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Category-specific RECIPES for internet retailing quality

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Design/methodology/approach – Four category-specific quality measurement scales (or RECIPE scales) were developed, one for each Fulfilment-Product type of internet retailing. The scales were administered to 1,262 internet shoppers, then the data were used to refine and assess the statistical properties of each instrument. A cross-category review of the refined quality dimensions was performed.

Findings – All four categories of internet retailing involve the quality dimensions of customer service and security. However, the dimensions of quality associated with selecting, paying for and obtaining products vary according to the type of product that is purchased (goods versus services) and the fulfilment method (offline versus electronic).

Research limitations/implications – There are four category-specific variations of internet retailing quality. This study provides a framework for distinguishing and measuring each variation.

Practical implications – The “one-size-fits-all” approach to measuring and managing internet retailing quality is not sufficient. Managers should develop quality management strategies that cater to the purchase and fulfilment requirements of customers in their type of internet retailing.

Originality/value – This study delineates internet retailing into four categories and presents a quality measurement scale for each category. This includes scales for three categories where such instruments do not otherwise exist.

Keywords

retailing, specific, category, internet, recipes, quality

Disciplines

Business | Social and Behavioral Sciences

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Keywords Internet shopping, Retailing, Quality

Paper type Research paper

An executive summary for managers and executive readers can be found at the end of this article.

Introduction

Various researchers have developed scales for measuring quality in internet retailing. Most treat all types of internet retailing as the same and develop “one-size-fits-all” quality measurement scales (e.g. Collier and Bienstock, 2006; Janda *et al.*, 2002; Long and McMellon, 2004). In contrast, some studies suggest that the dimensions of quality may vary for different types of products or delivery methods. However, these cases only examine quality in situations that involve purchasing tangible goods (e.g. Francis and White, 2002; Parasuraman *et al.*, 2005; Wolfinbarger and Gilly, 2003). As such, limited attention has been given to the stability of the dimensions of quality across different types of internet retailing. Also, there is an absence of scales that are specifically designed to measure quality in situations that involve digital goods (e.g. software) or service products (e.g. airline tickets, brokerage).

To explore this gap in the literature, Francis (2007) delineated internet retailing into four categories then examined the requirements of internet shoppers relative to each category. The findings indicated that each category involves the quality dimensions of website, transactions, delivery, customer service and security. However, the quality criteria within the dimensions differed across the categories depending on the type of product (goods or services) and the purchase fulfilment method (offline or electronic). Francis (2007) proposed that the exploratory results should be examined by developing and refining a separate quality measurement scale for each category of internet retailing.

This paper extends the literature by constructing, refining and assessing the recommended scales. The discussion commences by examining the concept of internet retailing quality, the scales that have been designed to measure quality in this field and the four category-specific variations of quality that were proposed by Francis (2007). A separate scale for measuring quality in each category is then developed and administered to internet shoppers. The collected data is used to refine and assess the statistical properties of each instrument. The results indicate that there are four category-specific variations of internet retailing quality and that the differences across categories primarily relate to paying

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for and obtaining products from retail sites. The limitations and implications of the study are also discussed.

Quality in internet retailing

Quality in internet retailing is conceptually similar to conventional service quality (Grönroos *et al.*, 2000, Meuter *et al.*, 2000). Like conventional service quality, internet retailing quality is understood to be a multi-dimensional construct that incorporates the functional aspects of the service process as well as the technical aspects of the service outcome (Grönroos *et al.*, 2000; Collier and Bienstock, 2006). Parasuraman *et al.* (2005, p. 217) describe this as “the extent to which a Web site facilitates efficient and effective shopping, purchasing and delivery”. Thus, quality in the online context goes beyond the website interface to also include paying for and obtaining products (Collier and Bienstock, 2006; Francis and White, 2002; Parasuraman *et al.*, 2005).

The way that consumers select, pay for and obtain products can differ depending on the type of product that is purchased (goods or services) and the method of product delivery (offline or electronic). For instance, the Fulfilment-Product classification scheme (Francis and White, 2004) delineates internet retailing into four categories that involve different purchase processes and outcomes. As indicated in Table I, the categories are:

- 1 *offline goods* – consumers purchase tangible goods that are delivered to them via post or courier (e.g. books, groceries, CDs);
- 2 *offline services* – consumers purchase or reserve a service then travel to an offline delivery location to consume the core service (e.g. airline travel, accommodation);
- 3 *electronic goods* – consumers purchase and download digital goods from a website (e.g. software, music files); and
- 4 *electronic services* – consumers purchase, co-produce and consume a service via a website (e.g. brokerage, chat/dating sites).

However, most studies of internet retailing quality treat all types of internet retailing as the same: they do not discuss different purchases processes and outcomes, and they develop general “one-size-fits-all” scales for measuring quality. A review of such scales identified that they neglect or minimise

paying for and obtaining products (see Francis, 2007). That is, many scales can be completed after only browsing a website for information (e.g. Barnes and Vidgen, 2001; Long and McMellon, 2004; Ribbink *et al.*, 2004; Yoo and Donthu, 2001) while others include only one, two or three items about purchasing and obtaining products (Harris and Goode, 2004; Janda *et al.*, 2002; Loiacono *et al.*, 2002; Srinivasan *et al.*, 2002). This focus on pre-purchase concerns (at the expense of purchase processes and outcomes) is not consistent with the concept of quality and casts doubt on the content validity of these instruments. It is also a concern for managers given that fulfilment is a key driver of customer behavioural intentions (Semeijn *et al.*, 2005).

