Received 12 January 2017
Revised 16 September 2017
29 December 2017
6 February 2018
Accepted 19 February 2018

Comparison of perceived acquisition value sought by online second-hand and new goods shoppers

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Abstract

Purpose – Second-hand/used goods channels compete with existing traditional channels to satisfy consumers' needs that are unmet by traditional retail networks. However, most studies on online shopping have largely ignored online second-hand/used good purchases. This study aims to use Thaler's mental accounting model, principal–agent perspective and contamination theory to highlight the differences in the value sought by online new goods and second-hand shoppers.

Design/methodology/approach – A conceptual framework linking perceived uncertainty, perceived acquisition value and e-loyalty was developed and tested using structural equation modelling. The moderating effects of product type (new vs second-hand) and frugality were also included.

Findings – The paper found strong support for the model. Results showed that online second-hand shoppers were more uncertain and perceived lesser levels of acquisition value when compared to new goods shoppers. They were also less frugal. Online shoppers are also more likely to buy products with sensory attributes (experience goods) in new goods websites and products with non-sensory attributes (search goods) from second-hand websites. The authors recommend various ways in which managers can increase perceived value for the online shopper.

Research limitations/implications – Future studies can extend this investigation by including transaction value or other hedonic values to verify their impact on acquisition value and e-loyalty. While the authors found support for the notion that consumers who buy used goods online are less frugal, there is some research that could point to the opposite. Hence, research can investigate this topic in depth in more countries to throw more light on this.

Practical implications – To sustain themselves in a competitive online market, retailers need to understand the value sought by consumers. This study provides empirical evidence of the importance of acquisition value for new goods and second-hand shoppers.

Originality/value – No recent research has compared the value sought by online second-hand and new goods shoppers. This study contributes to the understanding of the acquisition value perceived by consumers in online new goods and second-hand shopping channels.

Keywords e-loyalty, Frugality, Online new/second-hand shopping, Perceived acquisition value, Product category (search vs experience)

Paper type Research paper

European Journal of Marketing
Vol. 52 No. 7/8, 2018
pp. 1412-1438

0309-0566
DOI 10.1108/EJM-01-2017-0048

Introduction

In recent years, the number of online shoppers has increased exponentially across most global markets. Research on perceived value sought by the online shopper is on the rise, as most consumer purchases are driven by this construct (Cronin *et al.*, 2000; Grewal *et al.*, 2003; Zeithaml, 1988). While extant research in this area tries to identify variables that drive perceived value in the purchase of new goods online (Kim and Gupta, 2009; Gupta and Kim, 2010; Audrain-Pontevia *et al.*, 2013), the Internet also serves as a significant channel that facilitates the exchange of used or second-hand goods.

Online auctions, second-hand goods retail websites and online classifieds websites also serve as important intermediaries for redistributing used goods (Cameron and Galloway, 2005). Such intermediaries enable the reduction of excessive waste caused by over-consumption in society (Brosius *et al.*, 2013). Online second-hand markets are also an important part of the growing "sharing economy" that is fuelled by the growth in information technology (Hamari *et al.*, 2016). The second-hand market is experiencing rapid growth worldwide (Lee and Stewart, 2016; Lockett, 2016; Durif *et* al., 2017). Hence, it is important to investigate perceived value in the context of online second-hand markets too.

This study draws from Thaler's mental accounting model (Thaler, 1985) to address this gap by examining the variations in perceived value in both new and second-hand purchases on the Internet. Zeithaml (1988) defines perceived value as "the difference between the benefits obtained and the sacrifices made to acquire a product"; we follow this definition. Thaler's mental accounting model describes this trade-off aspect of perceived value by using the components of "acquisition value" and "transaction value". Online transactions suffer from a number of uncertainties. Perceived uncertainty is an important characteristic of online transactions and refers to the "difficulty in predicting the outcome of an online transaction due to seller-related and product related information asymmetry" (Dimoka *et al.*, 2012). As acquisition value is an important determinant of consumer choice when compared to transaction value when quality is uncertain (Urbany *et al.*, 1997), this study examines acquisition value rather than transaction value.

E-tailers are also interested in the effect of perceived value on loyalty as repeat purchases improve the margin (Sirdeshmukh *et al.*, 2002) and area source of competitive advantage (Reichheld and Schefter, 2000; Anderson and Srinivasan, 2003; Yang and Peterson, 2004; Sabiote *et al.*, 2012; Valvi and Fragkos, 2012). Online second-hand e-tailers also need to encourage repurchases to improve their revenue. Therefore, in this study, we scrutinise the effect of perceived value on online loyalty to understand if acquisition value drives repeat purchases of both new and second-hand products on the Internet.

We believe that the product type (new vs second-hand) will influence perceived uncertainty and acquisition value. Unlike websites that retail new goods, second-hand goods need other cues for quality evaluation (Gabbot, 1991). Hence, we scrutinise these issues by investigating the influence of product type (new vs second-hand) in our study.

Among various personal characteristics, frugality is a lifestyle trait that is consistently associated with second-hand purchases (Cervellon *et al.*, 2012; Guiot and Roux, 2010; Lastovicka *et al.*, 1999; Roux and Guiot, 2008). We examine its effect in the context of online purchases. We believe that consumer contamination might affect second-hand purchases. Consumers view previously touched products as "contaminated" products and evaluate them less favourably (Argo *et al.*, 2006). Second-hand purchases have a high probability of being affected by the contamination effect as they have been previously owned. Specifically, we believe that experience goods (e.g. apparel) will suffer greater contamination effects as consumers typically prefer to examine the sensory attributes of such goods. Not many

studies have investigated this association. We do so in this study by investigating if the nature of the products' attributes amplifies contamination effects while shopping online.

To summarise, the major objectives of our research are to investigate the effect of:

- perceived uncertainty on perceived acquisition value;
- perceived acquisition value on e-loyalty;
- effect of product type (new vs second-hand) on perceived uncertainty, acquisition value and frugality;
- role of frugality in online new goods and second-hand purchases; and
- effect of product (search vs experience) category on online product choice (new vs second-hand).

To address these objectives, we develop a research model based on mental accounting theory, principal–agent perspective and contamination theory. Structured equation modelling is used to test the model and the proposed relationships. From a practical perspective, different strategies might be needed to promote traffic to online retail and second-hand retail websites. Hence, this study would contribute the understanding of the value that buyers seek from these channels.

