Abstract: This study investigates the online purchasing experiences of young adults aged between 16 and 30 in the Malaysian context. Specifically, we examine the relationship between the perceived quality of pure service online retailers (e-tailers) with the satisfaction (e-satisfaction) and loyalty (e-loyalty) of young consumers. In an online context, service quality is measured using Wolfinbarger and Gilly’s (2003) eTailQ method. To test the relationships being investigated, data from a sample of 385 undergraduate and postgraduate students with high probability of online purchasing experience was collected from public and private universities located in Kuala Lumpur, Malaysia. The results of multiple regression analysis show that all dimensions of eTailQ (website design, reliability, privacy/security, and customer service) are significant predictors of e-satisfaction and e-loyalty among young adults in Malaysia. Reliability had the highest impact, while website design had the lowest impact on both e-satisfaction and e-loyalty. It may be conjectured that firms need to deliver their services accurately and promptly, as promised to customers, to treat customers’ data with the utmost confidentiality, to provide excellent customer service, and to offer user-friendly and attractive web interfaces in order to increase satisfaction and loyalty among customers.

Keywords: young adults; online shopping; e-service quality; e-satisfaction; e-loyalty; Malaysia.
1 Introduction

The internet has become an integral part of society and has revolutionised business environments in many ways. The World Wide Web has opened up access to markets, allowing firms to promote their products and services to a wider range of customers, and consequently, has positively transformed purchasing decisions and processes that are distinctively unique from conventional buying (Eroglu et al., 2003; Sharma and Sheth, 2004). With minimal or zero human interaction involved, customers are able to shop around for their desired products and services, evaluate the performance and utilities of online providers, and purchase conveniently, irrespective of time and place (Ba and Johansson, 2008). Technology is therefore seen to influence service experience through customers’ own participation in service delivery and processes (that is, co-creation), which in turn enables them to assess the quality and satisfaction, as well as the brand (Ostrom et al., 2010).

People today are becoming more internet-savvy, especially young adults who, through experience, have come to master the art of technology, and particularly the use of the World Wide Web (Gupta et al., 2008). This is not surprising, as this particular segment of consumers have spent most of their lives growing up in the internet era and have become accustomed to virtual communication and interaction, including online purchasing. The advantages of online transactions have begun to prevail over the issues of security and privacy that were once critical conceptions among internet users. People are now generally more receptive to online shopping, due to the numerous benefits that outweigh the experience of conventional purchasing. These benefits include low costs of searching out products, convenience, enjoyment, wider selection, ability to compare
Young adults’ perceptions of online service quality

products, and the ability to make informed selection (Gupta et al., 2004; Mathwick et al., 2001; Moe and Fader, 2004).

The literature suggests that there is a connection between internet surfing and online purchasing. Due to the enormous exposure to advertisements and promotions on the World Wide Web (including social media platforms), it is highly likely that users of the internet will perform online purchases. In the UK, for instance, individuals in the 16–24 and 25–34 age ranges are proportionately the largest users of many internet activities, whilst the number of older users has dropped (Office for National Statistics, 2013). This shows a simple negative correlation between age and internet usage, implying that the younger generation are more likely to engage in online shopping than their older counterparts.

Electronic service, or e-service, is defined as the provision of service over electronic networks (Rust and Kannan, 2002). E-service has attributes such as responsiveness to customer enquiries, security, fulfilment processes, customisation and personalisation, and interactivity (Ba and Johansson, 2008). E-service quality can be assessed as the overall consumer judgment and assessment of e-service delivery in the online marketplace (Santos, 2003). Researchers have claimed that, in comparison to offline service, e-service has the capability of serving consumers’ needs more efficiently. Moreover, the literature has begun to acknowledge the effects of e-service quality (Zeithaml et al., 2000a) and asserted that its derived objectives are relevant to e-commerce (Keeney, 1999).

Numerous studies have focused on the effect of online service quality on e-shoppers. However, most of the literature examines the e-service quality of consumers in general, and does not particularly focus on a specific age range. Hence, there appears to be a gap in knowledge regarding the online experience of young e-shoppers, who are often regarded as the ‘golden market segment’ (Vij, 2007). This is particularly the case regarding their experience with online retailers, or e-tailers as these sellers are often called. This study therefore contributes to the literature by focusing on the online service experience of young adults with pure service providers, by employing the eTailQ method developed by Wolfinbarger and Gilly (2003).

In addition, this study also contributes to the literature on service quality and customer satisfaction within the service science and service-dominant logic research streams. As one of the most important concepts in marketing, customer satisfaction links purchasing and consumption processes with post-purchase phenomena such as repeat purchase, attitude, and loyalty. Since using and evaluating services requires the customer’s active participation and involvement in the value creation process (Vargo and Lusch, 2008; Vega-Vazquez et al., 2013), especially in the online context (e.g., Mohd-Any et al., 2015) – that is to say, involves the ‘value in use’ – customer satisfaction with the experience must be a consequence of this (Grönroos, 2008). Given the nature of Web 2.0 technology, virtual environments including internet-based self-service technology and freestanding kiosks allow customers to co-create experiences with firms (Kohler et al., 2011). Therefore, the quality-satisfaction-loyalty relationship will remain an important topic in marketing and consumer behaviour research.

