compared to those which are only perception values (Tan and Kek 2004). Thereby, consumers may not understand the underlying facets of the service quality (Cronin et al. 2000). From the consumer viewpoint, service convenience appears to be comparatively simpler and could be directly experienced meaning that acquisition of appropriate consumer feedback is possible. In light of earlier arguments, it seems appropriate to use P-E approach to measure e-commerce service convenience.

The current study extends the SERVCON instrument, developed for the traditional shopping context by Seiders et al. (2007), to the online shopping context. Seiders et al. (2000) examined shopping convenience by developing a convenience framework related to consumer shopping speed and ease (Xie et al. 2010). Online shopping is the most widely accepted category of e-commerce services. Thus it would make sense to use it as a context for empirical assessment. It should be noted that the five dimension conceptual model proposed by Berry et al. (2002) is the most comprehensive research framework for understanding service convenience developed to date. The concept of service convenience is thus uncharted territory and no known research has empirically tested the propositions nor given an in-depth explanation of how to deliver convenience in service organizations (Xie et al. 2010). Therefore, for the purpose of empirical assessment of the SERVCON scale into e-commerce context, we have conceptualized e-commerce service convenience as consumers' time and effort perceptions

related to online shopping. This is proposed in the form of five different dimensions of convenience: decision, access, transaction, benefit and post-benefit convenience, using the perception minus expectation approach. However, it should be noted that the factor structure of instruments such as SERVQUAL and SERVPERF varies across industries (Cronin et al. 2000; Wong and Fong 2011). SERVCON, when applied to the e-commerce context may possess inherent e-commerce characteristics such as security and privacy. However, the e-commerce literature acknowledges such facets as significant antecedents of service quality (Hertzum et al. 2004; Yang and Jun 2002) rather than service convenience. Seiders et al. (2000) argued that customers viewed the retail experience as an integrated whole consisting of distinct but related parts. Service convenience is a multidimensional construct, and must be assessed within the limited context of customer activities related to the process of purchasing and using a service (Xie et al. 2010).

2.2 Overview of service convenience in the e-commerce context

The idea of convenience is originally proposed in the marketing literature by Copeland (1923). The notion of convenience was defined as cheap and easy to purchase. Kelley (1958) proposed convenience as an antecedent of the customer purchase decision. He also proposed ten dimensions of convenience, including form, time, place, quantity, packaging, readiness, combination, automatic, operations, selection, and credit, to illustrate the different kind of convenience goods. Morganosky (1986) defined a convenience-oriented consumer as a consumer who seeks to accomplish a task in the shortest time with the least expenditure of human energy. Consistent with traditional literature, the e-commerce paradigm offers evidence that consumers tend to be convenience-oriented (Bhatnagar et al. 2000; Kwek 2010; Gupta and Kim 2010). Furthermore, Berry et al. (2002) have proposed that time and effort are the two primary factors affecting customer service convenience in shopping behaviors and indicated five dimensions of service convenience: access, transaction, decision, benefit, and post-benefit convenience. In addition to providing accurate information, an e-retailer has the opportunity to maintain customer relationships with direct interaction. Further, longer delivery times, high shipping costs, poor customer responsiveness, and negative experience with return processes (Cowles et al. 2002) mean that consumers are likely to experience inconvenience when purchasing online. In order to overcome such challenges and improve customer service, an e-retailer should understand the antecedents of convenience of e-commerce services.

Saving time and effort are the main benefits of shopping online and strongly influence shopping behavior. The literature supports the notion of convenience as an important factor whose level is determined by the time and effort saved by consumers during the purchase process (Schaninger and Allen 1981; Torkzadeh and Dhillon 2002; Zeithaml 1988; Reilly 1982; Gupta and Kim 2010). Consumers have adopted many different strategies to save time and effort. For example, some consumers save time and energy by shopping for a number of items at the same time. The consumer selects the store first, and then chooses between the brands carried by the store (Rosenberg and Hirschman 1980; Al-Rasheed et al. 2010). Furthermore, electronic shopping services provide convenience by enabling consumers to place orders and have them delivered to their homes (Gupta and Kim 2010; Verhoef and Langerak 2001).

2.3 Theoretical fundamentals for assessing e-commerce service convenience

The reduction in time spent shopping is often cited as an attraction of online shopping. Consumers' waiting times negatively influence their evaluation of a given website (Alba and Lynch 1997; Zo and Ramamurthy 2009; Dellaert and Kahn 1999). Recently, researchers have begun to investigate the role of download time on consumers' perceptions and opinions in an online environment (Rose et al. 2005). Rose and Straub (2001) argue that download time is one of the most important technological barriers to e-retailers. Zo and Ramamurthy (2009) also suggest that shorter-than-expected waiting time leads to better evaluation of the website. Shopping means completing a task which requires significant effort from consumers. During an online shopping experience, consumers need to make an effort to carry out activities such as searching information, browsing websites, becoming familiar with the purchasing process, locating pages containing products or services, completing the transaction or checkout process, and possibly returning or exchanging goods. Information search has also been frequently used as an indicator and measure of effort (Bettman et al. 1993; Mowen and Grove 1983)

He and Chai (2009) found that the functional motive of convenience is the strongest motive for online interactive shopping. Torkzadeh and Dhillon (2002) acknowledged convenience as one of the most important factors in online customers' purchase decisions. More efficient decision-making can increase convenience for e-shoppers. By designing stores with decision convenience, retailers can assist and guide customers in making more rapid purchase

decisions. Further, e-retailers could also provide customized information for e-shoppers who buy standard or similar items, which can cause shoppers to perceive a feeling of convenience, and allow them to make more rapid purchase decisions (Lohse et al. 2000). Based on the earlier discussions, we posit that e-retailers who excel in offering convenience in access, decision, transaction, benefit, and post-benefit will help consumers save time and effort during shopping. We posit that the fact that e-commerce service convenience will be more successful for e-commerce. However, the construct lacks an appropriate operationalization and its measurement is still in its infancy. With this background, we extend previous results in marketing research to the new context of e-retailing and modify, refine and validate the original SERVCON using the P-E gap approach to construct the EC-SERVCON instrument for assessing and managing e-commerce service convenience.

3 Measurement of e-commerce service convenience

Parasuraman et al. (1988) developed the SERVQUAL scale for measuring perceived service quality as a global judgment or attitude pertinent to the superiority of the service. Zeithaml et al. (1990) argued that SERVQUAL, with appropriate adaptation, can be used in different firms or industries. Conceivably, SERVCON, with fitting modifications, can be adapted by this research to assess e-commerce service convenience. Hence, the original SERVCON scale developed by Seiders et al. (2007) was used as our initial item pool for developing EC-SERVCON. We then modified the SERVCON instrument in order to fit into e-commerce context when measuring service convenience. First, this research follows the

“perceptions-minus-expectations” (P-E) measurement framework developed by Parasuraman et al. (1985) and uses the gap concept for measuring service quality. In the service literature, perceptions are defined as consumer beliefs regarding the service received. Expectations are defined as demands of consumers, i.e., what they feel a service firm should offer rather than does offer. Thus, P-E is the difference between consumer perceptions concerning service received with their expectations of the performances of the services provided (Watson et al. 1998; Li et al. 2002; Parasuraman et al. 1991b, 1985, 1988). E-commerce service convenience can be obtained from the difference between consumers’ perceptions concerning service received with their expectations concerning convenience that the e-retailer offers. Second, two separate sections for measuring customers’ perceptions and expectations were included in this survey. In the survey of expected service convenience, items were modified to measure customers’ opinions on the service convenience delivered by an “excellent” e-retailer. Similarly, items in perceived service convenience aim to measure customers’ feelings about e-retailers they have interacted with. Third, similar to original SERVQUAL scale (Appendix C) (Seiders et al. 2007), this research investigates consumer service convenience corresponding to e-retailers. Thus, the items were altered to fit the e-commerce context. For instance, “convenient store hours” was replaced with “a reliable network connection,” convenient location was replaced with easy to visit e-stores and so on. Furthermore, questions were addressed to the e-retailers. Finally, minor wording adjustments were made in a few items to clarify them in the e-commerce context. Major modifications are mentioned in Table 1.