Three studies have controlled for different types of internet retailing and developed category-specific quality measurement scales:

- 1 Francis and White (2002) with the PIRQUAL scale;
- 2 Parasuraman *et al.* (2005) with E-S-QUAL; and
- 3 Wolfenbarger and Gilly (2003), who developed eTailQ.

These cases examined purchase situations that involve physically delivered tangible goods – which equates to the Fulfilment-Product category of offline goods. The scales display relatively similar (and sound) statistical properties. For instance, in all cases, the quality dimensions demonstrate reliability coefficient alphas greater than 0.70 and are positively and significantly related to behavioural/loyalty intentions. Also, the scales explain similar proportions of loyalty intentions (as measured by the same five intentions items): PIRQUAL explains 52 per cent, E-S-QUAL 49 per cent, and eTailQ 56 per cent.

In contrast to the general measures of quality, the category-specific measures of quality take greater account of purchasing and obtaining products. For instance, PIRQUAL and E-S-QUAL both include a dimension that deals with completing online transactions (eTailQ assesses transactions via a single scale item). Also, all three scales include a delivery or fulfilment dimension that deals with the accuracy and reliability of product delivery. A synthesis of these studies (E-S-QUAL, PIRQUAL, and eTailQ) suggests that quality in the offline goods category of internet retailing is comprised of the following five dimensions:

- 1 website (PIRQUAL, E-S-QUAL, eTailQ);
- 2 transaction system availability (PIRQUAL, E-S-QUAL);

Table I Fulfilment-product classification scheme

Product	Fulfilment process	
	Offline	Electronic
Goods	<p><i>Offline goods</i></p> <p>Consumer orders/pays for product then disengages from web site</p> <p>Retailer dispatches goods via physical delivery channels</p> <p>Delayed exchange completed in offline environment</p> <p><i>Examples:</i> books, clothing, tangible CDs, DVDs, groceries, alcohol</p>	<p><i>Electronic goods</i></p> <p>Consumer pays for and downloads product via web site</p> <p>Consumer installs and/or prepares product for consumption</p> <p>Simultaneous exchange reliant on sustained interaction with site</p> <p><i>Examples:</i> software, MP3s, digital journals, reports, electronic art</p>
Services	<p><i>Offline services</i></p> <p>Consumer books and pays (or quotes credit card via web site)</p> <p>Consumer travels to service location (or firm to consumer)</p> <p>Core service product produced in offline environment</p> <p><i>Examples:</i> travel, hotels, event tickets, trade services (e.g. plumber)</p>	<p><i>Electronic services</i></p> <p>Consumer establishes account or membership and pays online</p> <p>Consumer produces and consumes core service offering via web site</p> <p>Simultaneous exchange reliant on sustained interaction with web site</p> <p><i>Examples:</i> banking, share trading, music streaming, chat/dating sites</p>

Source: Francis and White (2004)

- 3 delivery/fulfilment (PIRQUAL, E-S-QUAL, eTailQ);
- 4 customer service (PIRQUAL, eTailQ); and
- 5 security and privacy (PIRQUAL, E-S-QUAL, eTailQ).

As mentioned though, the category-specific measures of quality are for the offline goods category of internet retailing. The respective authors note that their instruments require modification for alternative products or situations, but they offer few insights into the nature of the changes that might be required. Furthermore, the literature does not provide category-specific scales for measuring quality in offline services, electronic goods or electronic services situations. The absence of scales for these categories is problematic because they include many of the most frequently purchased internet offerings (e.g. airline and event tickets, software and MP3s, financial services and subscriber chat/meeting sites). It also means that the dimensions of quality for categories of internet retailing other than offline-goods have not been identified empirically.

To examine this information gap, Francis (2007) explored the dimensions of quality across the four Fulfilment-Product categories of internet retailing. Interviews were conducted with 40 experienced internet shoppers. The informants discussed their quality requirements relative to each category in which they had purchased products. The quality criteria that emerged were listed and compared. The criteria lists, which were labelled "RECIPes" (Review and Evaluate the Customer's Internet Purchase Experience) for quality, are shown in Table II.

The exploratory study indicates that each category of internet retailing involves the quality dimensions of website, transactions, delivery, customer service and security. However, the quality criteria within the dimensions differ across categories depending on the type of product (goods or services) and fulfilment method (offline or electronic) (Table II). For example, delivery in the offline goods category deals with receiving the correct products, on time and in good condition. For offline services, delivery involves receiving a prompt, clear and easy to understand booking confirmation and the service being available as expected. For electronic goods it deals with the ease, speed and reliability of downloading digital goods. For electronic-services, delivery deals with the ease, speed and reliability of logging into and using the core online service.

On this basis Francis (2007) suggested that there are four category-specific variations of the construct of internet retailing quality. Given the exploratory nature of the study though, further research was recommended. In particular, Francis (2007) proposed that future research should develop a separate quality measurement scale for each category of internet retailing and examine the dimensions of quality across the categories. The present study performs and describes the recommended research in the following sections.