Literature review

Online second-hand/used goods shopping

Second-hand/used goods shopping refers to the purchase of previously owned products. In the offline market, consumers acquire second-hand goods through a number of outlets such as flea markets, swaps and garage sales. The Internet has greatly facilitated marketplace exchanges of used goods among consumers, e.g. online consumer-to-consumer (C2C). In such situations, the sellers usually remain anonymous and the buyer may not be able to inspect the product before purchase (Yen and Lu, 2008). Hence, the bidder evaluates the seller based on the reputation mechanism (e.g. reputation signals like seals) provided by the Internet intermediary (e.g. eBay). Therefore, most studies on online auctions investigate the effect of trust mechanisms on bidder behaviour in online auction and retail (Ghose, 2009; Li *et al.*, 2009; Yeh *et al.*, 2012).

Apart from auction and retail websites, the online classifieds ad space (e.g. Craigslist) is a widely used business model that supports the transaction of used goods over the Internet (Belk, 2014). The website that provides the platform for these transactions is mostly involved in facilitating the meeting between the buyer and seller and usually does not provide any other value-added services (Kapitan and Bhargave, 2013). For instance, eBay provides eBay Classifieds (Kijiji) as an alternative to increasing competition from the online classifieds space. In this model, the users can transact among themselves at a reduced cost and can find local goods quickly (Comberg and Velamuri, 2015).

Existing research examines the effect of trust mechanisms on the potential buyer (Ghose, 2009) or cluster buyers based on psychographic variables (Lee *et al.*, 2013). While some researchers demonstrate economic motivation for online second-hand shoppers, Parguel *et al.* (2017) show that in online second-hand websites, they are driven by "indulgent consumption". We contribute to this stream of research by adding our investigations on the perceived value sought by the consumer when using the online second-hand channel.

Principal–agent perspective and perceived uncertainty in online transactions

The principal–agent perspective, based on agency theory, aids in examining the issue of information asymmetry between two self-interested parties (i.e. buyers and sellers) in online exchanges (Pavlou *et al.*, 2007). This states that principals (buyers) assign the delivery responsibility to the seller (agent) who has more information in online markets. This leads to adverse selection (hidden information) and moral hazard (hidden action) issues (Biswas and Biswas, 2004; Dimoka *et al.*, 2012). Hidden information refers to pre-purchase uncertainties regarding the product and seller quality. Hidden action refers to the uncertainties related to the seller's post-purchase behaviour.

The principal–agent perspective recommends that agents (sellers) can "signal" their quality to overcome uncertainties. Signals foster trust between the principal and agent and reduce uncertainty in online transactions (Li *et al.*, 2009; Fang *et al.*, 2011). For example, buyers rely on the seller's reputation, product condition and the quality of the sellers' argument to overcome the information asymmetry problem (Shen *et al.*, 2011). Hence, sellers should focus on reducing the perceived uncertainties of the buyer (Scott *et al.*, 2012).

While the effect of perceived uncertainty has been explored in the context of online shopping and auction websites, extant research does not offer much information regarding its effect on acquisition value and purchase of second-hand goods online. We intend filling this gap.

Mental accounting model and perceived value

Perceived value is the consumer's evaluation of the benefits received vs the sacrifices (e.g. cost, time) made. Based on Thaler's mental accounting model, perceived value comprises "acquisition value" (perceived benefits intrinsic to the product) and "transaction value" (psychological pleasure in getting a good deal). Perceived acquisition value can be treated as "the perception of affordable quality in the merchandise purchased" while shopping online (Mathwick *et al.*, 2001).

Acquisition value is the difference between the perceived benefits intrinsic to the product when compared to the expenses, whereas transaction value refers to the "merit of the deal" (Monroe and Chapman, 1987; Thaler, 1985). The merit of the deal is usually the pleasure/displeasure associated with receiving a difference between the price and the internal reference price of the product (Lichtenstein *et al.*, 1990). Acquisition value is "consumer surplus", and transaction value is the incremental utility for the purchase (Urbany *et al.*, 1997). For example, if the consumer is considering the purchase of a car, the quality of the product features that he is interested in contributes to the acquisition value. If he believes that the mileage and safety features of the car match the price he pays for the car, then he has a favourable evaluation of the acquisition value of the car. The price need not be financial at all times. For instance, increased search costs can constitute an increase in the pricing component and bring down the acquisition value of the product. On the other hand, if he had bought the car for a bargain (less than the standard selling price) during the festive season, the pleasure of getting a lower price would contribute to the transaction value of the product. Some researchers favour the study of transaction value in online shopping as they presume that the roles of transaction and acquisition value overlap. They hypothesise that as the quality of products in online stores do not differ, consumers evaluate only price differences among online stores to assess value. This price difference could cause an overlap between acquisition and transaction value (Gupta and Kim, 2010).

However, this assumption ignores the effect of perceived uncertainty in online transactions. Perceived uncertainty will have a significant negative effect on the consumer's perceived quality. Perceived quality is known to have a positive effect on acquisition value

rather than transaction value (Dodds *et al.*, 1991; Grewal *et al.*, 2003). When such uncertainties exist, then acquisition value might be a significant influencer in consumer decision-making (Urbany *et al.*, 1997; Gupta and Kim, 2010). Therefore, this study examines acquisition value rather than transaction value. We also include e-loyalty in our model as it is a significant consequence of perceived value (Parasuraman and Grewal 2000; Yang and Peterson, 2004).

E-loyalty can be thought to comprise cognitive, affective and conative aspects (Kwon and Lennon, 2009). This study examines the conative component, which is defined as a "customer's favourable attitude toward the e-retailer that results in repeat buying behaviour" (Srinivasan *et al.*, 2002).

Contamination theory, product category (search vs experience) and product type (new product vs second-hand/used goods)

The law of contagion is part of the laws of sympathetic magic and based on the principle of "once in contact, always in contact", implying that there is a permanent transfer of person's attributes to the object he/she touches (Rozin *et al.*, 1986). Contamination theory extends this principle to the retail context and establishes that shoppers evaluate previously touched goods less favourably in most situations (Argo *et al.*, 2006). Most personal products suffer from contamination effects as they are considered as tainted by the person who has used them. This includes products such as second-hand clothing (Roux and Korchia, 2006; Abbey *et al.*, 2015).

Products can be either "search goods" (information alone is sufficient to gauge product quality, e.g. style of a dress) or "experience goods" (information is not sufficient, consumption is required, e.g. taste of tuna). However, in an online environment, researchers distinguish products based on the need of one's senses to evaluate a good. In an electronic environment, personal products such as clothing, flowers, food and wine are "high-touch" experience goods (Lynch *et al.*, 2001). When compared to search goods, there is a greater need to use the senses to gauge the dominant attributes of experience goods.