The EC-adapted SERVCON instrument was then revised again through a series of interviews with doctoral students and professors specializing in e-commerce. Pre-testing of the measures was conducted by experienced users and

Table 1 Comparison table

Dimension	Original code	Modifications	Rationale
Decision	D1 Quickly and easily	Effectively	Context matching
Access	A2 Convenient parking	Shorter download time of web pages	Customers do not need parking and e-retailers are always open for 24/7
	A3 Convenient location	Easy to visit e-stores	
	A4 Convenient store hours	A reliable network connection	
Transaction	T1 Enables me to complete transaction easily	Enables me to complete purchase easily	In e-retailing contexts, customers do not need to wait in a queue in front of check-out counter and no interactions with cashiers when completing purchase
	T2 Enables me to complete transaction quickly	Enables me to complete purchase quickly	
Benefit	B1 The merchandise I want at SR can be located quickly	Enables me to receive merchandized I bought on time	Its different from physical stores, customers can not see and touch “real” product
Post-Benefit	P1 Take care of product exchanges and returns promptly	Enables me to easily and flexibly cancel order after purchase	Original fifth and sixth questions were focused on treating exchange and return issues

experts selected from the e-commerce field. Additional wording adjustments were made again following careful examination of the results of the pre-testing. This study was conducted in Taiwan, thus scales were translated into Chinese language, however, for cross cultural validation, it was necessary to translate them back into English. Further, with the help of bilingual assistant professor, comparison was made with original scales to ensure translation equivalence (Mullen 1995). Questionnaire was consisting of five-point Likert-type scale with scores ranging from “strongly disagree” to “strongly agree” and was divided into two parts, namely, demographic data and main survey.

4 Data collection and scale refinement

4.1 Data collection

The present study uses university students as the target respondents. For concept identification and construct analysis, the homogenous nature of the student sample allow for more exact theoretical predictions (Calder et al. 1981; Douglas et al. 2007). Students often have convenient access to the Internet and possess the basic computer skills required for conducting various online activities such as online shopping and online account management (Luo et al. 2010). Hence, university students can be viewed as potential adopters of online shopping thereby believed as target population. Prior literature pertinent to e-commerce also considers students to be appropriate subjects (Li and Zhang 2005; Luo et al. 2010; Wang and Nyshadham 2011).

A pilot test was conducted for validation of items with the help of 10 business management PhD. students at National Chung Hsing University (NCHU). They were requested to complete and critique the survey. In addition, readability, wording, format, and length of the questionnaire were discussed in detail for further improvement in the instrument. Next, experts specialized in the field of service science were employed to test the validity of the questionnaire. The survey was then distributed to 15 MBA students to solicit their comments. After corrections, the survey was re-examined with the help of the experts in the service science field. A total of 28 items were retained, fourteen items each for measuring perceptions and expectations. In addition, a total of seven items were adopted from Seiders et al. (2007): three items for measuring customer satisfaction, two items for measuring product category involvement, and two items for measuring re-purchase. The survey also includes two items for measuring “recommendation to others”. All the expected

and perceived items are listed in the [Appendixes A and B](#). All the respondents had prior experience in online shopping. For each question, respondents were asked to indicate their agreement or disagreement with the survey instruments.

Cavana et al. (2001) argued that mail surveys had several advantages: low cost, no geographical limitations, and convenient for respondents, who can complete the questionnaires whenever they please. Mail surveys can be administered electronically if the survey requires younger respondents who are more familiar with the Internet and computers. Therefore, an e-mail/online survey was employed in this study. Students from NCHU were recruited as participants. The realistic virtual shopping environment was provided in the computer laboratory where subjects were instructed by volunteers in how to carry out an online shopping assignment (purchasing a digital camera with a certain technical characteristics online) (Lorenzo et al. 2009). Subjects were asked to open the questionnaire sent by e-mail to complete the demographic section of the questionnaire including gender, age, and education level. The sampling process was conducted by volunteers who explained the goals of the study to the participants (Lorenzo et al. 2009). Participants were screened based on whether they had accessed the Internet, shopped online, and had a personal credit card for use during the study (Tsai et al. 2007). Later, they were asked to purchase a specific object such as a digital camera or mobile phone using an online shopping channel. Participants were chosen from several educational disciplines, including technology, business, and language, for gaining diversity of consumer perspectives. They were given 30 min to complete the remainder of the questionnaire. In total, 500 questionnaires were administered. After screening ambiguous and invalid responses, 304 valid questionnaires were retained. Most respondents' ages are below 29. The male-to-female ratio was approximately 1:1. Sixty-four percent of the respondents had completed a bachelor degree; another 28% of the respondents had completed a master degree. Seventy-three percent of the respondents' had Internet experience of 6–10 years. Details of the demographics are given in [Table 2](#).

4.2 Refinement of EC-SERVCON

First, second-order confirmatory factor analysis (CFA) was used to achieve strong reliability and validity because the measurement model provides a reasonably good approximation with reality. The higher order confirmatory factor analysis can be regarded as an extension of a subsequent common factor with oblique rotations i.e., correlations

Table 2 Demographics of respondents

Demographics		Frequency	Percentage
Gender	Female	148	49%
	Male	156	51%
Age (years)	≤30	271	89%
	31–40	24	8%
	≥41	9	3%
Education level (degree)	<Bachelor	25	8%
	Bachelor	195	64%
	Master	84	28%
Internet experience (years)	≤5	32	10%
	6–11	222	73%
	>11	50	17%
Income (NT\$ per year)	<11,100	164	54%
	18,518	95	31%
	27,778	25	8%
	46,296+	20	7%

among the obtained factors from the first factor analysis are entered into the second factor analysis to examine the possibility of second-order factors (Marsh and Hocevar 1985, 1988). Here,

we hypothesize that EC-adapted SERVCON is a second-order construct governing the correlations among aforementioned dimensions of service convenience: decision, access, transaction, benefit, and post-benefit. For a sense of comparison, the gap scores of both, initial and EC-adapted SERVCON measures were subjected to second-order CFA using the CALIS procedure of SAS 8.1, a procedure that provides estimates of parameters and tests of fit, similar to LISREL.

MacCallum’s (1986) and Anderson and Gerbing’s (1988) guidelines were then applied in a specification search process to find the proper level of model fit. After examining squared multiple correlations (SMC), standardized residuals, and *t*-values, only three items (7, 11, and 12) all with an SMC less than 0.5, were dropped to form the refined model. The SMC of all remaining items satisfies the recommended level in the refined model (Fig. 1). Additionally, seven common goodness-of-fit indices used to assess the adequate fit of the data are above the recommended value, suggesting a good fit with the data. By the same token, the original model does not meet the threshold (Table 3). An RSMEA value of 0.06 indicates that the model has not explained only 6% of variance that could be acceptable fit. In general, an RMSEA measure of 5% or less indicates