Method

Scale development

A scale for measuring customer perceptions of quality was constructed for each Fulfilment-Product category of internet retailing. The quality criteria from the RECIPe lists (Table II) were used as the items stems. "Perception" items, rather than expectation-perception item pairs, were constructed because consumers often overstate their expectations (Babakus and

Inhofe, 1991; Clow and Vorhies, 1993) and items pairs increase the risk of measurement error, bias or non-responses (Bouman and van der Wiele, 1992; Carman, 1990; Dabholkar *et al.*, 2000; Lee *et al.*, 2000). Two items with slightly different wording were constructed for each criterion and items were checked to ensure that they were not double-barrelled, ambiguous or unnecessarily lengthy (Churchill, 1979; Denscombe, 1998; De Vaus, 1995; De Villis, 1991; Froddy, 1993). The five-item Loyalty Intentions scale that was used in the eTailQ and E-S-QUAL studies was also included for the purpose of performing regression analysis. A seven-point Likert scale was used to capture responses to the scale items. All response points were given descriptive labels to increase the consistency with which the options were interpreted by respondents and the researcher (Buttle, 1996; Kaplan and Saccuzzo, 1997; Lewis, 1993). The response points were "strongly agree", "agree", "mildly agree", "neither agree nor disagree", "mildly disagree", "disagree" and "strongly disagree". A 'not applicable' option was also included (e.g. Wolfinbarger and Gilly, 2003). A pilot study with eight internet shoppers was then performed to assess the clarity and completeness of the questionnaires. The feedback prompted modifications to some of the instructions and scale items.

Sampling and administration

The RECIPe scales were administered to internet shoppers via an internet survey. A market research firm identified consumers from a sampling frame that was similar to the Australian population in terms of age, gender, income and state/territory of residence distributions. This sample is generalisable to the USA because the two populations obtain near identical scores on a number of Hofstede's (1980) cultural dimensions (Patterson, 2007). Participants were recruited via e-mail and a secure survey site presented screening items that established if and for which Fulfilment-Product categories individuals had completed an online purchase. The screening site then branched into four separate survey sites, one for each Fulfilment-Product category. Eligible respondents were automatically branched to a category site for which they had completed a purchase and they could only respond in that one category. The first section of each survey site directed participants to describe their most recent online purchase for the given category. Participants then completed the RECIPe scale and Loyalty Intentions scale based on that purchase incident.

The total sample included 1,262 internet shoppers, of whom 626 (49.6 per cent) were male and 636 (50.4 per cent) were female. This sample was divided into the four Fulfilment-Product category samples as indicated in Table III. The sample size for each category ranged from 312 to 319 participants, which is sufficiently large for factor analysis (e.g. Cattell, 1978; Finn and Kayande, 2004; Guadagnoli and Velicer, 1988; Parasuraman *et al.*, 1988). Table III also reports the products that were purchased during the internet shopping incidents that participants evaluated.

Scale refinement and assessment

The collected data were used to refine and assess the psychometric properties of each RECIPe scale. This involved performing exploratory factor analysis as well reliability and regression analysis. Various researchers recommend exploratory, rather than confirmatory, factor analysis during

Table II Preliminary RECIPE criteria

Component	Offline goods	Offline services	Electronic goods	Electronic services
Website	Easy to locate information Pages download quickly Visually appealing site Clear product description Good product guarantees Explains refund/return policies	Easy to locate information Pages download quickly Visually appealing site Services clearly described Good range of services Helpful pictures and images Good service guarantees	Easy to locate information Pages download quickly Visually appealing site Clear product description Specifies size of digital product Specifies system requirements Specifies compatibility Allows pre-purchase trial	Easy to locate information Pages download quickly Visually appealing site Services clearly described Provides cancellation instructions
Transaction	Clear instructions for placing order Easy to place an order Ordering system works first time Clear confirmation of order	Clear booking instructions Easy to book online Booking system works first time Booking confirmation provided	Clear purchase instructions Easy to purchase online Online purchase works first time Purchase confirmation provided	Clear set-up instructions Easy to set up account/subscribe Set-up/subscription works first time Account established promptly Account details confirmed
Delivery	Products delivered on time Receive correct products first time Products arrive in good condition Delivery confirmation notice option	Prompt confirmation of booking Confirmation notice is clear Confirmation is easy to understand Booking processed correctly	Clear downloading instructions Duration of download reasonable Clear instructions for installation/preparation Uninterrupted downloads Pause-resume facilities provided Hard copy materials available	Easy to log in to account Prompt access to services Reliable access to services Online services are easy to use Service matches specifications
Customer service	Easy to contact service staff Prompt replies to e-mails Communications seem personal Helpful answers to questions Company happy to fix problems Delay information is easy to obtain	Easy to contact customer service staff Prompt replies to e-mails Communications seem personal Helpful answers to questions Company happy to fix problems	Easy to contact customer service staff Prompt replies to e-mails Communications seem personal Helpful answers to questions Company happy to fix problems	Easy to contact customer service staff Prompt replies to e-mails Communications seem personal Helpful answers to questions Company happy to fix problems Availability of online service staff
Security	Security information explained Safety of credit cards guaranteed Use of personal details explained Personal details kept confidential	Security information explained Safety of credit cards guaranteed Use of personal details explained Personal details kept confidential	Security information explained Safety of credit cards guaranteed Use of personal details explained Personal details kept confidential	Security information explained Safety of credit cards guaranteed Use of personal details explained Personal details kept confidential