The objectives of this paper are threefold. First, we investigate the key factors of online service quality among young adults in the context of an emerging market, Malaysia. Second, we analyse the relationship between a website’s service quality and e-satisfaction. Third, we examine the relationship between website service quality and e-loyalty.
The rest of this paper is structured as follows: we review the relevant literature on service quality, e-satisfaction, and e-loyalty in the following section. Next, we explain the methodology undertaken and present the results. Finally, we conclude this paper by highlighting its limitations and possible future avenues of research.

2 Literature review

2.1 Co-creating service experience online

The internet has brought instantaneous repercussions in the way e-service is viewed (e.g., Beatson et al., 2007; Zhu et al., 2007) as it allows customers to perform services themselves on a technology platform that does not require human interaction (Meuter et al., 2000, 2005). This implies that the customers are active participants in the process of co-creating their own service experience online. Due to their significant role, the literature has acknowledged customers as productive resources, or competitors (Lengnick-Hall, 1996; Bitner et al., 1997), buyers, receivers, product of the service process, workers (Lengnick-Hall, 1996), or ‘transient’ employees (Namasivayam, 2003). This is supported by studies providing insights into the positive effect of customer participation on service quality (Kelley et al., 1992; Ennew and Binks, 1999; Claycomb et al., 2001), customer satisfaction (Cermak et al., 1994; Kellogg et al., 1997; Bendapudi and Leone, 2003) and loyalty (Auh et al., 2007), as well as repurchase and referral behaviour (File et al., 1992; Cermak et al., 1994).

Since technology has completely replaced human-to-human interaction, researchers have become interested in conceptualising and analysing the quality of service on the internet. This is because recent literature contributions have argued that customers’ participation in co-created services will influence not only their perceptions of quality, satisfaction, the service provider’s brand, and other outcomes (such as wait times), but also organisational performance, including employee satisfaction, turnover, operational efficiency and financial outcomes (Ostrom et al., 2010; Lusch et al., 2007). Young adults are described in the literature as active online users and are a niche market segment to many online providers, which makes them an ideal subject for this study.

2.2 Young adults and the internet

Adolescents and young adults are very familiar with technology and the World Wide Web (Gupta et al., 2008) and have grown up being exposed to a huge number of brands and thousands of ads and commercials, and have consumed numerous products and services. Most marketers, particularly those working online, strive to capture the 16–35 year-old ‘golden segment’, because the majority of online visitors are young adults, and advertisement and promotion campaigns are designed to target these people (Vij, 2007). Studies have found that young adults spent more time online than other age groups, as they surf the internet more regularly, use mobile phones with online applications, and are more informed about these virtual mediums than their parents or anyone else. George (2007) found that adults between the ages of 18 and 24 are the most active users of online applications.

Studies have shown that there is a relationship between age and internet purchase intention. Specifically, there is evidence suggesting that younger consumers are more
likely to purchase online, given that their early adoption of internet usage includes shopping online (Mathwick et al., 2002; Breitenbach and van Doren, 1998).

All businesses have their own set of challenges when it comes to providing electronic sales and service. There are some factors that attract young men and women to purchase online which are more difficult for marketers to understand. Despite the numerous advantages of online shopping, customers may be reluctant to engage in such transactions, due to concerns over security, poor product or service presentation, complicated site navigation, absence of face-to-face interaction, uncertainty regarding shipment, and other hidden costs (Bellman et al., 1999). However, when customers become more experienced with online dealings, the scepticism regarding personal security and privacy becomes less intense (Bellman et al., 1999). It is therefore vital for online firms to improve their quality to satisfy all customers, especially the ‘golden market’ of young adults.

2.3 Service quality

Service quality has been regarded as a vague and ambiguous construct (Barnert and Wehrli, 2005; Brown and Swartz, 1989; Parasuraman et al., 1988). Since the concept is closely associated with what customers want and expect, researchers have suggested that its exploration should be conducted from the consumer’s perspective. Grönroos (2001) asserted that service quality should be examined from a technical aspect (i.e., through the services that consumers receive from companies) and from a functional aspect (i.e., through the way the service is actually delivered), similar to Parasuraman et al.’s (1988) SERVQUAL concept. Functional quality resembles perceived service quality, which is made up of product and service quality. Similarly, service quality has been regarded as consisting of all the characteristics of a service or a good referring to its capability of gratifying demands explicitly or implicitly (Kotler, 2000), and may be described as being of two types: subjective (perceived) quality and objective quality.

2.4 Online service quality

Despite the abundance of studies on service quality (e.g., Grönroos, 1982; Rudie and Wansley, 1985; Parasuraman et al., 1988), the service quality of electronic retailers or e-tailers is a comparatively new concept (Kim et al., 2006). As described by Zeithaml et al. (2002, p.363), e-service quality is “the extent to which a website facilitates effective and efficient shopping, purchasing and delivery”. As many shopping websites are e-tailers, they are considered service deliverers, because they ease the provision of products and services from producers to the final customers. Since customers have become active participants in their own actions on these websites, which include activities such as browsing and information gathering prior to reaching the purchase decision, the performance of e-tailers is analysed by measuring the quality of service that they offer – that is, the difference between customer expectations and customer perceptions of the service performance (Grönroos, 1982; Parasuraman et al., 1988).

E-service quality has been defined as the overall consumer evaluation and assessment of the superiority of the online services provided (Santos, 2003). The fulfilment of superior service has a positive influence on perceived service quality, which in turn raises a company’s profitability (Leung and Fung, 1996). Meanwhile, Santos (2003) believes that online service quality is an important consideration for consumers, because it is
relatively easy to make comparisons between providers and to identify the technical characteristics and prices of goods and services through online channels. Hence, shoppers who buy online expect standards of service quality that are equivalent or superior to those received in traditional purchases.