Experience goods are evaluated using sensory attributes such as texture (e.g. apparel) or scent (e.g. perfume) that can be obtained only through direct experience. In online shopping websites, the product attributes of search goods such as cell phone, camera or printer are described extensively, whereas it is difficult to do so for experience goods (Weathers *et al.*, 2007; Mudambi and Schuff, 2010). Products such as clothes, shoes, wine and cosmetics are typically considered experience goods (Hong and Pavlou, 2014). Therefore, such products may suffer from greater contamination effects. A laundered second-hand sweater or pant may naturally generate negative evaluations among consumers (Ackerman and Hu, 2017). Current literature does not throw much light on the contamination effects in online shopping. We compare the effect of this theory in the choice of online new and second-hand good channels in this study.

Frugality

Frugality is a lifestyle trait that characterises "the degree to which consumers are both restrained in acquiring and in resourcefully using economic goods and services to achieve longer-term goals" (Lastovicka *et al.*, 1999). Frugal shoppers exhibit restrained consumption behaviour and take pleasure in saving and are prudent in their use of economic resources. Frugality is the antithesis of materialism, compulsive and impulsive shopping behaviours (Nepomuceno and Laroche, 2015; Shoham and Brencic, 2004). Hence, frugal shoppers have a long-term orientation towards purchases and a reasoned approach to purchasing (Bearden *et al.*, 2006; Roux and Guiot, 2008). They take pleasure in saving and are not recreational

shoppers. They usually shop only when a need arises, preferring to reuse goods rather than make new purchases (Albinsson *et al.*, 2010; Bove *et al.*, 2009; Rick *et al.*, 2008).

To the best of our knowledge, frugality has not been investigated in online new good purchases. While frugality has been linked to second-hand purchases (Roux and Guiot, 2008), consumer materialism may actually increase indulgent consumption on online second-hand channels (Parguel *et al.*, 2017). We verify the influence of this variable by comparing it in both new and second-hand purchases in our study.

Conceptual model and hypotheses

Perceived uncertainty

In an online shopping context, temporal and spatial separation between the retailer and the consumer increases uncertainty regarding the transaction (Bock *et al.*, 2012; Luo *et al.*, 2012). Perceived information asymmetry (buyers have less information about the product than the seller), fears of seller opportunism, information privacy and security concerns are key factors influencing consumer uncertainty (Pavlou *et al.*, 2007; Riquelme and Román, 2014). Such uncertainties will subsequently increase risk and lower quality perceptions, which in turn will increase the cost accrued for obtaining the product or service (Chen and Dubinsky, 2003; Grewal *et al.*, 1998; Monroe and Chapman, 1987; Thaler, 1985). As acquisition value is considered net gain (difference between benefits and costs) of acquiring a product or service, the costs incurred through losses will unfavourably affect the "get" component of acquisition value (Lowe and Alpert, 2010). Consumers may tend to overestimate the losses associated with the transaction (Yeh *et al.*, 2012). Hence, we hypothesise that:

H1. Perceived uncertainty will negatively influence perceived acquisition value.

Most of these problems are aggravated in the online used goods and second-hand markets. Hidden information is pronounced in the online used goods market as both the product- and seller-related information cannot be gauged easily. In typical online new good purchases, consumers rely on a number of intrinsic and extrinsic product cues to assess quality and reduce risk (Li *et al.*, 2009; Fang *et al.*, 2011). However, in the case of second-hand goods, standard intrinsic cues (colour, shape and design) cannot be evaluated easily online as they may vary based on usage or information provided by the seller. Similarly, extrinsic cues such as brand name and warranty may become irrelevant as the product may suffer from wear and tear because of previous ownership.

In such cases, the consumer may rely on the history of the product to serve as a cue. The age of the product and the characteristics of the previous owner can be used to evaluate the product quality. For instance, consumers may prefer a jacket that was bought by the seller in the previous month rather than one that was bought last year. Similarly, a car that was driven by a "lady owner" might be considered better than one that was driven by a young male (Gabbot, 1991). Thus, second-hand goods come with a "provenance" risk, which refers to the consumer's apprehensions about the article's history (Simcock *et al.*, 2006). Pre-owned goods will also suffer from contagion effects which create uncertainty about the product quality (Argo *et al.*, 2006).

Seller-related uncertainties also abound in the online second-hand market. When compared to websites that serve as retail outlets for new goods, most online used goods retail websites serve as a platform for individual sellers to dispose used goods at a price determined by the seller (Ghose, 2009). Sellers may arbitrarily decide on prices based on factors such as their attachment to the product or their assessment of buyer intentions (Brough and Isaac, 2012). Buyers cannot ascertain if the product is worthy of the price charged by the seller. Subsequently, based on the principal–agent perspective, buyers of used goods websites may suffer from higher levels of perceived seller uncertainty when

compared to traditional e-commerce websites, which connect vetted vendors with buyers (Dimoka *et al.*, 2012; Gopal *et al.*, 2005; Li *et al.*, 2009). Hence, we propose that:

H2. Consumers who buy used goods online will perceive higher levels of uncertainty when compared to consumers who purchase new goods online.

As frugal shoppers are value and price-conscious shoppers (Cervellon *et al.*, 2012; Shoham and Brencic, 2004), perceived uncertainty can be a deterrent towards purchases which carry high risk. Frugal consumers typically prefer trustworthy vendors and premium websites (Bansal and Zahedi, 2014). Hence, we posit that:

H3. The negative effect of perceived uncertainty on acquisition value will become stronger for higher levels of frugality.

Acquisition value

When compared to offline stores, online shopping can improve acquisition value. Factors such as the ease of assessing the price-quality ratio and locating merchants can decrease search costs and increase perceived acquisition value in the online environment (Overby and Lee, 2006). However, shopping for second-hand goods online can increase search costs as the buyer has to look at various price options and bids for similar products (Gopal *et al.*, 2005; Li *et al.*, 2009; Dimoka *et al.*, 2012).

Contamination of used goods can affect the buyer's residue sensitivity ("buyer's sensitivity regarding the previous owner's contact with the object") and can add to product-related uncertainties. This residue can add to the cost of buying an used product (Kapitan and Bhargave, 2013). Such costs can bring down the acquisition value of a product. Hence, we posit that:

H4. Consumers who buy used goods online will perceive lower levels of acquisition value when compared to consumers who purchase new goods online.

Perceived value is a key driver of purchase intention, loyalty and e-loyalty (Cronin *et al.*, 2000; Parasuraman and Grewal, 2000; Chen and Dubinsky, 2003; Lam *et al.*, 2004; Lin and Wang, 2006). When consumers believe that they are getting their money's worth, they tend to make repeat purchases. Their need to switch websites decreases as they are satisfied (Luarn and Lin, 2003; Yang and Peterson, 2004; Agustin and Singh, 2005; Valvi and Fragkos, 2012).