Source: Francis (2007)

Table III Sample characteristics

Fulfilment-Product category	Number of participants	Gender (per cent)		Purchase incidents
		Male	Female	
Offline goods	315	47	53	Books, CDs, DVDs, groceries, alcohol, flowers, clothing, shoes, health/beauty, computer hardware, electrical appliances, sporting goods
Offline services	319	46	54	Tickets for airline, train, concerts, theatre and sporting events, hotel and rental car reservation
Electronic goods	316	52	48	Downloaded software, music files and videos, electronic art/GIFs/fonts, digital books, cell phone ring tones
Electronic services	312	53	47	Share trading, investment services, online forum, chat and introduction services, adult entertainment, psychic/astrology readings

the first stage of refining new scales (e.g. Anderson and Gerbing, 1988; Cattell, 1978; Nunnally and Bernstein, 1994; Rummell, 1970). Any “not applicable” responses that were obtained were treated as missing values and excluded from

the analysis as recommended by Cattell (1978) and Nunnally and Bernstein (1994). To assess the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) value was extracted and Bartlett’s test of sphericity was conducted.

Principal components analysis was used to extract components with eigenvalues greater than one and direct oblimin rotation was performed. Only the items that attained a primary factor loading greater than 0.5 with no secondary loadings greater than 0.3 were retained. To assess the reliability of the scale items, Cronbach's coefficient α , corrected item total correlations (CITC) and alpha if item deleted (AIID) values were examined.

Prior to conducting the regression analysis the reliability of the Loyalty Intentions scale was assessed and mean scores were computed for each participant. The mean Loyalty Intentions scores served as the regression analysis dependent variable and the mean quality component scores provided the independent variables (e.g. Wolfinbarger and Gilly, 2003). The data was checked for outliers and any cases with Cook's distance values greater than 0.2 or standardised residuals greater than 3 were removed. The regression analysis examined the coefficient of determination and significance of the model as well as the direction and significance of the relationships between variables.

Results

RECIPE: offline goods

The preliminary RECIPE offline goods scale was administered to 315 internet shoppers who had used the internet to purchase tangible goods. The KMO value and significant Bartlett's test result indicated that the data was suitable for factor analysis. The iterative EFA, reliability and regression analysis procedures were then performed, the results for which are presented in Table IV. The refined scale identifies four quality components and includes 19 scale items. The four components account for 72 per cent of the variation in the data. All items produced high primary factor loadings with no secondary loading greater than 0.3. Compared to the preliminary RECIPE model (Francis, 2007), the website, customer service and security components were retained. However, the transaction system and delivery components merged into a single component that combined paying for and receiving products. This new component was labelled "exchange" to reflect that it focused on the payment-product exchange aspect of internet retailing. The scale displayed favourable reliability statistics: the coefficient alphas ranged from 0.79 for website to 0.93 for customer service, all items generated CITC values greater than 0.3 and the AIID values were desirably lower than the relevant obtained values.

In this category the Loyalty Intentions scale obtained a reliability coefficient α of 0.94 and four outliers with problematic Cook's distance values and standardised residuals were excluded from further analysis. Regression analysis then indicated that the RECIPE offline goods model was significant and that it explained 66 per cent of the variation in internet shopper loyalty intentions ($F = 85.14$, $p < 0.000$, $R^2 = 0.66$). This exceeds the comparable indicators of eTailQ (56 per cent) and E-S-QUAL (52 per cent). The four quality components were positively and significantly related to loyalty intentions at the $p < 0.01$ level.

RECIPE: offline services

The preliminary RECIPE offline services scale was administered to 319 internet shoppers who had used the internet to reserve or purchase a service that was later consumed in an offline setting. The data was suitable for the

intended analysis and the scale refinement produced the instrument that is presented in Table V. This RECIPE scale has four quality components with 18 scale items. The components explained 72 per cent of the data variation and the retained items produced suitable item-factor loadings. The initial website, customer service and security components were retained while the transaction system and delivery components merged into a single component. The new component was labelled "reservation/purchase" because it focused on the process and confirmation of booking or purchasing a service. The component scales for this category generated coefficient alphas that ranged from 0.77 for website up to 0.91 for customer service and security. The CITC and AIID values reinforced the internal consistency of the scales.

In this category the Loyalty Intentions scale obtained an appropriate reliability coefficient α of 0.94 and no outliers were identified. The regression analysis identified that the RECIPE model for offline services was significant and that the four components explained 56 per cent of the variation in loyalty intentions ($F = 50.80$, $p < 0.000$, $R^2 = 0.56$). Each component produced a positive regression coefficient: one component was significant at the $p < 0.05$ level and three were significant at $p < 0.01$.

RECIPE: electronic goods

The preliminary RECIPE electronic goods scale was administered to 316 internet shoppers who had purchased and downloaded digital goods. The data was suitable for factor analysis and the refined scale is presented in Table VI. In this category the refined scale has 19 items across four quality components. The components explained 71 per cent of the variation in the data and all items obtained desirable factor loadings. The initial customer service and security components were retained. However, the website component altered such that the refined component primarily focused on the technical details of the digital goods. As such, it was labeled "product details". Also, the preliminary transaction system and delivery components merged into a single exchange component that captured the payment-product exchange stage of internet retailing. The scale reliability coefficients ranged from an acceptable 0.70 for product details up to 0.95 for customer service. The CITC and AIID values for the retained items were also suitable.