2.4.1 Online service quality dimensions

The features and characteristics of e-sellers are important considerations for online shoppers. However, the literature shows clear disparities regarding the exact nature and number of quality dimensions to be examined (e.g., Srinivasan et al., 2002; Zeithaml et al., 2002; Yang et al., 2003; Wolfinbarger and Gilly, 2003). Different models for assessing e-service quality from different clusters of dimensions have been used – for example, E-SERVQUAL (Zeithaml et al., 2000b), E-S-Qual/E-RecS-Qual (Parasuraman et al., 2005), SiteQual (Yoo and Donthu, 2001), and eTailQ (Wolfinbarger and Gilly, 2003).

The literature has established various frameworks and methodologies for measuring overall online service quality and customer satisfaction as outcomes of e-service quality. Some concentrate solely on the web interface, while others examine online service quality as a more comprehensive buying experience. Scholars have established dimensions for anticipating the intent to purchase online (e.g., Loiacono et al., 2002). Other studies focus on e-tailing websites and their consumers, while other researchers have concentrated on various types of websites such as entertainment and business-to-business services (Liu and Arnett, 2000).

After reviewing the literature and examining the various models used by previous researchers, the model we deem most appropriate to the objectives of this study is the eTailQ model of Wolfinbarger and Gilly (2003). This model was designed for the study of e-tailers, rather than regular retailers or even conventional service providers, and has been acknowledged as providing a good theoretical formulation in the context of online shopping. The model consists of four dimensions:

1. Website design (including information, selection, usability and experiential/atmospheric qualities)
2. Security/privacy
3. Customer service
4. Fulfilment/reliability, as discussed below.

2.4.1.1 Website design

Website design is a dimension that relates to user interface (Zeithaml et al., 2000a; Wolfinbarger and Gilly, 2003), often described as e-scape (e.g., van Riel et al., 2001). Pastrick (1997) indicates that when e-tailing websites are well-organised and easy-to-navigate, online shopping is enjoyable and satisfactory for consumers. In addition, Kim and Eom (2002) reported that, in order to achieve customer satisfaction globally, website design plays a vital role. Cristobal et al. (2007) believe that, in general terms, the concept of website design is related to factors such as simplicity of comprehending the construction of the system, the website’s functions, the speed of reaching the desired
consequences, and the user’s ability to manage what they are acting upon. A firm’s website should be user-friendly and visually appealing.

2.4.1.2 Reliability

The second dimension of eTailQ is reliability, which is similar to the reliability dimension in Parasuraman et al.’s (1988) SERVQUAL. Reliability in the context of e-tailers’ services is the capability to deliver the promised service reliably and to utilise the correct technical website functions precisely (Parasuraman et al., 2005). A reliable retail store will honour its word, perform error-free sales transactions, and carry out the service accurately the first time. Consumers expect e-tailers to provide reliable information and dependable online transaction processing. Long and McMellon (2004) claim that web pages represent a more dependable record of the delivered services than traditional retailers, because all data are recorded digitally, whereas many records of conventional retailers may be forgotten. Well-kept records of communication information can greatly increase the perceived reliability of online retailers.

2.4.1.3 Privacy/security

Another service quality dimension suggested by Parasuraman et al. (1985) is security. This issue is even more crucial in the online context, as e-shoppers are plausibly more exposed to the numerous instances of fraud committed online. Security is concerned with the risk of unauthorised third parties gaining access to personal data, such as bank account or credit card details. Meanwhile, privacy deals with the potential abuse of individuals’ information by companies and marketers. It has been suggested that security is of greater concern to e-shoppers than privacy (Ranganathan and Ganapathy, 2002). Business-to-business online companies collect information about visitors either implicitly (e.g., as cookies) or explicitly (e.g., in online surveys) (Patterson et al., 1997), and the collected data may be exploited in the advertising and marketing activities of firms. The potential for the abuse of individual information is of grave concern to shoppers, and may even hinder their intentions to shop online (Torkzadeh and Dhillon, 2002). To provide assurances to online shoppers, e-tailers must guarantee confidentiality, authenticity, integration, and verifiability (Bhimani, 1996).

2.4.1.4 Customer service

Customer service in e-tailing involves web-based technologies and includes payment and transaction systems, call centres, customer relationship management systems, and also the analysis and monitoring of the performance of these systems. Having developed the concept of electronic service quality (e-SQ), Zeithaml et al. (2002) did not look at customer service as a core factor in the usual e-shopping experience, as it was instead viewed as being related to post-purchase experience. In e-SQ, customer service comes into play when a consumer encounters a problem or after the e-transaction is carried out; however, the fact that online shoppers sometimes require pre-purchase customer service should not be neglected. The reason for Zeithaml et al. (2002) categorising this as a post-purchase experience is that the level of assessment may be affected by the efficiency of logistics and customer service. Customer service relates to the handling of complaints,
including return and exchange policies, refund and billing disputes, deficient products and services, and poor customer service (Chen and Chang, 2003).

More relevantly to the online purchasing context, Wolfinbarger and Gilly (2003, p.93) defined customer service as “a responsive, helpful, willing service that responds to customer inquiries quickly”. The concept has also been described as a combination of attention, interest, willingness, and promptness in solving a customer’s problems (Chang et al., 2009). In summary, researchers have characterised customer service as consumer sensitivity, service reliability, personalised services, and the prompt answering of complaints.