In contrast, dissatisfaction with purchases will lead to lessened acquisition value over time, which will in turn reduce e-loyalty (Anderson and Srinivasan, 2003; Grewal *et al.*, 2003; Li *et al.*, 2015). Studies that deconstruct perceived value into acquisition value and transaction value have found that acquisition value is a significant predictor of purchase intention when compared to transaction value (Audrain-Pontevia *et al.*, 2013; Grewal *et al.*, 1998; Urbany *et al.*, 1997). Hence, we posit that:

H5. Perceived acquisition value will positively influence e-loyalty.

There is a negative relationship between responding to deals and repeat purchases (Garretson *et al.*, 2002; Lichtenstein *et al.*, 1990). Consequently, consumers who look for the best combinations of price and quality may not be loyal to a brand. Frugal shoppers prefer to carefully spend money to maximise the value acquired and are not easily influenced by coupons and discounts in online environments too (Bansal and Zahedi, 2014; Goldsmith *et al.*, 2014). Therefore, frugal shoppers may make repeat purchases only if they perceive higher levels of acquisition value. Hence, we hypothesise that:

H6. The positive effect of perceived acquisition value on e-loyalty value will become stronger for higher levels of frugality.

Effects of product category (search vs experience) on product choice (new product vs second-hand/used goods)

We believe that experience goods will suffer from greater contamination effects. Search goods that "are around" the customer such as a car or mobile phone do not evoke the same amount of disgust as products (e.g. clothes) that have been "on the consumer" (Abbey *et al.*, 2015). Therefore, previously owned experience products such as clothes and make-up would suffer greater contamination effects.

Culture also plays a huge role in the sensitivity towards contaminants. Certain Indians fear that contact with a different social class (low caste) might pollute their person (Hejmadi *et al.*, 2004). Asians also believe that only the poor use second-hand channels. Hence, unlike their Western counterparts, Asian consumers fear that their social standing would suffer if they buy second-hand clothes (Xu *et al.*, 2014). Thus, previously owned goods that have been in bodily contact with the previous owner suffer from larger contamination effects in Asian culture when compared to other cultures. Therefore, we hypothesise that:

H7. Consumers will prefer new goods websites to buy products with sensory attributes (experience goods) when compared to second-hand goods websites.

Frugal consumers are price-conscious and may be motivated to find products at a lesser price on second-hand websites (Shoham and Brencic, 2004; Roux and Guiot, 2008). They enjoy saving money and spending prudently (Rick *et al.*, 2008). Thus, as frugal consumers are naturally economic and less materialistic, they may choose second-hand channels to purchase at a lower cost (Goldsmith *et al.*, 2014). Therefore, we propose that:

H8a. Consumers who buy used goods online will be more frugal when compared to consumers who purchase new goods online.

However, there could be a case for the opposite being true as well. Frugal consumers try to maximise the value of a purchase. The online second-hand market is fraught with product- and seller-related uncertainties. This uncertainty can erode the perceived value for a frugal consumer, and cultural aspects may increase contamination effects. Therefore, the online second-hand market is probably driven by buyers who look for the pleasure of a bargain or other hedonic feelings related to gaining a price advantage (Guiot and Roux, 2010; Yan *et al.*, 2015). They might look for "treasures" such as limited edition models that are found at lower prices in online used goods auctions (Cameron and Galloway, 2005). These are indulgent consumers who enjoy the excitement of the bidding process (Lee *et al.*, 2013). A recent study shows that materialistic consumers are more likely to shop on online second-hand websites (Parguel *et al.*, 2017). Hence, we propose the following competing hypothesis:

H8b. Consumers who buy used goods online will be less frugal when compared to consumers who purchase new goods online.

Method

Sample and procedure

The survey was conducted in India – a country which has an ever-increasing digital consumer base. Indian online retail is booming with buyers starting as early as 18 years. Around 65 per cent of Indian population is below 35 years, and the young population is a

key driver of online retail (The Associated Chambers of Commerce and Industry of India, 2017). Online classifieds is the main business model that supports the transaction of second-hand/used goods in India and is a growing market in the nascent stage. Young Indian shoppers aged 19-23 had bought three-five used goods in 2014 (OLX-Crust, 2015).

As our study included both new and second-hand shopping, our target population included Indian adult online shoppers aged around 18-45 years. An online survey tool was used to create a survey to collect data. The data collection procedure was similar to that reported in other online marketing studies (Arnold and Reynolds, 2012). Over a period of two months, students in undergraduate and postgraduate courses were asked to forward the survey web page link to their student and non-student acquaintances. The students were given partial course credit for collecting data. The survey included an initial filter question which requires the respondent to answer if (s)he has shopped online. If (s)he had, then there was another filter question to check if (s)he had shopped online recently for second-hand goods. If yes, then the respondent needed to list his/her most recent second-hand purchase and answer the remaining questions on perceived uncertainty, acquisition value, e-loyalty and frugality. If no, then the respondent was asked to list his recent new good purchase and answer the remaining questions. The respondent left behind the name of the student who recommended them to fill-in the survey. During the course of the programme, the data about the respondents were gathered from some of the students. Around 20 respondents were contacted in each category (second-hand/new), and the details were verified. Out of the total 602 responses obtained, 481 were usable.

Of the respondents 40.5 per cent (n = 195) had shopped for used goods online and 59.5 per cent (n = 286) had not. The demographic characteristics of our sample represented the targeted categories. The sample was approximately 60 per cent men (n = 290) and 40 per cent women (n = 191). Around 5 per cent (n = 21) were less than 18 years, 64 per cent were in the 18-24 years age group (n = 310), 20 per cent were in the 25-34 age group (n = 95), 7 per cent were in the 35-44 age group (n = 34) and 4 per cent were above 45 years (n = 21). Table I shows the type of goods bought online. Consumer spend is greater for popular categories such as apparel (85 per cent), mobile phones (68 per cent) and cosmetics (25 per cent) (The Associated Chambers of Commerce and Industry of India, 2017). Our

Product category	Products	Product type	New (%)	Second hand (%)
Apparel	Clothes, accessories, watches, sunglasses, shoes, bags	Experience	*139 (48.60)*	43 (22.10)
Auto	Car, bike	Search	1 (0.30)	22 (11.30)
Books	Books	Search	13 (4.50)	4 (2.10)
Cosmetics	Kajal, eyeliner, mascara, lipstick, make up brush kit, face powder, blush powder	Experience	4 (1.40)	0 (0)
Electronics	Mobile, pen-drive, headset, memory card, iron box, power bank, DSLR camera, kettle, keyboard, gaming console, speaker	Search	120 (42.00)	*109 (55.90)*
Kitchen/ furnishing	Vegetable cutter, study rack, wall décor, home décor, sofa	Search	7 (2.40)	14 (7.20)
Pets	Dogs of specific breed	Search	0 (0)	3 (1.5)
Toys	Rubik cube, Lego	Search	2 (0.70)	0 (0)

Note: Italics values denotes the largest product category

Table I.
Products bought online

results also showed this proportion with apparel being the common new goods item bought online, followed by electronics. Electronics formed the major portion of second-hand goods bough online. Product categories are classified based on the dominant attributes of the product based on previous studies (Weathers *et al.*, 2007). Products which had predominantly sensory attributes were categorised as experience goods.