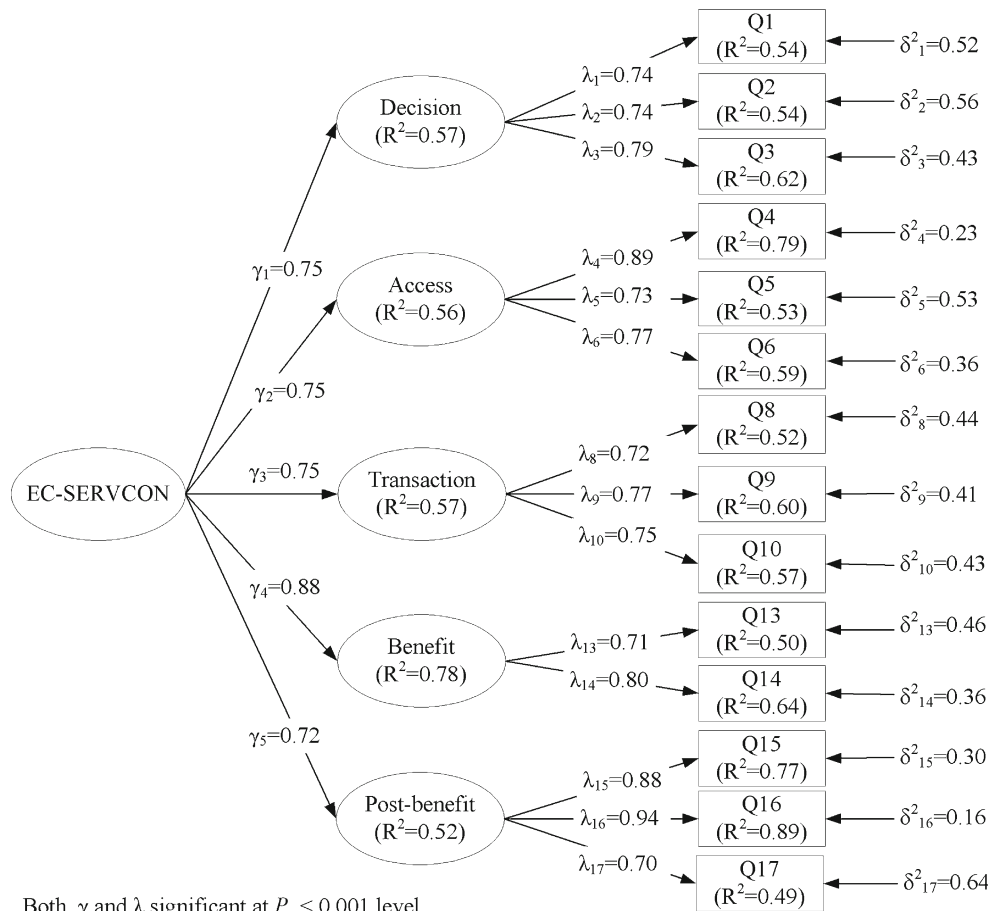


Fig. 1 Five first-order factors and one second-order factor analysis

Table 3 Goodness-of-fit measures of the research model

Goodness-of-fit measure	Threshold	Model	
		Initial	Refined
Chi-square/degree of freedom	≤3.00	2.12	1.57
Goodness-of-fit index (GFI)	≥0.90	0.81	0.93
Adjusted goodness-of-fit index (AGFI)	≥0.80	0.76	0.90
Normed fit index (NFI)	≥0.90	0.81	0.93
Non-normed fit index (NNFI)	≥0.90	0.87	0.95
Comparative fit index (CFI)	≥0.90	0.89	0.96
Root mean square residual (RMSR)	≤0.10	0.06	0.05

excellent model fit (Diamantopoulos and Siguaw 2000; Featherman and Pavlou 2003).

4.3 Construct validity of EC-SERVCON

Generally, “specifying the domain of the construct, generating items that exhaust the domain, and subsequently purifying the resulting scale should produce a measure which is content or face valid and reliable” (Churchill 1979). Therefore, conceptualization of EC-SERVCON constructs based on previous research, the interviews with several practitioners and experts suggest that this EC-SERVCON instrument has good face validity. Convergent validity was evaluated for the refined model according to three recommended criteria by Bagozzi and Yi (1988). (1) All indicator factor loadings (λ) should be significant, i.e., exceeding 0.6, (2) Construct reliability in terms of composite reliability (CR notated as ρ), defined as the internal consistency of the indicators measuring a given factor exceeding 0.75, (3) The

average variance extracted (AVE) of each construct, the amount of variance that is captured by the underlying factor in relation to the amount of variance due to measurement error, should exceed 0.50. Based on the calculations, the results show that the λ -values for all items were significant at $p \leq 0.001$. The values in the following brackets represent the composite reliability and AVE of the corresponding dimensions of convenience respectively: decision=(0.77, 0.53); access=(0.84, 0.63); transaction=(0.80, 0.57); benefit=(0.74, 0.58); and post-benefit=(0.85, 0.66), suggesting good reliability and convergent validity.

Next, average variance extracted and shared variance were calculated to evaluate discriminant validity (Fornell and Larcker 1981). To satisfy the requirement for adequate discriminant validity, squared root of AVE must exceed correlation coefficient between constructs (squared root of shared variance) for all factors (Table 4). Unlike the approach of Campbell and Fiske (1959), this criterion is associated with model parameters and recognizes that the measurement error can vary in magnitude across a set of methods, i.e., indicators of constructs. The results satisfy the requirements specified by Fornell and Larcker (1981).

4.4 Nomological validity of EC-SERVCON

To establish the construct validity of a measure, an analyst must also determine (1) the extent to which the measure correlates with other measures designed to examine the same thing; (2) whether the measure behaves as expected (Churchill 1979). Nomological validity refers to the extent to which predictions based on the construct being measured are confirmed within a wider theoretical context or network of constructs (Bagozzi and Yi 1988; Cronbach and Meehl 1955). In

Table 4 Correlations between constructs of EC-SERVCON

Construct	1	2	3	4	5	6	7	8	9
(Squared root of AVE)	(0.73)	(0.79)	(0.75)	(0.77)	(0.81)				
1 Decision convenience	1.00								
2 Access convenience	0.52	1.00							
3 Transaction convenience	0.47	0.51	1.00						
4 Benefit convenience	0.49	0.53	0.50	1.00					
5 Post-benefit convenience	0.48	0.46	0.47	0.57	1.00				
6 EC-SERVON (total scores)	0.77	0.78	0.76	0.76	0.79	1.00			
7 Product category involvement	0.11	0.03	0.10	0.15	0.13	0.13	1.00		
8 Satisfaction	0.22	0.12	0.24	0.29	0.21	0.27	0.61	1.00	
9 Re-purchase	0.20	0.11	0.20	0.14	0.18	0.22	0.58	0.75	1.00
10 Recommendations to others	0.19	0.14	0.21	0.18	0.18	0.23	0.42	0.56	0.55

this current study, nomological validity was assessed by specifying the construct within a nomological network of antecedent and consequent variables and used to examine EC-SERVCON in relations to product category involvement, user satisfaction, re-purchase, and recommendation to others.

Product category involvement reflects the importance of the purchase category to the consumer on the basis of his or her inherent needs, values, and interests (Seiders et al. 2007). Using Internet, consumers can conveniently acquire more knowledge about the product, such as technical characteristics, price, and comparisons with other products. Moreover, consumers can discuss their questions over social networking websites/blogs to understand the experiences of other consumers. Furthermore, consumers can also conveniently experience post-purchase services due to the sophistication of the shopping channel. Overall, cognitive assessment of the online services or service providers is possible for consumers. Thus product category involvement would be expected to influence convenience they confronted. Furthermore, overall perception of service convenience affects consumers' evaluation of the service, including satisfaction and perceived service quality (Berry et al. 2002). The relationship between customers' evaluation of waiting time and their satisfaction with the service has long been noted in the literature (Xie et al. 2010). Hence, it is expected that strong perception of consumer online service convenience leads to higher consumer satisfaction. Therefore, we hypothesize:

- H1. There will be a positive relationship between product category involvement and EC-SERVCON.
- H2. There will be a positive relationship between EC-SERVCON and customer satisfaction with e-retailers.