2.5 Customer e-satisfaction

Customer satisfaction has conventionally been considered as an essential determining factor of long-term consumer behaviour (Oliver, 1980) and has attracted the interest of academics and practitioners for more than three decades. Whilst the context of satisfaction has extended quickly in conventional service retailing (e.g., Bitner et al., 2000; Caruana et al., 2000; Zeithaml et al., 1996), e-satisfaction – customer satisfaction with online retailing – has more appeal to researchers in marketing concepts (Schubert and Selz, 1998; Szymanski and Hise, 2000) because customers have become active participants in online activities, which has resulted in their own evaluation of the service experience. Unfortunately, there appears to be no unanimous definition of customer satisfaction in the literature for either conventional retailing or e-tailing.

Traditionally, satisfaction has been regarded as a consumer’s evaluation of the ability of goods or services to satisfy the demands and expectations of consumers (Zeithaml and Bitner, 2000). Having introduced the concept of expectancy-disconfirmation, Westbrook (1987, p.258) described satisfaction as “the central mediator of post-purchase behaviour, linking pre-choice product belief to post-choice cognitive structure, consumer communication and repurchase behaviour”. On the basis of Spreng et al. (1996), McKinney et al. (2002) defined overall satisfaction as an affective level depicting an emotional response to the whole website search and experience, and its focus was on the assessment of the purchase process related to consumer behaviour.

The majority of marketing practitioners and academics have agreed about the influence of quality upon customer satisfaction that subsequently, affects buying behaviour (Chiu et al., 2005; Oliver, 1999). Many scholars have focused on the relationship between different factors of online service quality and customer satisfaction, and have found a significant relationship between web design quality and e-satisfaction (e.g., Cheung and Lee, 2005; McKinney et al., 2002; Shim et al., 2002). In addition, reliability has also been found to be a vital factor affecting satisfaction (e.g., Shah Alam and Yasin, 2010; Yang and Fang, 2004).

Another dimension that marketing academics and practitioners believe to be a determinant of satisfaction is customer service (e.g., Zeithaml et al., 2002). In order to be satisfied, customers expect to be able to conclude online transactions correctly, to receive purchased items promptly, to obtain personalised and customised attention, and to realise their expectations by e-management in the best possible manner (Cristobal et al., 2007). Scholars have also found that e-customers regard security and privacy as important in their online purchasing transactions (e.g., Grewal et al., 2004; Friedman et al., 2000); hence, these are all postulated to have an impact on e-satisfaction.

As a result of the above arguments, the following hypotheses are proposed:
Hypothesis 1  Website design is positively related to customer e-satisfaction.
Hypothesis 2  Reliability is positively related to customer e-satisfaction.
Hypothesis 3  Privacy/security is positively related to customer e-satisfaction.
Hypothesis 4  Customer service is positively related to customer e-satisfaction.

2.6 E-loyalty

To gain the loyalty of customers and an online competitive advantage, firms must have a comprehensive understanding of the antecedents of loyalty via the internet (e-loyalty). To examine the significance of e-loyalty, the dimensions affecting repurchasing behaviour and positive word-of-mouth (WOM) is an important area of marketing studies (Srinivasan et al., 2002). This holds true for industries in which firms depend heavily on their reputation and long-lasting relationships in the offline world, as is the case with the financial sector.

The literature suggests that loyal consumers stay longer, cost lower to service, create larger margins, buy much more across product lines, spread positive WOM, are less influenced by competitors, are less price sensitive, and are willing to pay a premium to conduct business with their preferred e-tailers (Zeithaml et al., 1996; Gremler and Brown, 1999; Hart and Johnson, 1999; Baldinger and Rubinson, 1996). To examine the influence of e-service quality on loyalty, this study will be guided by Oh (1995) in integrating both the psychological and behavioural aspects of customer loyalty.

E-loyalty has been identified as the direct outcome of online service quality (Ribbink et al., 2004; Parasuraman et al., 2005), and the level of online service quality should delight customers in some manner if they are to remain loyal to that service provider (Lai et al., 2007). It is proposed that consumers who have more positive perceptions of quality service will be more satisfied.

Researchers have examined the effects of e-service quality on loyalty in specific industries. In the context of banking, Ball et al. (2006) suggests that the effect of personalisation on e-loyalty exists indirectly, mediated by trust and service satisfaction. Parasuraman et al. (2005) stated that fulfilment or reliability is one of the most influential factors, not just in perceived quality assessment, but also in loyalty intentions. E-trust was also found to directly affect loyalty – in addition to other online quality aspects such as website design, customisation, and responsiveness – and is mediated by e-satisfaction (Ribbink et al., 2004). Lastly, it should be noted that Tam (2003) proposes a model that explains online consumer loyalty, in which factors such as web design, security, privacy, and customer service have a significant influence on loyalty. Therefore, customer loyalty has become a very important factor for business profitability and long-term success (e.g., Bowen and Shoemaker, 1998; Reichheld et al., 2000). Based on past literature, the following hypotheses are therefore proposed and depicted in the conceptual framework in Figure 1.