For the regression analysis, the Loyalty Intentions scale obtained a suitably high coefficient α of 0.68 but it was necessary to exclude three outliers with high standardised residuals. With the outliers removed, the RECIPE electronic goods model was significant and explained 55 per cent of the variation in Loyalty Intentions ($F = 46.99$, $p < .000$, $R^2 = 0.55$). Each of the four quality components produced a positive regression coefficient that was significantly related to loyalty intentions, with three components being significant at the $p < 0.01$ level.

RECIPE: electronic services

The preliminary RECIPE electronic services scale was completed by 312 internet shoppers who had purchased, co-produced and consumed a service via a website. The data was suitable for factor analysis and the refined scale is presented in Table VII. This scale has 20 items across four quality components. The components accounted for 74 per cent of the variation in the data. The item factor loadings were favorable with the exception of one item that generated a

Table IV RECIPE: offline goods

Items	Factor loadings
Website ($\alpha = 0.79$)	
1. Locating information on the website was easy	0.734
2. The website was visually appealing	0.796
3. The products were described clearly	0.772
4. The range of products that were offered was good	0.599
Exchange ($\alpha = 0.88$)	
5. The system for placing orders worked the first time	0.632
6. Clear confirmation of my order was provided	0.718
7. Products were delivered by the expected time	0.722
8. I received the correct products the first time	0.848
9. The products arrived in good condition	0.882
Customer service ($\alpha = 0.93$)	
10. Contacting customer service staff was easy	0.845
11. The company responded quickly to my emails	0.748
12. Communications with this firm seemed personal	0.905
13. The answers to my questions were helpful	0.806
14. The company was happy to fix any problems	0.842
15. It was easy to obtain help about delivery delays	0.781
Security ($\alpha = 0.91$)	
16. The security information was explained clearly	0.693
17. The safety of credit card details was guaranteed	0.809
18. The use of my personal details was explained	0.961
19. My personal details were treated as confidential	0.895

Regression analysis (components: loyalty intentions)

Component	Coefficient <i>B</i>	<i>t</i> -value	Significance
Website	0.175	2.871	0.005 **
Exchange	0.372	6.220	0.000 **
Customer service	0.195	4.148	0.000 **
Security	0.177	3.465	0.001 **

Notes: Proportion of variation in data explained = 72.2 per cent. $R^2 = 0.66$, adjusted $R^2=0.65$. **Significant at the $p < 0.01$ level

marginally acceptable secondary loading of 0.311. The preliminary customer service and security components were retained. However, the analysis did not extract a website component. Conceivably, website-specific concerns were not readily distinguishable for electronic-services because the website is used for selecting, purchasing, co-producing and consuming the product. Likewise, the preliminary transaction system and delivery components were not retained in the refined instrument. Rather, this category generated a component that focused on establishing an account or membership as well as one that focused on subsequently accessing and consuming the core online service. Therefore, it appeared appropriate to label these components as account set-up and online services respectively. The component scales produced alpha coefficients that ranged from 0.88 for account set-up to 0.92 for online services and customer service. The CITC and AIID values supported retaining the selected items.

In this category the Loyalty Intentions scale obtained a scale α of 0.95 and it was necessary to remove two outliers from the regression analysis. The RECIPE model for

electronic services was significant and explained 57 per cent of the variation in internet shopper loyalty intentions ($F = 66.92$, $p < 0.000$, $R^2 = 0.57$). All four components displayed positive regression coefficients that were significantly related to loyalty intentions, one at the $p < 0.05$ level and the remaining three were significant at the $p < 0.01$ level.

Discussion

The practice of developing general or generic measures of quality emanates from conventional service quality literature – with SERVQUAL (Parasuraman *et al.*, 1988) being a notable case in point. Over the years, however, it has emerged that the SERVQUAL dimensions of quality are not always stable across different service contexts. In turn, various researchers have expressed concerns about the extent to which the general scale must be modified to suit different services (e.g. Babakus and Boller, 1992; Buttle, 1996; Carman, 1990; Gagliano and Hathcote, 1994). In a similar

Table V RECIPE: offline services

Items	Factor loadings		
Website ($\alpha = 0.77$)			
1. The website provided useful pictures and images			0.759
2. The website was visually appealing			0.758
3. The service products were described clearly			0.638
4. The range of services that were offered was good			0.588
Reservation/purchase ($\alpha = 0.88$)			
5. It was easy to make an online purchase/booking	0.707		
6. The purchase/booking system worked the first time	0.777		
7. The purchase/booking was confirmed promptly	0.780		
8. The confirmation message was easy to understand	0.815		
9. The purchase/booking was processed correctly	0.810		
Customer service ($\alpha = 0.91$)			
10. Contacting customer service staff was easy		0.753	
11. The company responded quickly to my e-mails		0.596	
12. Communications with this firm seemed personal		0.871	
13. The answers to my questions were helpful		0.894	
14. The company was happy to fix any problems		0.772	
Security ($\alpha = 0.91$)			
15. The security information was explained clearly			0.800
16. The safety of credit card details was guaranteed			0.862
17. The use of my personal details was explained			0.902
18. My personal details were treated as confidential			0.832
Regression analysis (components: loyalty intentions)			
Component	Coefficient <i>B</i>	<i>t</i> -value	Significance
Website	0.165	2.28	0.024 *
Reservation/purchase	0.357	4.68	0.000 **
Customer service	0.166	3.47	0.001 **
Security	0.164	2.74	0.007 **

Note: Proportion of variation in data explained = 71.9 per cent. $R^2 = 0.56$, adjusted $R^2 = 0.55$. *Significant at the $p < 0.05$ level; **significant at the $p < 0.01$ level

manner this study challenges the merit of the “one-size-fits-all” approach to measuring quality in internet retailing.