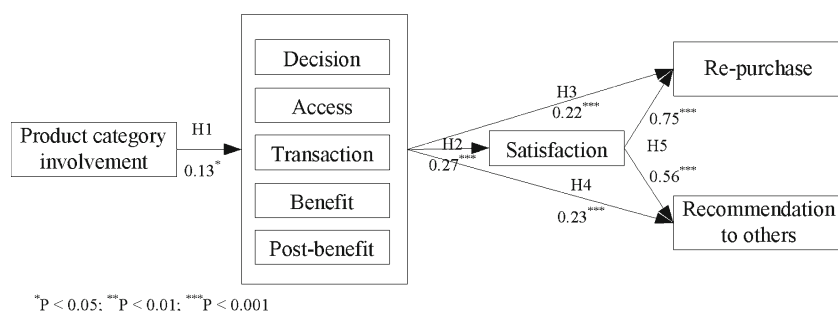
Prior literature showed that convenience has a significant effect on repurchase behavior (Seiders et al. 2005; Jones et al. 2003). The convenience value for consumer positively affects repurchase intension (Jaehun 2007). Moreover, transaction efficiency is evaluated by consumers as the most important factors driving online repurchase behavior (Khalifa et al. 2004). Increased convenience also stimulates consumers to exploit online resources and share their experiences with other

potential users, such as family, friends, and classmates (Lin et al. 2010). With the growth of social networking sites (e.g., Facebook), peer influence is becoming an increasingly important ingredient of a pleasant online shopping experience. Recommender systems have been recognized as an active area of research interest since the advent of e-commerce. Research also indicates that consumer differences in online channel risk perceptions, price search intentions, evaluation efforts, and waiting time impacts their switching decision between online and offline shopping (Gupta et al. 2004). Thus consumers are likely to share their experiences with their peers and provide recommendations. Consumer behavior literature also acknowledges customer satisfaction as a key driver of repurchase behavior (Seiders et al. 2005). Thus, consumer re-purchase intentions with regard to a particular vendor appear to be a consequence of satisfaction and the vendor's service features related to the Web site (Park et al. 2010). Previous research also shows that, to increase sales, companies want to increase customer satisfaction, to receive positive recommendations about their company when talking to potential customers. If customers are satisfied then they are more likely to give recommendations and their positive attitudes toward the company will increase (Schneider 2006). Therefore, we hypothesize:

- H3. There will be a positive relationship between EC-SERVCON and re-purchase.
- H4. There will be a positive relationship between EC-SERVCON and recommendation to others.
- H5. Customer satisfaction will have a positive relationship with re-purchase and recommendation to others.

Three items for measuring re-purchase were adapted from a previous validated inventory (Seiders et al. 2007) which had a reliability of 0.86. Further, the two items for measuring product category involvement, three statements for measuring satisfaction, and two items for measuring recommendations have reliabilities of 0.85, 0.85, and 0.80 respectively. Figure 2 portrays model testing results using simple regression analysis. All hypothesized relationships

Fig. 2 Nomological tests of EC-SERVCON



were found to be significant therefore (Table 5) H1–H5 were supported.

5 Findings and discussion

This paper analyzed current EC-SERVCON based on our data to obtain new insights. First, average EC-SERVCON scores of constructs and each item of constructs were compared. The results show that post-benefit convenience is the lowest and access convenience is the highest average score among given dimensions of convenience (Table 6). It shows that e-shoppers often experience inconvenience for post-purchase procedures, e.g., return products, and have higher level of access and transaction convenience. Furthermore, our results indicate that decision convenience is not high. Though the number of e-shoppers continues to grow, there is still concern for the safety of financial and personal data, as well as dissatisfaction with information, making consumers feel frustrated, confused, and overwhelmed during purchase decisions (Horriagan 2008). For improving benefit convenience, managers should reinforce service design for higher customer satisfaction by minimizing consumer expenditures of time and effort across the entire shopping experience.

The literature supports the notion that users in general possess unrealistic expectations about service (Szajna and Scamell 1993; Fick and Ritchie 1991) perhaps due to the prominence of negative information (Ofir et al. 2009). The realism of user expectations has been suggested as one of the possible means of assessing success or failure of information systems. Higher levels of expectations lead to lower perceptions of service convenience (Fick and Ritchie 1991). In a rapidly altering Internet world, consumers are likely to encounter better experiences in peer websites therefore, their expectations may be higher. For instance, consumer expectations of receiving access to particular information, such as the cost of the product,

are not met (Xia et al. 2010). Since consumer expectations exceed their perceptions of service convenience, P-E scores become negative.

Next, we analyzed the relationships between average EC-SERVCON scores and demographics. One-way ANOVA was used to compare differences between categorical variables such as gender, Internet use, and education. This resulted in significant differences between the categorical variables (Table 7). We found that (1) female e-shoppers have a higher level of average EC-SERVCON scores in all five constructs; (2) e-shoppers with higher levels of computer experience have a lower level of average EC-SERVCON summed scores, probably because skilled e-shoppers will have higher expectations for service convenience; and (3) e-shoppers with higher levels of education have a lower level of average EC-SERVCON scores in decision, access, and transaction constructs.

There are several possible explanations for these interesting results. First, online services, including shopping, are associated with a set of psychological motives. However, there are motivational differences between males and females (Sangwan et al. 2009). Female consumers possess different motivations for shopping online and demonstrate higher motivation to gratify affective needs than cognitive needs. They are more likely to make purchases on more interactive websites, and more likely to shop online to pass the time, to relax and to avoid stressful interaction (Sangwan et al. 2009; Hirst and Omar 2007). Moreover, females prefer ease of use, easy navigation and accessibility (King 2009), and may be more prone to prefer higher levels of convenience. Second, experienced consumers were found to have higher expectations. Because of experience and skillfulness, they understand the types of service convenience offered by retailers. Highly experienced consumers constantly monitor improvements in technology. Moreover, they expect retailers to invest in upgrading their websites. Third, undergraduate students spend more time on Internet and are likely to acquire higher computer literacy. The literature also suggests that younger consumers having intermediate education tend to perceive lower risks and are less resistant to altering their habits for financial transactions compared to older (Luo et al. 2010). Thus, expectations of undergraduate respondents regarding service convenience may be lower. This may also show that the higher the educational attainment, the higher the service convenience consumers expect.

6 Managerial implications

“Expectations” has received fairly extensive attention and plays a growing role in measurements of consumer

Table 5 Simple regression results

Hypothesis	Beta	R ²	P-value
H1: Product category involvement→EC-SERVCON	0.13	0.02	0.022*
H2: EC-SERVCON→Satisfaction	0.27	0.07	0.000***
H3: EC-SERVCON→Re-purchase	0.22	0.05	0.000***
H4: EC-SERVCON→Recommendation to others	0.23	0.05	0.000***
H5 _a : Satisfaction→Re-purchase	0.75	0.56	0.000***
H5 _b : Satisfaction→Recommendation to others	0.56	0.32	0.000***



Table 6 Average scores of constructs and items of EC-SERVCON

Decision			Access			Transaction			Benefit		Post benefit		
-0.84			-0.65			-0.75			-0.84		-1.33		
D1	D2	D3	A1	A2	A3	T1	T2	T3	B1	B2	P1	P2	P3
-0.81	-0.75	-0.94	-0.57	-0.71	-0.67	-0.74	-0.78	-0.73	-0.82	-0.86	-1.40	-1.38	-1.21

service quality or satisfaction (Cronin and Taylor 1992; O’Cormor et al. 1994; Parasuraman et al. 1994; Teas 1993a, 1994). The term “expectations” used in the service quality literature differs from the way it is used in the consumer satisfaction literature. Specifically, in the satisfaction literature (Parasuraman et al. 1988; Park et al. 2010; Abdul-Muhmin 2011), expectations are viewed as predictions made by consumers about what is likely to happen during an impending transaction or exchange. By contrast, in the service quality literature, expectations are viewed as desires or wants of consumers (Parasuraman et al. 1988). Parasuraman et al. (1993) indicated that expectations are always used as a comparison standard in measuring service quality, which are also affected by prior experiences. Furthermore, Teas (1993a) attempted to explain consumers’ expectations concepts as forecasted performance, deserved performance, equitable performance-equitable performance, minimum tolerable performance, ideal performance, and service attribute importance. A preliminary literature review shows that expectations meaningfully represent the importance consumers give to the service. Thus, the current research defines expectations as the extent of the importance consumers attach to the service. In the pre-consumption stage, when consumers have higher expectations, it means a higher level of

importance is attached to the service. Consumer expectations appear to play an important role in measuring and managing e-commerce service convenience, and in developing strategies for promoting service convenience quality.