Hypothesis 5  Web design is positively related to website loyalty.
Hypothesis 6  Reliability is positively related to website loyalty.
Hypothesis 7  Privacy/security is positively related to website loyalty.
Hypothesis 8  Customer service is positively related to website loyalty.
3 Methodology

This study examines young adults between the ages of 16–30 years with the experience of making at least one online purchase in the last six months. Like many previous studies (e.g., Sheng and Liu, 2010; Cristobal et al., 2007), it is not important to consider how much they spend online; instead, having the experience of purchasing services from any specific e-tailer for any price is acceptable. To capture this segment of consumers, a sample consisting of undergraduate and postgraduate students was employed, since studies have found that the majority of university students are online users (Pitkow and Kehoe, 1996). There is also evidence suggesting that students are active e-purchasers, thus verifying their appropriateness as a sample for e-shopping research (Yoo and Donthu, 2001). Furthermore, studies have found that there is no significant difference in quality perceptions between students and non-students (see for example, Peterson and Jolibert, 1995).

The instrument used was an online survey constructed in Google Documents, which allowed easy dissemination of the survey via email to undergraduate and postgraduate students. Approximately 3,000 emails were sent to the student listings of four public and private universities located in Kuala Lumpur, Malaysia.

The questionnaire consisted of three sections. Section 1 dealt with demographic data including age, gender, field of work, nationality, educational level, and gross monthly income. Section 2 solicited information on the respondents’ internet usage behaviour (such as the number of hours spent daily surfing the internet, the purpose of online activities, online purchasing experience, and frequency of online purchasing). Section 3 consisted of three items measuring customer e-satisfaction and six items measuring e-loyalty, adapted from Chang et al. (2009), and 13 items from Wolfinbarger and Gilly (2003) measuring e-service quality (website design: four items; reliability: three items; privacy/security: three items; customer service: three items). All items were measured
using a seven-point Likert scale that varies from (1) strongly disagree to (7) strongly agree. To establish face validity, the questionnaire was pretested by three experts in the field. As a result, two items in eTailQ were modified by changing the word ‘product’ to ‘service’, in order to evaluate the factors of service quality of e-tailers that deliver pure services (such as transportation ticket sales, file downloading, or academic databases).

4 Results

4.1 Demographic profile

From approximately 3,000 e-surveys sent out, a total of 385 usable responses were returned – a response rate of 12.8%. The sample consisted of a balance of genders, with 46% men and 54% women. Although the study examined the online purchasing behaviour of young adults in the 16–30 age range, the sample was further segregated into three age groups: early-young adults (16–20), mid-young adults (21–25) and late-young adults (26–30). The majority of the respondents were from the second group (52%), followed by late-young adults (32%) and early-young adults (16%). In terms of nationality, 78.2% of the respondents were Malaysian and the remaining was non-Malaysian. A considerable number of foreign students thus participated in the survey. As for education level, most of the respondents were undergraduates (73%), followed by postgraduates (27%). Given the profile of respondents, it is not surprising that the majority of respondents (61.6%) reported not earning any income. Details of the demographic profile of the respondents are shown in Table 1.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>178</td>
<td>46.2</td>
</tr>
<tr>
<td>Female</td>
<td>207</td>
<td>53.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16–20</td>
<td>62</td>
<td>16.1</td>
</tr>
<tr>
<td>21–25</td>
<td>200</td>
<td>51.9</td>
</tr>
<tr>
<td>26–30</td>
<td>123</td>
<td>31.9</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysian</td>
<td>301</td>
<td>78.2</td>
</tr>
<tr>
<td>Foreign</td>
<td>84</td>
<td>21.8</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>281</td>
<td>73</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>104</td>
<td>27.0</td>
</tr>
<tr>
<td>Gross monthly income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>237</td>
<td>61.6</td>
</tr>
<tr>
<td>Below RM 1,500</td>
<td>47</td>
<td>12.2</td>
</tr>
<tr>
<td>RM 1,501–RM 3,000</td>
<td>46</td>
<td>11.9</td>
</tr>
<tr>
<td>RM 3,001–RM6,000</td>
<td>42</td>
<td>10.9</td>
</tr>
<tr>
<td>RM 6,001–RM10,000</td>
<td>10</td>
<td>2.6</td>
</tr>
<tr>
<td>Above RM 10,000</td>
<td>3</td>
<td>0.8</td>
</tr>
</tbody>
</table>
4.2 Internet usage profile

In Section 2 of the questionnaire, the internet usage behaviour of respondents was solicited. As can be noted from Table 2, most of the respondents (45.2%) spent more than four hours per day online. The three most popular activities among young adults were checking e-mail (81%), searching for information (79%), and entertainment (73%). Only 28% of respondents reported using the internet for online shopping. However, when asked what their most recent online purchase was, more than half reported purchasing online transportation tickets (55.8%), followed by booking hotels and tour packages (36.1%) and software (27.5%). Hence, it can be implied that these online shoppers do not regard the purchase of transportation tickets or vacations as online shopping per se, as these are pure services and the customers do not receive any tangible products from the service providers. Almost a quarter of the respondents (23.1%) shopped online once a month followed by once a year (22.1%) and once in six months (21.6%).