In particular, comparing the RECIPE scales identifies that there are similarities and differences in the dimensions of quality across categories of internet retailing. For instance, quality in each category comprises four dimensions. However, only two of these – customer service and security – are universal to all four categories. The security dimension is identical for all categories and includes four items about the safety of credit card and personal details. Also, customer service has a common set of five criteria that relate to the process and outcome of contacting a firm’s customer support services. This includes the ease of contacting the firm, and the speed and helpfulness of the firm’s response. There is a relatively minor difference, however, in that offline goods and electronic services each have one additional service criterion: offline goods also includes information about delivery delays, and electronic services includes the provision of live online customer service staff.

Where customer service and security appear to be generic dimensions of quality, the dimensions associated with

selecting, paying for and obtaining products reveal varying degrees of disparity across the categories. Regarding the pre-purchase “selection” phase, offline goods and offline services include reasonably similar website dimensions that deal with the site design, content and range of products. By contrast, quality in the selection phase for electronic-goods deals with providing product details. This reflects the technical nature of the products and includes specifying the size, system requirements and compatibility of digital goods. For electronic services, selection is addressed by an account set-up dimension that looks at the ease, speed and reliability of establishing an account or membership through which to access and consume the core online services.

Each category also includes a quality dimension that focuses on paying for and obtaining the sought-after products. For offline goods this is the exchange dimension, and it covers the process of placing an online order as well as the correct goods being delivered on time in good condition. Electronic goods also has an exchange dimension. In this case, though, the quality of the fulfillment aspect is determined by the clarity of instructions for downloading digital goods as well as

Table VI RECIPE electronic goods

Items	Factor loadings		
<i>Product details</i> ($\alpha = 0.70$)			
1. The file size of digital products was specified			0.768
2. The system requirements were explained clearly			0.796
3. The product compatibility was indicated	0.308		0.628
4. Products were available for pre-purchase trial			0.583
<i>Exchange</i> ($\alpha = 0.88$)			
5. It was easy to pay for the products online	0.757		
6. The payment system worked the first time	0.884		
7. Clear confirmation of my purchase was provided	0.783		
8. The downloading instructions were easy to follow	0.662		
9. The downloading time was reasonable	0.542		
10. The download process worked the first time	0.749		
<i>Customer service</i> ($\alpha = 0.95$)			
11. Contacting customer service staff was easy		0.898	
12. The company responded quickly to my emails		0.904	
13. Communications with this firm seemed personal		0.874	
14. The answers to my questions were helpful		0.863	
15. The company was happy to fix any problems		0.820	
<i>Security</i> ($\alpha = 0.86$)			
16. The security information was explained clearly			0.656
17. The safety of credit card details was guaranteed			0.743
18. The use of my personal details was explained			0.903
19. My personal details were treated as confidential			0.863
Regression analysis (components: loyalty intentions)			
Component	Coefficient <i>B</i>	<i>t</i>-value	Significance
Product details	0.221	3.547	0.001 **
Exchange	0.193	2.351	0.020 *
Customer service	0.208	4.130	0.000 **
Security	0.198	2.795	0.006 **

Note: Proportion of variation in data explained = 71.1 per cent. $R^2 = 0.55$, adjusted $R^2 = 0.54$. *Significant at the $p < 0.05$ level. **Significant at the $p < 0.01$ level

the speed and reliability of the download process. For offline-services, internet shoppers evaluate the reservation/purchase. This includes the ease and reliability of booking a service via the internet, the speed and clarity of the booking confirmation, and the booking being processed correctly. Finally, the equivalent dimension for electronic-services is online services. This deals with the ease and reliability of logging into the core service as well as that service being easy to use and meeting the service description.

These results indicate that there are four variations of the construct of internet retailing quality and that the differences across categories deal with selecting, purchasing and obtaining products. The ability to purchase and obtain products are defining features that distinguish retail sites from information-only websites. Furthermore, the category-specific quality dimensions that deal with these issues display the strongest influence on customer behavioral intentions. For offline goods the dimension with the strongest influence on customer intentions is exchange ($B = 0.372$), for offline services it is reservation/purchase ($B = 0.357$), for electronic

goods it is product details ($B = 0.221$) and for electronic-services the strongest influence was displayed by online services ($B = 0.327$). Thus, from either a theoretical or managerial perspective, the “one-size-fits-all” perspective of internet retailing quality does not appear to be adequate.