Measures

This study adapted existing measurement scales. Perceived uncertainty was assessed using the four-item scale from Pavlou *et al.* (2007). E-loyalty was measured using the seven-item scale adapted from Srinivasan *et al.* (2002). Perceived acquisition value was measured based on the scale designed by Audrain-Pontevia *et al.* (2013). This scale captures the "get" and "give" components of a purchase transaction by using three items. Consumer's frugality was measured using a six-point, eight-item scale proposed by Lastovicka *et al.* (1999) where 1 = Strongly Disagree and 6 = Strongly Agree. With the exception of frugality, all the scales were a seven-point Likert scale, where 1 = strongly disagree and 7 = strongly agree. Table AI shows the scales.

Results

Measurement model analysis and confirmatory factor analysis results

The conceptual model was tested using a structural equations approach with latent variables using Lavaan 0.5-23. Lavaan (Latent Variable Analysis) is a "free open source but commercial quality" R package for latent variable modelling (Rosseel, 2012). The recommended two-step approach was used (Anderson and Gerbing, 1988). Initially, the measurement model was estimated using the maximum likelihood robust estimation as this approach is robust to non-normality (Satorra and Bentler, 2001). First, confirmatory factor analysis (CFA) was used to test the convergent and discriminant validity. The measurement model showed good fit [Satorra–Bentler $\chi^2(203) = 437.781$, $p < 0.001$, (χ^2/df = 2.15), comparative fit index (CFI) = 0.961, non-normed fit index (NNFI) = 0.955, root mean square error of approximation (RMSEA = 0.049), standardised root mean residual (SRMR) = 0.043]. All the scales were reliable as composite reliabilities ranged from 0.82 (perceived uncertainty) to 0.91 (e-loyalty), exceeding the recommended level of 0.60 (Bagozzi and Yi, 1988). Average variance extracted (AVE) ranged from 0.53 to 0.74, establishing support for convergent validity based on the recommended cut-off of 0.5. The *t*-values of the parameter estimates were positive and significant, indicating convergent validity. Discriminant validity was also established as the AVE in each factor exceeded the square of its correlations with other factors. Thus, both convergent and discriminant validity were established (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). The measurement fit details are shown in the Appendix (Table AI and Table AII).

Prior to conducting the survey, the following precautions were followed to reduce common method variance:

- Measures were adopted from established scales used in previous studies to ensure scale quality.
- Respondents were assured of the confidentiality of their responses to ensure that apprehensions were reduced.
- Data were collected at different points in time by the students over a period of two months.
- Pretesting was conducted to verify if the questions were clear.

- The order of the questions was randomised using the survey tool (Chang *et al.*, 2010; Podsakoff *et al.*, 2003).

The ex post analyses included the CFA approach to Harman's one-factor test. The single-factor model did not fit the data well, and the fit of the one-dimensional model was worse than the original measurement model [$\chi^2(209) = 2913.875$, $p < 0.001$, (χ^2/df = 13.94), CFI = 0.537, NFI = 0.488, RMSEA = 0.164, SRMR = 0.145].

Hypotheses testing

The proposed research model was tested in four stages. All analyses were conducted using Lavaan version 5.23, semTools version 4.14 (Jorgensen *et al.*, 2016) and R version 3.4.3 (R Core Team, 2017). In the first stage, the main effects were tested (*H1* and *H5*) using the basic structural model. Next, latent interaction effects were tested by including the moderating effects of frugality (*H3* and *H6*) and by using an "unconstrained mean-centred" approach. Then, multi-group moderation effects (*H2*, *H4*, *H8a* and *H8b*) were assessed using multi-group analysis. We used the maximum likelihood estimation with robust standard errors and a Satorra–Bentler scaled test statistic for these three stages (Satorra and Bentler, 1988). Finally, we investigated if product category (search vs experience) influenced the choice of product type (second-hand/new goods) (*H7*). As this involved the inclusion of a binary endogenous variable in the model, we estimated this model using the weighted least square mean variance (WLSMV) estimator, as it is a robust estimator for a model that contains both continuous and categorical data (Muthén, 1984; Muthén *et al.*, 1997).

Direct effects

The structural model also showed good fit with the indices meeting or exceeding the recommended values [Satorra–Bentler $\chi^2(206) = 448.307$, $p < 0.001$, CFI = 0.951, RMSEA = 0.06, $CFI_{SB} = 0.971$, $RMSEA_{SB} = 0.04$, SRMR = 0.058]. *H1* was not supported as perceived uncertainty did not have a statistically significant negative effect on acquisition value ($\beta = -0.169$, $p > 0.1$). However, acquisition value had a significant positive influence on e-loyalty ($\beta = 0.556$, $p < 0.001$). Hence, *H5* was supported. The structural estimates of this model are summarised in Table II below.

Latent interaction effects

Second, we tested the moderating effect of frugality on the proposed relationships (*H3* and *H6*) by estimating latent interaction terms by using the unconstrained model approach. This approach relaxes the normality assumption, provides less biased estimates and does not impose any complicated non-linear constraints in defining relationships between product indicators and the latent interaction factors (Marsh *et al.*, 2004a; Marsh *et al.*, 2006). It has been used in previous marketing literature and other disciplines to study interaction effects (Homburg *et al.*, 2010).

Hypotheses	Relationship tested	Standardised path coefficient	*t*	SE
H1	Perceived uncertainty → acquisition value	-0.169^{ns}	−1.555	0.068
H5	Acquisition value → e-Loyalty	0.556***	9.779	0.043

Table II.
Direct effects results

Notes: Structural model: Satorra–Bentler $\chi^2(206) = 448.307$, $p < 0.001$, CFI = 0.951, RMSEA = 0.06, $CFI_{SB} = 0.971$, $RMSEA_{SB} = 0.04$, SRMR = 0.058; ns – not significant ***$p < 0.001$

In this approach, the predictor indicators are multiplied by the indicators of the moderator, and these terms serve as the reflective indicators of the latent interaction construct. For example, if we intend to create interaction terms between two latent constructs X (with indicators X1, *X*2 and X3) and M (indicators M1, M2 and M3), then the indicators are "paired" to create the interaction term. This implies that X1xM1, X2xM2 and X3xM3 will be the reflective indicators of the latent interaction term (XxM) based on the matched pair approach (Marsh *et al.*, 2004a). As there are unequal number of indicators in our case (frugality has eight and perceived uncertainty/acquisition value have 4/3 indicators), we follow the "best" match strategy (Wu *et al.*, 2013). In this case, only a subset of all indicators (selected based on higher reliabilities) from the construct with the larger number of indicators will be chosen to form the interaction term. This approach has been adopted in other marketing studies too (Fürst *et al.*, 2017).