Drawing on the existing research reviewed above, consumers’ perceptions and expectations are key dimensions in evaluating EC-SERVCON, and should be involved in planning strategy for e-commerce service convenience management. Thus, we propose the EC-SERVCON managerial grid, which classifies EC-service convenience along two interacting dimensions: expectations (E) and perceptions (P). Each dimension is divided into three levels: low, medium, and high. Consequently, each cell in this EC-SERVCON managerial grid represents different situations. Nine cells, three routes coded from 0~2, along with three areas from I to III can be identified (Fig. 3). This EC-SERVCON managerial grid not only depicts different types of consumers’ evaluation of e-commerce service convenience, but also offers guidelines for managers when prioritizing key resources in planning, analyzing, and implementing marketing strategies. Since managers commonly misconstrue improvements in e-commerce service convenience by spending resources on wrong initiatives with wrong priorities, service con-

Table 7 Relationships between demographics and scores of EC-SERVCON

Demographics		Decision	Access	Transaction	Benefit	Post benefit	Summed
Gender	Female	-2.46	-1.76	-2.23	-1.56	-3.70	-11.72
	Male	-2.55	-2.14	-2.26	-1.79	-4.24	-12.99
	Difference test (F-value)	130.5***	86.5***	123.1***	144.5***	257.1***	243.6***
Internet use	≤11 years	-2.42	-1.74	-2.14	-1.51	-3.48	-11.28
	>11 years	-2.94	-2.17	-2.35	-1.85	-4.46	-13.76
	Difference test (F-value)	130.7***	84.6***	125.1***	144.4***	254.8***	243.1***
Education	≤Bachelor	-2.39	-1.75	-2.18	-1.70	-4.02	-12.05
	Master	-2.67	-2.39	-2.63	-1.60	-3.83	-13.12
	Difference test (F-value)	130.5***	84.3***	122.4***	145.5***	256.9***	243.1***

*** $P < 0.001$

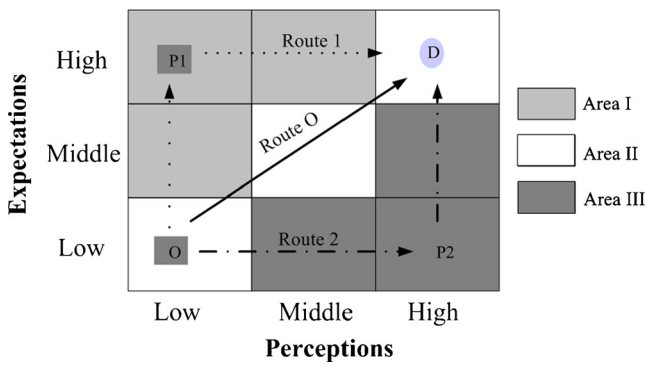


Fig. 3 EC-SERVCON managerial grid

venience is not improved. EC-SERVCON prioritizes the relative importance of service dimensions and attributes to help managers use resources effectively. Additionally, the size of the gap between P and E should be included in planning e-commerce service convenience strategies. Furthermore, the P-E framework may serve as a guide for the strategic planning process that could be instrumental in rectifying corporate strategy misalignment for an e-retailer. Thus, it is a useful tool for analyzing precedence and ranking strategic initiatives based upon strategic fit.

When considering the regions in this grid, attributes in area I ($E > P$) have the highest priority for improvement, attributes in area II are fair or neutral, and attributes in area III are the lowest priority candidates. For each area in which a particular attribute is located, there exist corresponding managerial implications. For area I, e-retailers are expected to enhance services conveniences having the lowest scores (decision, benefit and post benefit convenience in the present study). For area II, though it may not require additional resource allocation, service maintenance is indispensable. Area III shows that e-retailers have provided superfluous services to consumers. Managers can optimize spending over the services. However, mapping of individual service convenience is required. E-retailers can improve their services based on customer desires which may be subjective. Thus, the P-E approach is vital for a e-retailing firm when moving into service customization for a particular customer segment. If not appropriate, steps should be taken to ensure that only information relevant to the segment customers' specific dataset is used for strategic decision making (Cronin and Taylor 1994).

When applying routes, route 0 indicates consumer segments in which consumer perceptions are equal to expectations. They may thus be accorded low priority. Further, in pursuit of technical development and consistent

advertising, e-retailers have to make cognitive as well as emotional efforts to gain and sustain consumer confidence through delivery of positive service convenience. Route 1, whereas, is a highly dominated route indicating that the consumer segment has higher expectations than perceptions, as consumers' expectations toward e-retailers continuously increase. Consumers have multiple opportunities to experience novelties in online-services. In general, consumers are likely to differ in their degree of expectations and perceptions about online services. Although when using the EC-SERVCON managerial grid, identification of individual consumer expectations is not possible, e-retailers may still classify and acknowledge their target customers systematically. Hence, e-retailers should identify the particular categories of consumers involved in route 1 to develop appropriate strategies. However, strategy, based on consumer information that is constantly involving, should constantly evolve as well. For instance, young undergraduate females are more likely to receive higher service convenience. Likewise, retailers should understand the nature of the service convenience implied by a particular category of consumers followed by strategic optimization of service convenience corresponding to that consumer category. Therefore e-retailers should build a customer centric strategy and boost their operational capability in order to enhance service convenience (Frost et al. 2010).

Consumers might not be willing to share information with e-retailers, meaning that perceptions and expectations are difficult to capture. Service providers benefit from greater interactivity and informativeness (Hoffman et al. 1999; Negash et al. 2003; Verhagen et al. 2011) which is, critical when engaging individual consumers (Frost et al. 2010). The IS literature has theorized that technological artifacts can be employed in such a way that they function as social actors (Al-Natour et al. 2006; Verhagen et al. 2011). With the help of event sequence tools such as Google analytics, e-retailers can track user actions and decode their thought processes. Smart algorithms and virtual concept testing tools (Dahan and Hauser 2002) may also be employed for detailed investigation of virtual untransparent users.

7 Conclusions

The present study makes a threefold contribution. First, the current study attempts to measure service convenience in the e-commerce arena using a dedicated instrument, EC-SERVCON, an extrapolation of SERVCON. Second, e-commerce service convenience was reconciled

using the perception minus expectation approach. Third, the P-E managerial grid provided by this study can benefit e-retailers in prioritizing resources. Our findings suggest that managers of e-retailing firms should be careful when deriving explicit information from data procured by employing the EC-SERVCON scale for strategic decision making. Value created by convenience is the key determinant of the competence of online retailers in affecting consumer purchase decision making in online stores. E-retailers should offer rapid delivery, easy payment and return options, round the clock call center support and a proactive live chat support system. E-retailers should invest their efforts in boosting customer confidence and trust by providing a reliable product delivery system along with unsparing but reasonable product replacement practices for post-sale service. Furthermore, customization services can be offered via real time e-retailer content management systems (EMS) so consumers can maximize their convenience. In order to offer emotional value, consumers should have an enjoyable yet secure web environment populated by products supported by well implemented branding strategies that prioritize brand attributes and brand alliance.

7.1 Limitations

In this study, the relationships among five dimensions of service convenience and repurchase behavior, consumer satisfaction and recommendation to others were tested by EC-SERVCON instrument using the P-E approach. There are several limitations inherent in present study that should be taken into account when considering its findings. First, convenient sampling approach was adopted for data collection, limiting its generalization. A student sample may not explicitly represent the entire population and generates a threat to the external validity of the study (Luo et al. 2010). The small sample size ($N=304$) would be second limitation of this study. Third, ultimately service convenience is likely to be affected by particularities of e-commerce, e.g., anonymity, security perceptions, former negative/bad experiences and repetitive transactions with particular retailer, but current study lacks the ability to explore this factors. Fourth, this study is limited to delineate service convenience in an online shopping context using only five dimensions. Hence findings should be carefully extrapolated to other areas of the e-commerce arena. Fifth, the resolution of P-E grid is mediocre and only

provides only a general outline for e-retailers. Finally, this study was conducted in Taiwan, and therefore may have unique local cultural influences. The findings of this study should be used with caution.

7.2 Future research directions

In order to improve generalizability, a random sampling approach can be adopted across different groups. While the predictions of our model were supported by the existing data, the overall model fit would have benefited from a larger sample size (Featherman and Pavlou 2003). Further study may incorporate a non-student sample (Luo et al. 2010) for complete delineation of service convenience. Future study should also incorporate e-commerce pertinent dimensions for comprehensive investigation of service convenience. Moreover, additional data about customers that negatively affects service convenience should be collected. Notions of e-commerce service convenience can be tested within specific areas of e-commerce, e.g. e-banking, to compare and test the findings. A more robust instrument measuring service convenience in e-commerce arena could be developed by integrating qualitative approaches. Dedicated and service specific P-E grids can be developed and tested by further research. Similar studies should be conducted in different cultures to thoroughly understand e-commerce service convenience and related cultural influence.