Research limitations and implications

The key limitation of this study is that the RECIPE scales were only subjected to one phase of administration and refinement. The single phase was sufficient to demonstrate that there are at least four variations of internet retailing quality and to establish quality measurements scales for the three internet retailing categories where such instruments do not otherwise exist. Also, it was not feasible to perform additional scale administrations within the confines of this paper. However, new scales should be examined through multiple phases of administration, refinement and testing, with the second and subsequent phases using confirmatory factor analysis (Anderson and Gerbing, 1988; Cattell, 1978; Nunnally and Bernstein, 1994). Therefore, further assessment of the RECIPE scales is recommended. In

Table VII RECIPE: electronic services

Items	Factor loadings		
<i>Account set-up</i> ($\alpha = 0.88$)			
1. Instructions for establishing an account were clear			0.707
2. It was easy to set up an account/membership			0.805
3. Establishing an account worked the first time			0.844
4. My account/membership was established promptly			0.890
<i>Online services</i> ($\alpha = 0.92$)			
5. My account/membership details were confirmed	0.805		
6. Logging into my account was easy	0.909		
7. Access to the online services was reliable	0.766		
8. The online services could be accessed promptly	0.680		
9. Using the account/member services was easy	0.677		
10. The online service was as it had been described	0.594		
<i>Customer service</i> ($\alpha = 0.92$)			
11. Contacting customer service staff was easy		0.736	
12. The company responded quickly to my emails		0.860	
13. Communications with this firm seemed personal		0.968	
14. The answers to my questions were helpful		0.888	
15. The company was happy to fix any problems		0.797	
16. Customer service staff could be contacted online		0.582	0.311
<i>Security</i> ($\alpha = 0.89$)			
17. The security information was explained clearly			0.712
18. The safety of credit card details was guaranteed			0.757
19. The use of my personal details was explained			0.794
20. My personal details were treated as confidential			0.802
Regression analysis (components: loyalty intentions)			
Component	Coefficient <i>B</i>	<i>t</i>-value	Significance
Account set-up	0.146	2.144	0.033 *
Online services	0.327	3.584	0.000 **
Customer service	0.124	2.904	0.004 **
Security	0.234	3.715	0.000 **

Note: Proportion of variation in data explained = 74.3 per cent. $R^2 = 0.57$, adjusted $R^2 = 0.56$. *Significant at the $p < 0.05$ level; **significant at the $p < 0.01$ level

particular, collaborating with one or more internet retailers from each category and administering the appropriate RECIPE scale to a sample of their customers would provide the data that is needed to assess the instruments through confirmatory factor analysis. Adopting a case study approach would also facilitate examining the managerial usefulness of the scales.

From a broader perspective, the assumptions of this study should also be considered. This study adopted a process-and-outcome view of quality rather than an emotions-based view, and it assumed that quality is comprised of reflective rather than formative indicators. Theory and precedents support the selected position (e.g. Buttle, 1996; Dabholkar, 1995; Grönroos, 1984; Parasuraman *et al.*, 2005). Nevertheless, it may be seen as a limitation by readers who advocate for the alternatives. By comparison, the issue of reflective versus formative indicators has received limited attention. Also, the one study that conceptualised internet retailing quality as formative later used the conventional procedures for constructing a scale of reflective indicators (i.e. Collier and

Bienstock, 2006). Far from being a matter of semantics or debate for psychometricians, the reflective versus formative issue has substantive implications for scale development, assessment and application (Diamantopoulos and Winklhofer, 2001; Rossiter, 2002). Therefore, it would be insightful to develop a measure of internet retailing quality by following Rossiter's (2002) C-OAR-SE procedure for formative measures and to then demonstrate the theoretical and managerial implications through a comparison of reflective and formative based measurement instruments.

Managerial implications

It is reasonable to say that managers appreciate the importance of managing quality and that the literature is abundant with principles and strategies to guide the process. Within this nexus of literature is information regarding scales for measuring quality. In essence, these instruments summarise the factors that contribute to or determine customer evaluations of quality and they provide the means

through which to assess customer evaluations of quality. Presenting the determinant factors via conceptual models fosters the development of meaningful, justifiable and readily communicated management goals (Ghobadian and Gallea, 2001; Zeithaml *et al.*, 1988) while measuring quality provides data that is used to monitor performance and determine improvement priorities (D’Cruz and Fleck, 1989; Fisk *et al.*, 2000). Also, the combination of meaningful goals and measured outputs aids the process of motivating personnel and building a customer-oriented culture (Berry *et al.*, 1994).

It is towards the next level of operational detail that the present study provides a contribution. That is, this study demonstrates that the actual determinants of quality differ across categories of internet retailing. Different determinants mean that there are different functions, processes and criteria to manage and, as the discussion of regression coefficients indicated, different primary drivers of customer loyalty. In turn, it may be seen that quality measurement scales that treat all types of internet retailing as the same may generate incomplete or misleading management recommendations, while modifying such instruments on an *ad hoc* basis may also be problematic. Thus, the key message for managers is that the extent to which their quality management activities will be successful depends heavily on selecting the most appropriate measure of quality for their type of internet retailing.

Furthermore, the present study provides a framework through which to identify and measure the different types of internet retailing quality. That is, managers can use the Fulfilment-Product classification scheme (Table I) to determine which category of internet retailing best represents their situation. Managers are then able to select the corresponding category-appropriate RECIPE scale. Having done so, the given scale can be used to guide quality management activities in the manner that is outlined above and described more fully in the related service quality management literature (e.g. administer the scale to customers, diagnose and report performance, determine improvement priorities).