Therefore, to test *H3* and *H6*, we created the interaction terms by using the mean-centred indicators of the moderator and the predictors, as this produces reliable results. We created the interaction terms between perceived uncertainty and frugality (PU × FRUG) by using four matched pairs, each representing an interaction term between one of the four indicators of perceived uncertainty and one of the four strongest (indicators with the "best" standard loadings) indicators (eight) of frugality. Similarly, we created three matched pairs for representing the interaction between acquisition value and frugality (ACQ × FRUG).

We included the latent interaction effects in the direct effects model. Thus, this model includes all effects from the basic model along with the interaction effects. The interaction effects model had a good fit [Satorra–Bentler $\chi^2(365) = 481.721$, $p < 0.001$, CFI = 0.955, RMSEA = 0.043, $CFI_{SB} = 0.974$, $RMSEA_{SB} = 0.026$, SRMR = 0.04]. The results confirmed that the interaction between perceived uncertainty and frugality ($\beta = -0.097, p < 0.05$) had a significant effect on acquisition value. Similarly, the interaction between acquisition value and frugality ($\beta = -0.113, p < 0.05$) had a significant effect on e-loyalty.

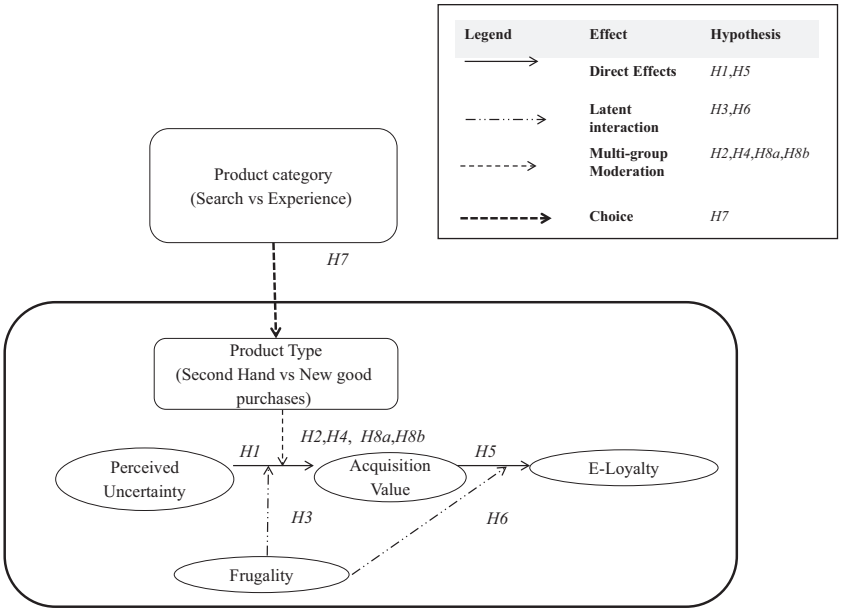

Figure 1.
Conceptual model and the techniques used to test the model

We used the simple slope test to interpret the interaction further (Aiken *et al.*, 1991). Figures 2 and 3 show the interaction effects. Figure 2 shows that highly frugal (one standard deviation above the mean on the frugality measure) consumers perceive significantly higher levels of acquisition value when the perceived uncertainty is lower. Thus, *H3* was supported. Figure 3 shows that highly frugal consumers were more loyal when they perceived higher levels of acquisition value. However, this effect was more pronounced for consumers with lower levels of frugality (one standard deviation below the mean on the frugality measure). Therefore, *H6* was not supported. The structural estimates of this model are summarised in Table III below.

Moderating effects using multiple-group analyses

Next, multi-group analysis was used to test the moderating effect of product type (new vs second-hand). Measurement invariance had to be established before testing the different groups. The sample was split based on whether the respondent was an online second-hand shopper. Initially, to determine the equivalence of factor structure in the different subgroups,

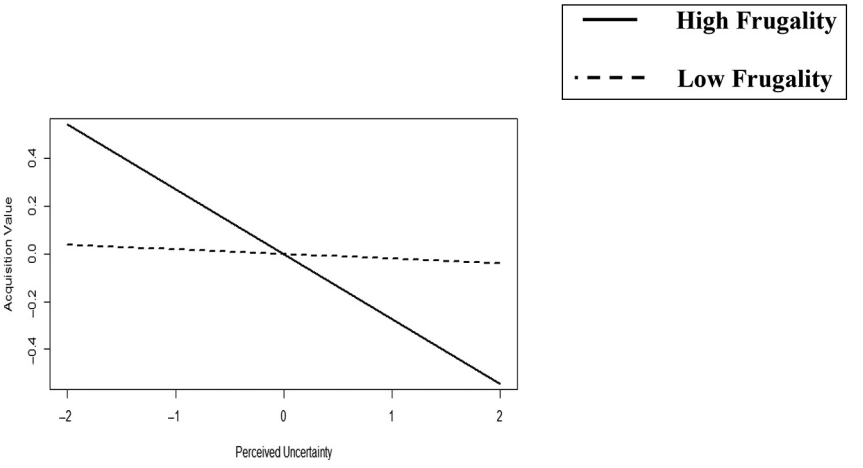

Figure 2.
Moderating effect of frugality on the relationship between perceived uncertainty and acquisition value

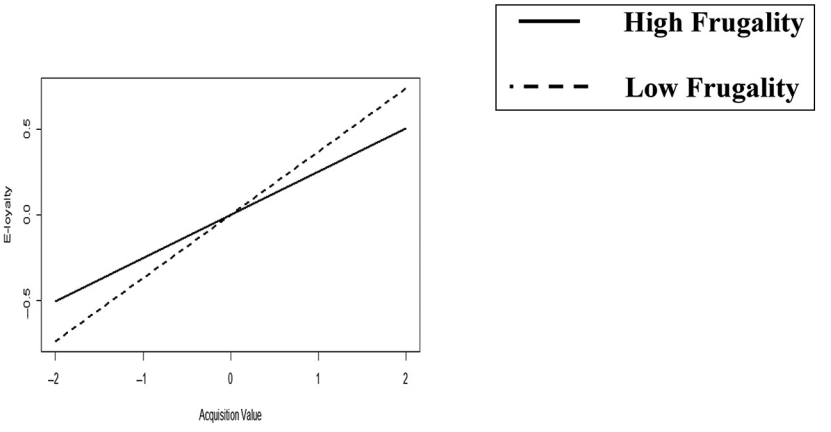

Figure 3.
Moderating effect of frugality on the relationship between acquisition value and e-loyalty

a multi-group CFA was conducted to examine measurement invariance across the different shopper groups. A successive hierarchical approach by constraining the model parameters and observation of the changes to the model fit was done (van de Schoot *et al.*, 2012). Testing invariance was based on two criteria: the measurement models should show good fit, and the change in fit indices must be below the recommended cut-off values (ΔCFI < 0.01 and ΔRMSEA < 0.015) (Steenkamp and Baumgartner, 1998; Cheung and Rensvold, 2002; Byrne, 2008).