Table 2  Internet usage

<table>
<thead>
<tr>
<th>Online activity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time spent online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than one hour a day</td>
<td>17</td>
<td>4.4</td>
</tr>
<tr>
<td>Between one and two hours a day</td>
<td>72</td>
<td>18.7</td>
</tr>
<tr>
<td>Between two and four hours</td>
<td>122</td>
<td>31.7</td>
</tr>
<tr>
<td>More than four hours</td>
<td>174</td>
<td>45.2</td>
</tr>
<tr>
<td>Online shopping</td>
<td>109</td>
<td>28.3</td>
</tr>
<tr>
<td>Communication purposes</td>
<td>246</td>
<td>63.6</td>
</tr>
<tr>
<td>Entertainment</td>
<td>281</td>
<td>73</td>
</tr>
<tr>
<td>Education</td>
<td>254</td>
<td>66</td>
</tr>
<tr>
<td>Checking e-mail</td>
<td>313</td>
<td>81.3</td>
</tr>
<tr>
<td>Work</td>
<td>124</td>
<td>32.2</td>
</tr>
<tr>
<td>Searching for information</td>
<td>304</td>
<td>79</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>Most popular online activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation tickets</td>
<td>215</td>
<td>55.8</td>
</tr>
<tr>
<td>Online music, radio, movies, etc.</td>
<td>98</td>
<td>25.5</td>
</tr>
<tr>
<td>Online games</td>
<td>44</td>
<td>11.4</td>
</tr>
<tr>
<td>Financial services, bond, stocks exchange, etc.</td>
<td>35</td>
<td>9.1</td>
</tr>
<tr>
<td>Internet services and phone, domain and website design</td>
<td>61</td>
<td>15.8</td>
</tr>
<tr>
<td>Software and other file downloading</td>
<td>106</td>
<td>27.5</td>
</tr>
<tr>
<td>Booking hotels, resorts, tours, etc.</td>
<td>139</td>
<td>36.1</td>
</tr>
<tr>
<td>Technical, engineering, and medical services</td>
<td>22</td>
<td>5.7</td>
</tr>
<tr>
<td>Academic solutions</td>
<td>96</td>
<td>24.9</td>
</tr>
<tr>
<td>Others</td>
<td>43</td>
<td>11.2</td>
</tr>
</tbody>
</table>
Table 2  Internet usage (continued)

<table>
<thead>
<tr>
<th>Online activity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of buying online</td>
<td>At least once a day</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>One or two times a week</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Once a month</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Once two months</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>Once six months</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>Once a year</td>
<td>85</td>
</tr>
</tbody>
</table>

4.3  Multivariate analyses

4.3.1  Factor analysis

Exploratory factor analysis was first employed to verify the loading of items on the underlying construct. Prior to conducting factor analysis, several assumptions and practical processes were considered. Barlett’s test of sphericity and Kaiser-Meyer-Olkin (KMO) were employed to examine the factorability as a whole. Factor analysis was conducted separately for the independent and dependent variables. Factorability for independent variables is appropriate, as Barlett’s test value (2798.6) had a significant level, and a ‘superb’ KMO score of 0.906 was obtained. With the assumption of eigenvalue 1, total variance explained divides the data into four factors that conform to the four proposed theoretical constructs of eTailQ. Factor loading is evaluated by using a rotational method. The orthogonal Varimax rotational method is preferred over other methods, because of its useful medium for the reduction of variables to a smaller set of uncorrelated variables (Coakes and Steed, 2007). The rotated component matrix presented in Table 3 shows that all items loaded in the four respective dimensions of eTailQ have values above 0.5; all items were hence retained for further analysis. In addition, the Cronbach’s alpha values exceeded the 0.7 threshold, suggesting that all four dimensions passed the reliability test.

Table 3  Rotated factor matrix

<table>
<thead>
<tr>
<th>Website design</th>
<th>Privacy/security</th>
<th>Reliability</th>
<th>Customer service</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD 2</td>
<td>.709</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD 1</td>
<td>.677</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD 3</td>
<td>.670</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD 4</td>
<td>.598</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS 1</td>
<td></td>
<td>.788</td>
<td></td>
</tr>
<tr>
<td>PS 2</td>
<td></td>
<td>.758</td>
<td></td>
</tr>
<tr>
<td>PS 3</td>
<td></td>
<td>.758</td>
<td></td>
</tr>
<tr>
<td>REL 2</td>
<td></td>
<td></td>
<td>.789</td>
</tr>
<tr>
<td>REL 1</td>
<td></td>
<td></td>
<td>.630</td>
</tr>
<tr>
<td>REL 3</td>
<td></td>
<td></td>
<td>.577</td>
</tr>
</tbody>
</table>

Notes: Extraction method: principal axis factoring. Rotation method: varimax with kaiser normalisation.
Factor analyses for the dependent variables (e-satisfaction and e-loyalty) were then conducted in a similar manner. Barlett’s test value (2327.2) shows a significant level, and the KMO value is ‘superb’ (0.908). With the assumption of Eigenvalue 1, total variance explained divides the data into two factors, conforming to the theory. The rotated component matrix presented in Table 4 shows the items loaded in the two respective dimensions of e-satisfaction and e-loyalty, with all values above 0.5 except for Sat 2 (0.237), which was discarded and not used in further analysis.

### Table 4  Rotated factor matrix

<table>
<thead>
<tr>
<th>E-loyalty</th>
<th>E-satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loy 4</td>
<td>.803</td>
</tr>
<tr>
<td>Loy 3</td>
<td>.797</td>
</tr>
<tr>
<td>Loy 5</td>
<td>.683</td>
</tr>
<tr>
<td>Loy 6</td>
<td>.665</td>
</tr>
<tr>
<td>Loy 2</td>
<td>.638</td>
</tr>
<tr>
<td>Loy 1</td>
<td>.591</td>
</tr>
<tr>
<td>Sat 2</td>
<td>.237</td>
</tr>
<tr>
<td>Sat 3</td>
<td>.789</td>
</tr>
<tr>
<td>Sat 1</td>
<td>.760</td>
</tr>
<tr>
<td>Cronbach’s alpha</td>
<td>0.923</td>
</tr>
</tbody>
</table>


4.3.2 Hypothesis testing

To examine the effect of online service quality on customer e-satisfaction and e-loyalty, a multiple regression analysis was employed to examine the relationship between dimensions of online service quality. However, prior to conducting the multiple regression analysis, a multicollinearity test was carried out and the results confirmed that the correlations between dimensions (independent variables) were below 0.7 at p < 0.01. Multicollinearity was therefore not an issue in this study.
4.3.2.1 Determinants of customer e-satisfaction

Overall, the independent variables express 56.8% of the variance $R^2$ in customer e-satisfaction. The adjusted $R^2$, on the other hand, corrects its overestimation to express more sufficient population at 56.3%. These values are significant at $p < 0.00$.