In particular, it is strongly advisable for managers in the categories of internet retailing other than offline goods to administer the category-appropriate RECIPE scale to their customers. As the literature review revealed, no studies have directly examined the determinants of quality in offline services, electronic goods or electronic services situations, nor have they provided scales for measuring quality in these situations. As such, it is foreseeable that diagnosing the results obtained from administering the appropriate RECIPE scale is likely to bring new and previously neglected issues to light. For example, in the electronic goods category, it would be beneficial to examine the customer’s perspective of the product details and download process, especially since many customers may not have a high level of technical expertise or sophisticated equipment. Or in the electronic services category, it would be useful to examine closely the customer’s perspective of the account set-up process to ensure that the procedures do not deter prospective customers.

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Executive summary and implications for managers and executives

This summary has been provided to allow managers and executives a rapid appreciation of the content of the article. Those with a particular interest in the topic covered may then read the article in toto to take advantage of the more comprehensive description of the research undertaken and its results to get the full benefit of the material present.

"One size fits all" might be an appealing sales slogan for some socks and gloves, but not such a worthy offering when unique solutions to diverse situations are called for. For instance, in studies, all types of internet retailing are often treated as the same, which at best minimises or at worst neglects altogether the "paying for" and "obtaining" part of the purchase. The different purchase processes and outcomes are not discussed

and, instead, “one-size-fits-all” scales for measuring quality are used.

Consequently, limited attention is given to the stability of the dimensions of quality across different types of internet retailing. Also, there is an absence of scales that are specifically designed to measure quality in situations that involve digital goods (e.g. software) or service products (e.g. airline tickets).

This focus on pre-purchase concerns (at the expense of purchase processes and outcomes) is not consistent with the concept of quality and casts doubt on the content validity of these instruments. Quality measurement scales which treat all types of internet retailing as the same may generate incomplete or misleading management recommendations, while modifying such instruments on an *ad hoc* basis may also be problematic.

In “Category-specific RECIPES for internet retailing quality” Julie E. Francis provides a framework from which to identify and measure the different types of internet retailing quality, extending previous research which delineated internet retailing into four categories, before examining the requirements of internet shoppers relative to each category. Quality criteria lists are labelled RECIPES (Review and Evaluate the Customer’s Internet Purchase Experience) for quality, and refer to:

- *offline goods* – consumers purchase tangible goods that are delivered to them via post or courier (e.g. books, groceries, CDs);
- *offline services* – consumers purchase or reserve a service then travel to an offline delivery location to consume the core service (e.g. airline travel, accommodation);
- *electronic goods* – consumers purchase and download digital goods from a website (e.g. software, music files); and
- *electronic services* – consumers purchase, co-produce and consume a service via a website (e.g. brokerage, chat/dating sites).

The ability to purchase and obtain products are defining features that distinguish retail sites from information-only websites. The category-specific quality dimensions that deal with these issues display the strongest influence on customer behavioural intentions. For offline goods the dimension with the strongest influence on customer intentions is “exchange”; for offline services it is “reservation/purchase”; for electronic goods it is “product details”; and for electronic-services is “online services” Thus, from either a theoretical or managerial perspective, the “one-size-fits-all” perspective of internet retailing quality does not appear to be adequate.

Comparison of the RECIPE scales reveals that there are similarities and differences in the dimensions of quality across categories of internet retailing. For instance, quality in each category comprises four dimensions. However, only two of these – customer service and security – are universal to all. The security dimension is identical for all categories and includes items about the safety of credit card and personal details. Also, customer service has a common set of criteria that relate to the process and outcome of contacting a firm’s customer support services. This includes the ease of contacting the firm, and the speed and helpfulness of the firm’s response. There is a relatively minor difference though in that offline goods and electronic services each have one additional service criterion: offline goods also includes information about delivery delays and electronic services includes the provision of live online customer service staff.

Where customer service and security appear to be generic dimensions of quality, the dimensions associated with selecting, paying for and obtaining products reveal varying degrees of disparity across the categories. Regarding the pre-purchase “selection” phase, offline goods and offline services include reasonably similar website dimensions that deal with the site design, content and range of products. By contrast, quality in the selection phase for electronic-goods deals with providing product details. For electronic services, selection is addressed by an account set-up dimension that looks at the ease, speed and reliability of establishing an account or membership through which to access and consume the core online services.

Each category also includes a quality dimension that focuses on paying for and obtaining the products. For offline goods this is the exchange dimension, and it covers the process of placing an online order as well as the correct goods being delivered on time in good condition. Electronic goods also has an exchange dimension. In this case, though, the quality of the fulfilment aspect is determined by the clarity of instructions for downloading digital goods as well as the speed and reliability of the download process. For offline services, internet shoppers evaluate the reservation/purchase. This includes the ease and reliability of booking a service, the speed and clarity of the confirmation, and the booking being processed correctly. The equivalent dimension for electronic services is *online services*. This deals with the ease and reliability of logging into the core service as well as that service being easy to use and meeting the service description.

(A précis of the article “Category-specific RECIPES for internet retailing quality”. Supplied by Marketing Consultants for Emerald.)