Configural invariance (no equality constraints on the parameters) was assessed first. The model showed good fit [$\chi^2(406) = 719.456$, CFI = 0.947, NNFI = 0.940, RMSEA = 0.057, Satorra–Bentler $\chi^2(406) = 529.039$, $p < 0.001$, $CFI_{SB} = 0.973$, $RMSEA_{SB} = 0.035$, SRMR = 0.050)]. Hence, it can be assumed that the factor structure was similar across groups. Next, the invariance of factor loadings was evaluated (metric model). The fit statistics showed that the model did not result in significant degradation of fit [$\chi^2(424) = 756.449$, $p < 0.001$, CFI = 0.944, NNFI = 0.939, RMSEA = 0.057, Satorra–Bentler $\chi^2(424) = 563.999$, $p < 0.001$, $CFI_{SB} = 0.970$, $RMSEA_{SB} = 0.037$, SRMR = 0. 0.057]. A scalar invariance test was conducted next by constraining the intercepts of each item and the factor loadings. This model too showed good fit [$\chi^2(442) = 809.816$, $p < 0.001$, CFI = 0.938, NNFI = 0.936, RMSEA = 0.059, Satorra–Bentler $\chi^2(442) = 617.418$, $p < 0.001$, $CFI_{SB} = 0.962$, $RMSEA_{SB} = 0.041$, SRMR = 0.058]. Measurement invariance criteria were met as all the model fit indices were good and the changes in fit indices were below the recommended cut-off values (ΔCFI < 0.01 and ΔRMSEA < 0.015). The fit indices and the changes are shown in Appendix (Table AIII). The hypotheses regarding the product type were tested next as measurement invariance was present.

Group differences were tested by estimating latent mean differences. Therefore, to test *H2*, *H4*, H8a and *H8b*, we used the model where the factor loadings and intercepts were constrained to be equal. We chose "new goods shoppers" to serve as the reference group and "second-hand shoppers" to serve as the comparison group. We set the means of the latent factors to be fixed to zero in the reference group and to vary freely in the comparison group. Statistically significant differences were indicated for perceived uncertainty, acquisition value and frugality. Hence, *H2*, *H4* and *H8b* were supported. Second-hand shoppers perceived higher levels of uncertainty ($\Delta M = 0.244$, $p < 0.01$) and lower levels of acquisition value ($\Delta M = -0.820$, $p < 0.001$) and frugality ($\Delta M = -0.366$, $p < 0.001$). As *H8b* was supported, *H8a* was not supported. The results are shown in Table IV.

Product choice

Finally, we tested the influence of product category (search vs experience) on the choice of product type (new vs second-hand) by including these binary categorical variables into our original direct effects model. Product type was defined as an ordered categorical variable (0: second-hand; 1: new goods). Product category was coded such that "search" goods were the reference category. The WLSMV estimator was used to assess the structural model as the

Hypotheses	Relationship tested	Standardised path coefficient	*t*	SE
H3	Perceived uncertainty × frugality → acquisition value	−0.097*	−1.911	0.051
H6	Acquisition value × frugality → e-loyalty	−0.113*	−1.921	0.059

Notes: Structural model: Satorra–Bentler $\chi^2(365) = 481.721$, $p < 0.001$, CFI = 0.955, RMSEA = 0.043, $CFI_{SB} = 0.974$, $RMSEA_{SB} = 0.026$, SRMR = 0.04; *$p < 0.05$

Table III. Latent interaction effects

Hypotheses	Hypothesised group differences	Tests of latent means difference	Result
H2	Second-hand shoppers perceive higher levels of uncertainty	ΔM = 0. 244**	Supported
H4	Second-hand shoppers perceive lower levels of acquisition value	ΔM = −0.820***	Supported
H8a	Second-hand shoppers are more frugal	ΔM = −0.366***	Not supported
H8b	Second-hand shoppers are less frugal	ΔM = −0.366***	Supported

Notes: Scalar invariance model: [$\chi^2(442) = 809.816$, $p < 0.001$, CFI = 0.938, NNFI = 0.936, RMSEA = 0.059, Satorra–Bentler $\chi^2(442) = 617.418$, $p < 0.001$, $CFI_{SB} = 0.962$, $RMSEA_{SB} = 0.041$, SRMR = 0.058]; ("new goods shoppers" is the reference group and "second-hand shoppers" is the comparison group); ***$p < 0.001$; **$p < 0.01$

Table IV.
Multi-group analysis

model involves a categorical endogenous variable. This is a robust estimator that can handle non-normal and ordered categorical variables (Finney and DiStefano, 2006). It has also been used in recent marketing literature with structural models that include categorical dependent variables (Paulssen and Roulet, 2017; Reynolds-McIlnay *et al.*, 2017). The model showed acceptable fit (CFI = 0.93; Tucker–Lewis index = 0.91; RMSEA = 0.04, WRMR = 0.90) (Hu and Bentler, 1999; Yu, 2002; Marsh *et al.*, 2004b). The hypothesised effect was significant and positive (unstandardised probit co-efficient = 0.773, $p < 0.001$). A probit coefficient of 0.773 indicates that a one-unit increase in product category (from search to experience) resulted in an increase in 0.773 standard deviations in the predicted Z score of the cumulative normal probability distribution of the direct outcome (product type chosen: second-hand [coded as 0] vs new [coded as 1]) (Muthén and Muthén, 2010). This implies that an experience good has a higher probability of being bought from a new goods website rather than a second-hand goods website. Hence, *H7* was supported, and the results are shown in Table V below.

The results of hypotheses tests are summarised in Table VI.

Discussion and implications

The results of this study suggest the following:

- Perceived uncertainty does not significantly influence acquisition value.
- Acquisition value has a significant effect on e-loyalty.
- On an average, the second-hand shopper perceives higher levels of uncertainty, lower levels of acquisition value and is less frugal than the new goods shopper.