Table 5  Results of multiple regressions on e-satisfaction

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Standardised coefficients</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.305</td>
<td>.001$^b$</td>
<td></td>
</tr>
<tr>
<td>WEB_DESIGN</td>
<td>.098</td>
<td>2.211</td>
<td>.028$^a$</td>
</tr>
<tr>
<td>SECURITY</td>
<td>.172</td>
<td>3.673</td>
<td>.000$^b$</td>
</tr>
<tr>
<td>RELIABILITY</td>
<td>.415</td>
<td>8.917</td>
<td>.000$^b$</td>
</tr>
<tr>
<td>CUST_SERV</td>
<td>.216</td>
<td>4.956</td>
<td>.000$^b$</td>
</tr>
</tbody>
</table>

Notes: DV: e-satisfaction; $R^2 = 0.568$; Adj. $R^2 = 0.563$; $F = 124.861$; sig = .000.

The coefficient table, as shown in Table 5, shows that all four dimensions of eTailQ (WEB_DESIGN, SECURITY, RELIABILITY, and CUST_SERV) are significant determinants of customer e-satisfaction. In examining the coefficient values, reliability appears to have the highest impact on e-satisfaction, followed by customer service, privacy/security, and lastly website design. All relationships were significant at $p < 0.01$, except for website design, which was significant at $p < 0.05$. With these results, hypotheses H1–H4 are supported.

4.3.2.2 Determinants of e-loyalty

The findings of the regression on e-loyalty are illustrated in Table 6 and show that the independent variables explain 55.1% of the variance (adj. $R^2$) in e-loyalty ($p < 0.000$). All dimensions of eTailQ are found to be significant determinants of e-loyalty, at the $p < 0.01$ significance level. As with the results for e-satisfaction, all independent variables of e-loyalty are significant, though in this case all at $p < 0.01$. Again, reliability has the highest effect and website design has the lowest impact. With these results, hypotheses H5–H8 are supported.

Table 6  Results of multiple regressions on e-loyalty

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Standardised coefficients</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>2.912</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>WEB_DESIGN</td>
<td>.149</td>
<td>3.335</td>
<td>.001</td>
</tr>
<tr>
<td>SECURITY</td>
<td>.235</td>
<td>4.967</td>
<td>.000</td>
</tr>
<tr>
<td>RELIABILITY</td>
<td>.318</td>
<td>6.740</td>
<td>.000</td>
</tr>
<tr>
<td>CUST_SERV</td>
<td>.202</td>
<td>4.584</td>
<td>.000</td>
</tr>
</tbody>
</table>

Notes: DV: e-loyalty; $R^2 = 0.556$; adj. $R^2 = 0.551$; $F = 118.977$; sig = .000.

The research has examined the influence of online service quality of pure service e-tailers on young adults’ satisfaction and loyalty. The results show that this study effectively
integrates the eTailQ model to analyse pure service e-tailers, with all the adopted dimensions working for such companies.

5 Discussion and conclusions

The initial focus of the conceptual model is on the online service quality dimension and its effects on customer e-satisfaction and e-loyalty among the young adult segment. All four dimensions of online service quality adopted from eTailQ were examined and the results showed that they contribute directly to customers’ e-satisfaction and e-loyalty. Based on these results, reliability had the largest influence on customer e-satisfaction. Reliability in this context concerns the precision of the item offered by the website, the order, and on-time fulfilment (Wolfinbarger and Gilly, 2003). The result is consistent with former studies that suggest that reliability is one of the most important factors affecting customer e-satisfaction (Lee and Lin, 2005).

Customer service is the second most important determinant of customer e-satisfaction among young adults in this study. However, this was not consistent with Wolfinbarger and Gilly’s (2003) study in an American context, where customer service was not regarded as a highly important factor, given that e-tailers that do not require direct interaction with customers. Nonetheless, the results of other studies are mixed. For example, Liu et al. (2008) believed that, to satisfy consumers in a competitive market, it is essential for e-tailers to keep an eye on customer service. The reason for the importance of customer service can be attributed to the customer’s expectation when a purchase occurs. For example, customers expect e-tailers to serve and support them in carrying out transactions correctly and also expect personalised attention.

Consistent with Wolfinbarger and Gilly (2003), another important element is privacy and security. However, the authors argued that privacy and security are not as important as other factors, except among the most frequent buyers. This might be due to the fact that the privacy/security level among consumers varies between developed and developing countries and in different parts of the world. In addition, different age groups might have different attitudes towards privacy and security. Lower risk taking may be caused by lower budgets and greater price sensitivity, and on account of lower incomes or independence, assurance of the transaction, fulfilment, and post-purchase service would be more important among young adults than among older people.