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Appendix A: The initial EC-SERVCON 17-item instrument

Expected service convenience section

Directions: The purpose of this study is to obtain a better understanding of a customer's expected and perceived service convenience delivered by e-retailers. There are two sections in this survey. In this expected service convenience section, we would like your opinions on the service convenience delivered by an

	Strongly disagree	1	2	3	4	Strongly agree	5
Decision							
E1. An excellent e-retailer enables me to easily determine whether it will offer what I need prior to shopping.	1	2	3	4	5		
E2. An excellent e-retailer enables me to effectively decide to shop.	1	2	3	4	5		
E3. An excellent e-retailer enables me to quickly find information before I shop to decide if it has what I am looking for.	1	2	3	4	5		
Access							
E4. An excellent e-retailer enables me to visit it easily.	1	2	3	4	5		
E5. An excellent e-retailer offers a shorter time when I download pages.	1	2	3	4	5		
E6. An excellent e-retailer enables me to visit it quickly.	1	2	3	4	5		
E7. An excellent e-retailer offers me a reliable network connection.*	1	2	3	4	5		
Transaction							
E8. An excellent e-retailer enables me to complete the purchase easily.	1	2	3	4	5		
E9. An excellent e-retailer enables me to complete the purchase quickly.	1	2	3	4	5		
E10. An excellent e-retailer enables me to get purchase order status easily and quickly.	1	2	3	4	5		
Benefit							
E11. An excellent e-retailer enables me receive the merchandise I bought on time.*	1	2	3	4	5		
E12. An excellent e-retailer enables me easily find the products I am looking for.*	1	2	3	4	5		
E13. An excellent e-retailer enables me to get product advice easily.	1	2	3	4	5		
E14. An excellent e-retailer enables me to evaluate the merchandise easily.	1	2	3	4	5		
Post-benefit							
E15. An excellent e-retailer enables me to return and exchange products easily.	1	2	3	4	5		
E16. An excellent e-retailer enables me to easily and flexibly cancel orders after purchase.	1	2	3	4	5		
E17. An excellent e-retailer can quickly resolve any after-purchase problems.	1	2	3	4	5		

*:Deleted item in the refined EC-SERVCON instrument.

“excellent” e-retailer. Based on your experiences as an e-shopper, please think about the kind of excellent e-retailer that will deliver excellent service convenience. Please indicate the extent to which you think such an e-retailer will possess the features described by each statement. If you strongly agree that a feature is absolutely essential for an excellent e-retailer, circle 5. Conversely, if you strongly disagree that a feature is essential for an excellent e-retailer, circle 1. If your feeling is less strong, circle one of the numbers in the middle.

Perceived service convenience section

Directions: The following statements relate to your feelings about XYZ, an e-retailer you shopped at or experienced. For each statement, please show the extent to which you believe your e-retailer XYZ has the features described by the statement. Once again, circling 5 means that you strongly agree, and circling 1 means that you strongly disagree. You may circle any of the numbers in the middle that show how strong your feelings are.



	Strongly disagree				Strongly agree
Decision					
P1. XYZ enables me to easily determine whether it will offer what I need prior to shopping.	1	2	3	4	5
P2. XYZ enables me to effectively decide to shop.	1	2	3	4	5
P3. XYZ makes me to quickly find information before I shop to decide if it has what I am looking for.	1	2	3	4	5
Access					
P4. XYZ enables me visit it easily.	1	2	3	4	5
P5. XYZ offers a shorter time when I download pages.	1	2	3	4	5
P6. XYZ enables me to visit it quickly.	1	2	3	4	5
P7. XYZ offers me a reliable network connection.*	1	2	3	4	5
Transaction					
P8. XYZ enables me to complete my purchase easily.	1	2	3	4	5
P9. XYZ enables me to complete my purchase quickly.	1	2	3	4	5
P10. XYZ enables me to get my purchase order status easily and quickly.	1	2	3	4	5
Benefit					
P11. XYZ enables me receive the merchandise I bought on time.*	1	2	3	4	5
P12. XYZ enables me easily find the products I am looking for.*	1	2	3	4	5
P13. XYZ enables me to get product advice easily.	1	2	3	4	5
P14. XYZ enables me to evaluate the merchandise easily.	1	2	3	4	5
Post-benefit					
P15. XYZ enables me to return and exchange products easily.	1	2	3	4	5
P16. XYZ enables me to easily and flexibly cancel orders after purchase.	1	2	3	4	5
P17. XYZ can quickly resolve any after-purchase problems.	1	2	3	4	5

*:Deleted item in refined E-SERVCON instrument.

Appendix B: Nomological validity measurement items

Product category involvement

- PCI1. I have a strong personal interest in e-stores like XYZ. 1 2 3 4 5
- PCI2. E-stores like XYZ are very important to me. 1 2 3 4 5

Satisfaction

- SAT1. Overall, I am very pleased with the service at XYZ. 1 2 3 4 5
- SAT2. Overall, shopping at XYZ is a delightful experience. 1 2 3 4 5
- SAT3. Overall, I am very satisfied with the XYZ shopping experience. 1 2 3 4 5

Re-purchase

- RP1. After purchase at XYZ, I will re-visit it in the future. 1 2 3 4 5
- RP2. After purchase at XYZ, I will continuously shop at it in the future. 1 2 3 4 5
- RP3. After purchase at XYZ, I will purchase more products from XYZ in the future. 1 2 3 4 5

Recommendation to others

- O1. I will recommend others to shop at XYZ. 1 2 3 4 5
- O2. I will encourage others to shop at XYZ. 1 2 3 4 5

Appendix C: Original SERVCON instrument (Seiders et al. 2007)

Decision

- P1. I can easily determine prior to shopping whether SR will offer what I need.
- P2. Deciding to shop at SR is quick and easy.
- P3. I can quickly find information before I shop to decide if SR has what I'm looking for.

Access

- P4. I am able to get to SR quickly and easily.
- P5. SR offers convenient parking.

- P6. SR offers convenient locations.
P7. SR offers convenient store hours.

Transaction

- P8. SR makes it easy for me to conclude my transaction.
P9. I am able to complete my purchase quickly at SR.
P10. It takes little time to pay for my purchase at SR.

Benefit

- P11. The merchandise I want at SR can be located quickly.*
P12. It is easy to find the products I am looking for at SR.
P13. I can easily get product advice at SR.
P14. It is easy to evaluate the merchandise at SR.

Post-benefit

- P15. It is easy to take care of returns and exchanges at SR.*
P16. SR takes care of product exchanges and returns promptly.
P17. Any after-purchase problems I experience are quickly resolved at SR.

*SR: specialty retailer's brand name

References

- Abdul-Muhmin, A. G. (2011). Repeat purchase intentions in online shopping: the role of satisfaction attitude, and online retailers' performance. *Journal of International Consumer Marketing*, 23(1), 5–20.
- Alba, J., & Lynch, J. (1997). Interactive home shopping: consumer, retailer, and manufacture incentives to participate in electronic marketplace. *Journal of Marketing*, 61(3), 38–53.
- Al-Natour, S., Benbasat, I., & Cenfetelli, R. (2006). The role of design characteristics in shaping perceptions of similarity: the case of online shopping assistants. *Journal of the Association for Information Systems*, 13(2), 821–861.
- Al-Rasheed, S., Zairi, M., & Ahmed, A. M. (2010). Getting in the mind of the customer: an empirical study of consumer behaviour in retailing. *European centre for best practice management*, 1–12.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: a review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423.
- Babakus, E., & Boller, G. W. (1992). An empirical assessment of the SERVQUAL scale. *Journal of Business Research*, 24(3), 253–268.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- Berry, L. L., Seiders, K., & Grewal, D. (2002). Understanding service convenience. *Journal of Marketing*, 66(3), 1–17.
- Bettman, J. R., Johnson, E. J., Luce, M. F., & Payne, J. W. (1993). Correlation, conflict, and choice. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(4), 931–951.
- Bhatnagar, A., Misra, S., & Rao, H. R. (2000). On risk, convenience, and internet shopping behavior. *Communications of the ACM*, 43(11), 98–105.
- Brown, T. J., Churchill, G. A., Jr., & Peter, J. P. (1993). Research note: improving the measurement of service quality. *Journal of Retailing*, 69(1), 127–139.
- Calder, B. J., Phillips, L. W., & Tybout, A. M. (1981). Designing research for application. *Journal of Consumer Research*, 8(2), 197–207.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 81–105.
- Capps, R. (2009). Kevin Maney's trade off offers another look at quality vs. convenience. <http://www.wired.com/epicenter/2009/09/kevin-maney-trade-off-offers-another-look-at-quality-vs-convenience/>. Accessed 22 September 2011.
- Carman, J. M. (1990). Consumer perceptions of service quality: an assessment of the SERVQUAL dimensions. *Journal of Retailing*, 66(1), 35–55.
- Cavana, R., Delahaye, B. L., & Sekaran, U. (2001). *Applied business research: Qualitative and quantitative methods* (3rd ed.). New York: Wiley.
- Churchill, G. A., Jr. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(1), 64–73.
- Copeland, M. T. (1923). Relation of consumers' buying habits to marketing methods. *Harvard Business Review*, 1(April), 282–289.
- Cowles, D. L., Kiecker, P., & Little, M. W. (2002). Using key informant insights as a foundation for e-retailing theory development. *Journal of Business Research*, 55(8), 629–636.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281–302.
- Cronin, J. J., Jr., & Taylor, S. A. (1992). Measuring service quality: a reexamination and extension. *Journal of Marketing*, 56(3), 55–68.
- Cronin, J. J., Jr., & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: reconciling performance-based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing*, 58(1), 125–131.
- Cronin, J. J., Jr., Brady, M. A., & Hult, G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *Journal of Retailing*, 76(2), 193–218.
- Dahan, E., & Hauser, J. R. (2002). The virtual customer. *Journal of Product Innovation Management*, 19(5), 332–353.
- Dellaert, B., & Kahn, B. E. (1999). How tolerable is delay? Consumers' evaluations of internet web sites after waiting. *Journal of Interactive Marketing*, 13(1), 41–54.
- Diamantopoulos, A., & Siguaw, J. (2000). *Introducing LISREL*. London: Sage.
- Douglas, A., Mills, J., & Kavanaugh, R. (2007). Exploring the use of emotional features at romantic destination websites. *Information and Communication Technologies in Tourism*, 8, 331–340.
- Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: a perceived risk facets perspective. *Human-Computer Studies*, 59(4), 451–474.
- Fick, G. R., & Ritchie, J. R. B. (1991). Measuring service quality in the travel and tourism industry. *Journal of Travel Research*, 30(2), 55–68.
- Finn, D. W., Baker, J., Marshall, G. W., & Anderson, R. (1996). Total quality management and internal customers: measuring internal service quality. *Journal of Marketing Theory & Practice*, 4(3), 36–51.
- Fornell, C. L., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Forrester Research, I. (2008). US eCommerce forecast: 2008 To 2012. <http://www.forrester.com/Research/Document/Excerpt/0,7211,41592,00.html>. Accessed September 19 2009.
- Frost, D., Goode, S., & Hart, D. (2010). Individualist and collectivist factors affecting online repurchase intentions. *Internet Research*, 20(1), 6–28.
- Gupta, S., & Kim, H. W. (2010). Shopping: the mental accounting theory perspective. *Psychology and Marketing*, 27(1), 13–35.
- Gupta, A., Su, B. C., & Walter, Z. (2004). An empirical study of consumer switching from traditional to electronic channels: a

- purchase-decision process perspective. *International Journal of Electronic Commerce*, 8(3), 131–161.
- He, W., & Chai, J. (2009). Study on mechanism and models of customer segmentation of C2C shopping. In *1st International Conference on Information Science and Engineering (ICISE)*. Nanjing, China, Dec 26–28
- Herden, S., Mkrtchyan, A., Rautenstrauch, C., Zwanziger, A., & Schenk, M. (2003). Personal information guide—a platform with location based services for mobile powered e-commerce. In *International Conference, Management and Technology in the New Enterprise*. Havana, Cuba
- Hertzum, M., Juul, N. C., Jørgensen, N., & Nørgaard, M. (2004). Usable security and e-banking: Ease of use vis-à-vis security. In *OZCHI Conference*. Wollongong, Australia, 22–24 November
- Hirst, A., & Omar, O. E. (2007). Assessing women's apparel shopping behaviour on the internet. *The Journal of Retail Marketing Management Research*, 1(1), 32–40.
- Hofacker, C. F. (2001). *Internet marketing* (3rd ed.). New York: Wiley.
- Hoffman, D. L., Novak, T. P., & Peralta, M. (1999). Building consumer trust on line. *Communications of the ACM*, 42(4), 80–85.
- Horrigan, J. B. (2008). Online shopping: Convenient but risky. <http://pewresearch.org/pubs/733/online-shopping>. Accessed 22 September 2011.
- Jaehun, J. (2007). An empirical study on the relationship between customer value and repurchase intention in Korean internet shopping malls. *Journal of Computer Information System*, 48(1), 53–62.
- Jones, M. A., Mothersbaugh, D. L., & Beatty, S. E. (2003). The effects of locational convenience on customer repurchase intentions across service types. *Journal of Services Marketing*, 17(7), 701–712.
- Kelley, E. J. (1958). The importance of convenience in consumer purchasing. *Journal of Marketing*, 23(32–38).
- Khalifa, M., Limayem, M., & Liu, V. (2004). A contingency theory for consumer retention: The role of online shopping habit. In M. G. Hunter & F. B. Tan (Eds.), *Advanced topics in global information management, vol. 3* (pp. 42–62). Hershey: Idea Group Publishing.
- Kim, B. C., & Park, Y. W. (2011). Security verses convenience? An experimental study of user misperception of wireless internet security quality. *Decision Support Systems*, *In press*.
- King, A. A. (2009). Usability study: men need speed. <http://www.websiteoptimization.com/speed/tweak/usability-criteria/>. Accessed 22 September 2011.
- Kwek, C. L. (2010). Investigating the shopping orientations on online purchase intention in the e-commerce environment: a Malaysian study. *Journal of Internet Banking and Commerce*, 15(2), 1–22.
- Li, N., & Zhang, P. (2005). What makes customers shop online. In J. Fjermestad & N. Romano (Eds.), *Customer relationship management (Series of advances in management information systems)*. Armonk: M.E. Sharpe, Inc.
- Li, Y. N., Tan, K. C., & Xie, M. (2002). Measuring web-based service quality. *Total Quality Management*, 13(5), 685–700.
- Lin, C. S., Tzeng, G. H., Chin, Y. C., & Chang, C. C. (2010). Recommendation sources on the intention to use e-books in academic digital libraries. *The Electronic Library*, 28(6), 844–857.
- Lohse, G. L., Bellman, S., & Johnson, E. J. (2000). Consumer buying behavior on the internet: findings from panel data. *Journal of Interactive Marketing*, 41(1), 15–29.
- Lorenzo, C., Constantiniades, E., & Angel, M. (2009). Effects of web experience factors on virtual retail purchase preferences. *International Retail and Marketing Review*, 5(1), 1–14.
- Luo, X., Li, H., Zhang, J., & Shim, J. P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: an empirical study of mobile banking services. *Decision Support Systems*, 49(2), 222–234.
- MacCallum, R. (1986). Specification searches in covariance structure modeling. *Psychological Bulletin*, 100(1), 107–120.
- Marsh, H. W., & Hocevar, D. (1985). Applications of confirmatory factor analysis to the study of self-concept: first- and higher-order factor models and their invariance across groups. *Psychological Bulletin*, 97(3), 562–582.
- Marsh, H. W., & Hocevar, D. (1988). A new more powerful approach to multitrait-multimethod analysis: application of second-order confirmatory analysis. *Journal of Applied Psychology*, 73(1), 107–117.
- Matthew, A. (2011). Online consumers are driving economy. http://www.swissinfo.ch/eng/business/Online_consumers_are_driving_economy.html?cid=298661282011.
- Morganosky, M. A. (1986). Cost- versus convenience- orientated consumers: demographic, lifestyle, and value perspectives. *Psychology and Marketing*, 3(1), 35–46.
- Mowen, J. C., & Grove, S. J. (1983). Search behavior, price paid and the consumption other: An equity theory analysis of post-purchase satisfaction. In R. L. Day & H. K. Hunt (Eds.), *International fare in consumer satisfaction and complaining behavior* (pp. 57–63). Bloomington: Indiana University Press.
- Mullen, M. R. (1995). Diagnosing measurement equivalence in cross-national research. *Journal of International Business Studies*, 26(3), 573–596.
- Mulpuru, S. (2008). US eCommerce forecast: 2008 To 2012. http://www.forrester.com/rb/Research/us_ecommerce_forecast_2008_to_2012/q/id/41592/t/2. Accessed 29 September 2011.
- Negash, S., Ryan, T., & Igbaria, M. (2003). Quality and effectiveness in web-based customer support systems. *Information Management*, 40(8), 757–768.
- O'Connor, S. J., Shewchuk, R. M., & Carney, L. W. (1994). The great gap. *Journal of Health Care Marketing*, 14(2), 32–39.
- Ofir, C., Simonson, I., & Yoon, S. (2009). The robustness of the effects of consumers' participation in market research: the case of service quality evaluations. *Journal of Marketing*, 73(6), 105–114.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41–50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991a). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4), 420–450.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1991b). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 64(4), 420–450.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1993). Research note: more on improving quality measurement. *Journal of Retailing*, 69(1), 140–147.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *Journal of Marketing*, 58(1), 111–124.
- Park, I., Bhatnagar, A., & Rao, H. R. (2010). Assurance seals, on-line customer satisfaction, and repurchase intention. *International Journal of Electronic Commerce*, 14(3), 11–34.
- Reilly, M. D. (1982). Working wives and convenience consumption. *Journal of Consumer Research*, 8(March), 407–418.
- Rose, G. M., & Straub, D. (2001). The effect of download time on consumer attitude toward the e-service retailer. *e-Service Journal*, 1, 55–76.
- Rose, G. M., Meuter, M. L., & Curran, J. M. (2005). On-line waiting: the role of download time and other important predictors on attitude toward E-retailers. *Psychology and Marketing*, 22(2), 127–151.