Website design had a significant effect on customer e-satisfaction, consistent with prior research (e.g., Shergill and Chen, 2005; Ho and Wu, 1999; Jarvenpaa and Todd, 1997; Phau and Poon, 2000; Lee and Joshi, 2007). However, it can be argued that, due to the high rate of internet use of young adults, their experience and knowledge about the internet in general and online services in particular and its applications, information, and interaction with technology, website design may not be a significant factor influencing their satisfaction.

In the same vein, all four elements of online service quality have a significant effect on loyalty with service e-tailers. This resembles the findings regarding e-satisfaction in which researchers found a positive connection between online service quality and e-loyalty (e.g., Anderson and Srinivasan, 2003; Ribbinsk et al., 2004; Shih, 2004). In other words, online service quality has an important and positive outcome on loyalty components, such as purchasing intentions, WOM recommendations, less price sensitivity and willingness to pay a premium (Cristobal et al., 2007).
satisfaction, reliability has the highest rank with e-loyalty; this is followed by privacy/security, customer service, and website design. This means that e-tailers should keep their eyes on the accuracy of orders and transactions, in order to appeal to young customers.

The study found that higher quality was more likely to satisfy consumers and to induce them to repeat purchases, as well as to spread positive WOM in regards to suggestions and recommendations. In order to uphold a beneficial long-term relationship, service e-companies should continue to improve their service quality if they are to gratify shoppers and, of course, to obtain loyal consumers. From a managerial aspect, and based on the impacts of the e-service quality dimensions of e-satisfaction and e-loyalty, a successful service e-tailing business involves the four significant dimensions (reliability, privacy/security, customer service, and web design). This study offers some suggestions for e-tailers regarding the dimensions of e-TailQ.

To have an effective website design, various aspects—such as search procedures, organisation, download speed and the ‘right level’ of personalisation—must be considered. As the study shows, the majority of young adults are heavy internet users; they therefore need fast, accurate, and uncluttered information in order to provide high website stickiness. E-managers can provide young adult shoppers with easy navigation, efficient e-catalogues, and brief contents. Dynamic and interactive website technologies, such as Web 2.0 and its various functions, should be employed to ease the ‘flow’.

Another factor that needs to be looked into is reliability. For instance, improving the ability to fulfil the service accurately and promptly as promised, giving precise and up-to-date information, and reinforcing the credibility of e-transactions will lead to enhancements in the reliability of the e-tailers. One of the reasons e-tailers fail to deliver the correct service promptly is the lack of online synchronisation, for example, of order management sections including inventory and logistics (Jun et al., 2004). Moreover, service e-tailers should implement information systems and CRM, which integrate all sections and enhance the fulfilment of functions.

In addition, e-tailing managers should always emphasise privacy and security, as these aspects are especially crucial in e-commerce. Customers will buy online when they feel that the website is sufficiently safe to transmit personal and credit information (Chang et al., 2009). The website should maintain an appropriate level of security based on the nature of service, customer concern level, value, and price of service. More importantly, they should convince customers that they possess sufficient security by employing reliable, well-known, and popular e-security companies or implementing the latest and safest online safeguard procedures for data protection requirements.

Customer service is another key factor that needs to be considered. Provision of diversified channels (both offline and online) to consumers will ease communication with staff members and thus make it more efficient. It is also recommended that sufficient personnel are stationed to respond to customers’ queries and complaints via 24/7 toll-free telephone, e-mail, or e-CRM software. Besides FAQ sections on their website, e-tailers can set up forums, live text chat, co-browsing and page-pushing applications. Online retailing managers may also persuade customers to share their ideas and views on different aspects of the online service that the websites offer.

The service e-firms should also consolidate loyalty through various means—for instance, by increasing switch costs. They should also present positive WOM from satisfied consumers to potential customers. One proposed function is to improve the influence and effectiveness of WOM by facilitating and rewarding actions. Persuading
consumers to ‘tell a friend about us’, ‘join our e-mail list’, ‘share what you think’, ‘send a
discount coupon to a friend’, or ‘receive a premium service for sending us a new
customer’ is indeed worthwhile.

With regards to different dimensions that the study has mentioned, online service
providers should assess, track, and benchmark their own performance vis-à-vis their
rivals, to identify their opponents’ weaknesses and strengths in online service quality
from the shoppers’ perspective. This useful information can be used as a vital means of
enhancement in the service’s business field.

This paper proposes that consumers of different cultures and age groups may respond
differently to specific aspects of online service quality, and may be satisfied and loyal in
the way shown in this study, contrary to Wolfinbarger and Gilly (2003). Hence, online
marketers have to tailor their marketing strategies to fit each market segment cautiously,
because online business goes far beyond geographical borders, and therefore requires
high cultural adaptability.

Finally, this study adds to the body of knowledge on service quality and
customer satisfaction within the service science and service-dominant logic research
streams. Customer satisfaction connects purchasing and consumption processes with
post-purchase phenomena. Since creating value, particularly in the online context,
requires customer’s active participation in service delivery, customer satisfaction with the
experience must be an outcome of this process (Grönroos, 2008). Virtual environments –
for instance, created via mobile applications and freestanding kiosks in shopping malls
and commuter stations – enable customers to create experiences with firms (Kohler et al.,
2011). Therefore, the quality-satisfaction-loyalty relationship will remain a significant
research area for both academics and practitioners. It is hoped that future research will
focus on young adults from different backgrounds, such as different location (e.g., urban
versus suburban), and also incorporate the customer participation construct as an
antecedent of service quality in the model, in order to test the extent of its association, as
highlighted in the literature.

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