- Rosenberg, L. J., & Hirschman, E. C. (1980). Retailing without stores. *Harvard Business Review*, 58(4), 103–112.
- Sangwan, S., Siguaw, J. A., & Guan, C. (2009). A comparative study of motivational differences for online shopping. *ACM SIGMIS Database*, 40(4), 28–42.
- Schaninger, C. M., & Allen, C. T. (1981). Wife's occupational status as a consumer behavior construct. *Journal of Consumer Research*, 8(2), 189–196.
- Schneider, G. P. (2006). *Electronic commerce* (6th ed.). Boston: Course Technology.
- Seiders, K., Berry, L. L., & Gresham, L. G. (2000). Attention, retailers! how convenient is your convenience strategy? *Sloan Management Review*, 41(3), 79–89.
- Seiders, K., Voss, G. B., Grewal, D., & Godfrey, A. L. (2005). Do satisfied customers buy more? Examining moderating influences in a retailing context. *Journal of Marketing*, 69(4), 26–43.
- Seiders, K., Voss, G. B., Godfrey, A. L., & Grewal, D. (2007). SERVCON: development and validation of a multidimensional service convenience scale. *Journal of the Academy of Marketing Science*, 35(1), 144–156.
- Szajna, B., & Scamell, R. W. (1993). The effect of information system user expectation on their performance and perceptions. *MIS Quarterly*, 17(4), 493–516.
- Tan, K. C., & Kek, S. W. (2004). Service quality in higher education using an enhanced SERVQUAL approach. *Quality in Higher Education*, 10(1), 17–24.
- Teas, R. K. (1993a). Consumer expectations and the measurement of perceived service quality. *Journal of Professional Services Marketing*, 8(2), 33–54.
- Teas, R. K. (1993b). Expectations, performance evaluation, and consumers' perceptions of quality. *Journal of Marketing*, 57(4), 18–34.
- Teas, R. K. (1994). Expectations as a comparison standard in measuring service quality: an assessment of a reassessment. *Journal of Marketing*, 58(4), 132–139.
- Torkzadeh, G., & Dhillon, G. (2002). Measuring factors that influence the success of internet commerce. *Information Systems Research*, 13(2), 187–120.
- Tsai, C. H., Chih, W. H., & Hsu, W. L. (2007). Using tam to study the personal motivations and social context factors influence the acceptance of knowledge management systems-based on high technology firms' samples. *Electronic Commerce Studies*, 5(1), 81–108.
- Verhagen, T., Nes, J. G. v., Feldberg, J. F. M., & Dolen, W. M. v. (2011). Virtual customer service agents: using social presence and personalization to shape online service encounters. <http://econpapers.repec.org/RePEc:dgr:vuarem:2011-10>.
- Verhoef, P. C., & Langerak, F. (2001). Possible determinants of consumers' adoption of electronic grocery shopping in Netherland. *Journal of Retailing and Consumer Services*, 8(5), 275–285.
- Wang, P. A., & Nyshadham, E. (2011). Knowledge of online security risks and consumer decision making: an experimental study. In *44th Hawaii International Conference on System Sciences*. Kauai, Hawaii, 4–7 Jan.: IEEE Society.
- Watson, R. T., Pitt, L. F., & Kavan, C. B. (1998). Measuring information systems service quality: lessons from two longitudinal case studies. *MIS Quarterly*, 22(1), 61–79.
- Wong, L. A., & Fong, V. H. I. (2011). Development and validation of the casino service quality scale: CASERV. *International Journal of Hospitality Management*, 31(1), 209–217.
- Xia, L., Kukar-Kinney, M., & Monroe, K. B. (2010). Effects of consumers' efforts on price and promotion fairness perceptions. *Journal of Retailing*, 86(1), 1–10.
- Xie, L., Peng, J., & Shen, W. (2010). Customer's perceived service convenience and customers' service evaluations of the bank's outlets. In *7th International Conference on Service Systems and Service Management (ICSSSM), Tokyo, Japan, Jun 28–30* (pp. 1–6). IEEE Society.
- Yang, Z., & Jun, M. (2002). Consumer perception of e-service quality: from internet purchaser and non-purchaser perspectives. *Journal of Business Strategies*, 19(1), 19–41.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52(2), 2–22.
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1990). *Delivering quality service: Balancing customer perceptions and expectations*. New York: Free Press.
- Zo, H., & Ramamurthy, K. (2009). Consumer selection of e-commerce websites in a B2C environment: a discrete decision choice model. *System and Humans, IEEE*, 39(4), 819–839.

Jung-Yü Lai is a faculty member of the Graduate Institute of Technology Management at the National Chung Hsing University (NCHU) in Taiwan. He received his Ph.D. from the Department of Information Management at the National Taiwan University (NTU). He was previously a senior software engineer at the United Microelectronics Corporation (UMC) in Taiwan. His current research interests include enterprise resource planning, e-business, e-learning, service quality management, technology management, and knowledge management. He has publications in *Computers in Human behavior*, *Electronic Library*, *Information & Management*, *International Journal of Human-Computer Studies*, *International Journal of Mobile Communications*, *Industrial Marketing Management*, *Journal of Systems & Software*, *Journal of the American Society for Information Science and Technology*, *Online Information Review*, and *Technovation*.

Khire Rushikesh Ulhas is a Ph.D. student of the Graduate Institute of Technology Management at the National Chung Hsing University (NCHU) in Taiwan. He received his Bachelor's and Master's degree in Electrical Engineering at Pune University, India. He also has received Master's degree from the Graduate Institute of Technology Management at the National Chung Hsing University (NCHU), Taiwan. His current research interests include technology management, service science, and e-learning. His papers have appeared in the *International Journal of Mobile Communications* and *Electronic Library*.

Jian-Da Lin received his Master's degree from the Graduate Institute of Technology Management at National Chung Hsing University in Taiwan. His current research interests include e-learning, e-commerce, and e-business.

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