Hypothesis	Relationship tested	Unstandardised probit coefficient	*t*	SE
H7	Product category (search vs experience) → choice of product type (new vs second-hand)	−0. 0.773***	6.178	0.125

Notes: Structural model: CFI = 0.93; Tucker–Lewis index = 0.91; RMSEA = 0.04, WRMR = 0.90 (using robust WLSMV estimator); ***$p < 0.001$

Table V.
Product choice

Hypotheses	Relationship tested	Result
H1	Perceived uncertainty → acquisition value	Not supported
H2	Second-hand shoppers perceive higher levels of uncertainty	Supported
H3	The negative effect of perceived uncertainty on acquisition value will become stronger for higher levels of frugality (frugality × perceived uncertainty)	Supported
H4	Second-hand shoppers perceive lower levels of acquisition value	Supported
H5	Acquisition value → e-loyalty	Supported
H6	The positive effect of perceived acquisition value on e-loyalty value will become stronger for higher levels of frugality (frugality × acquisition value)	Not supported
H7	Consumers will prefer new goods websites to buy products with sensory attributes (experience goods) when compared to second-hand goods websites	Supported
H8a	Second-hand shoppers are more frugal	Not supported
H8b	Second-hand shoppers are less frugal (competing hypothesis)	Supported

Table VI.
Summary of results of hypotheses testing

- Highly frugal consumers perceive significantly higher levels of acquisition value when the perceived uncertainty is lower.
- Consumers mostly prefer to purchase search products with non-sensory attributes in second-hand websites and experience products on new goods sites.

The results have both theoretical and managerial implications. We found strong support for almost all our hypotheses. *H1* (stating that perceived uncertainty would negatively affect acquisition value) was not supported. A plausible reason for this could be the nature of transactions in online second-hand channels in India. Most second-hand websites work on the online classifieds model. Typically, the buyer does not complete the transaction online. The buyer looks for products online and meets the seller at a physical location. Hence, this might eliminate the information asymmetry problems as the buyer gets an opportunity to evaluate the product in an offline context.

H6 (positive effect of perceived acquisition value on e-loyalty value will become stronger for higher levels of frugality) was also not supported. While higher levels of frugality did strengthen this relationship, it was not true for the reverse relationship. Lower levels of frugality also exhibited the same effect. Therefore, we were not able to conclude the effect of frugality on repeat purchases. When seen in conjunction with *H8a*, the relationship between frugality and value sought should be investigated further. The effect of frugality and other value measures, including transaction value, warrant further study.

Theoretical implications

This study contributes to the existing literature as the first empirical investigation that contrasts the perceived value sought by new goods and used goods by online buyers to the best of our knowledge.

First, this study adds to literature on buyer's perception regarding online second-hand/used goods purchases. Second-hand/used-goods channels compete with existing channels to satisfy consumer needs. They also serve as an efficient way for disposing products that are no longer essential to the owner (Brosius *et al.*, 2013). Except for Parguel *et al.* (2017), there are very few studies that investigate consumer motivations to buy from these channels, and most of them are in the offline context (Cervellon *et al.*, 2012; Turunen and Leipämaa-

Leskinen, 2015; Xu *et al.*, 2014; Yan *et al.*, 2015). Studies based on the online used goods market too restrict themselves to investigating the role of signalling mechanisms (Dimoka *et al.*, 2012; Ghose, 2009; Pavlou *et al.*, 2007) to improve trust in these channels. The current study adds to these studies by providing insight to buyer's perception of value in these used goods channels online.

Second, based on the principal–agent perspective, we examine information asymmetry effects in both the markets. While most researchers point out that perceived uncertainty in online markets tend to have a negative effect on perceived value, we did not find significant effects. However, on further investigation, we found that this effect was significant for new good purchases alone ($\beta = -0.296, p < 0.001$). Therefore, this study contributes to literature on the principal–agent perspective by confirming the effect in new good purchases (Pavlou *et al.*, 2007; Riquelme and Román, 2014). We believe that seller-related uncertainty is mitigated in the C2C second-hand market as the buyer does not complete the transaction online. He is able to inspect the good physically and assure himself of the product quality. However, consumers are more uncertain in the online second-hand channel. This finding confirms previous research on the uncertainties in the second-hand market (Gabbot, 1991; Simcock *et al.*, 2006). This study captures the fact that product-related uncertainties, provenance risk and seller-related uncertainties are more prominent in the online second-hand market when compared to new good transactions.

Third, this study contributes to the understanding of the acquisition value perceived by consumers in online shopping and second-hand shopping channels. Many studies investigate either perceived value or perceived transactional value in online shopping channels (Chen and Dubinsky, 2003; Grewal *et al.*, 2003; Kim and Gupta, 2009; Gupta and Kim, 2010; Kim *et al.*, 2012). A few have considered acquisition value in online shopping channels (Audrain-Pontevia *et al.*, 2013). This study extends these studies and provides support to the fact that acquisition value is a key driver of e-loyalty in online shopping channels. Repeat purchases are essential for an e-tailer to be successful, and it can be seen that acquisition value plays a key role in enhancing e-loyalty in both new goods and second-hand goods context. In addition, our findings also show that contamination and increased search costs can lower the perceived acquisition value in second-hand channels when compared to new goods channels.

Fourth, this research adds to the stream of literature that examines contamination effects in a retail setting. No previous research has examined this in the context of online second-hand products to the best of our knowledge. The results show that experience goods or goods "on the consumers" (Abbey *et al.*, 2015) suffer greater contamination effects than search goods. Culturally too, we confirm the reluctance of Asian consumers in using previously owned experience goods (Xu *et al.*, 2014).

Finally, previous studies highlight the cautious nature of frugal shoppers (Bearden *et al.*, 2006; Rick *et al.*, 2008; Roux and Guiot, 2008) and their reliance on trustworthy vendors and premium websites (Bansal and Zahedi, 2014). We find that frugal consumers try to maximise acquisition value in the online shopping environment. Specifically, uncertainty affects the frugal shopper's perception of acquisition value. Our findings also point out that most online second-hand shoppers are not driven by frugality. This is in line with a recent finding by Parguel *et al.* (2017), who show that online, used goods consumers are driven by indulgent consumption.

Managerial implications

To sustain themselves in a competitive online market, retailers need to understand the value sought by consumers. Our study provides empirical evidence of the importance of

acquisition value for new goods and second-hand shoppers. Results showed that *acquisition value* led to *e-loyalty*, and the latent mean differences show that that *acquisition value* for used goods would be lower than that of new goods. Thus, new goods e-tailers should focus more on enhancing the acquisition value sought by the shoppers. They must work on enhancing consumers' quality perceptions as it is known to have a positive effect on acquisition value (Dodds *et al.*, 1991; Grewal *et al.*, 2003). As most new goods do not differ in quality, websites can highlight seller quality. For instance, websites can provide historical proof of shipping and delivery capabilities and stress that the vendor has been previously vetted. They can also use other ranking mechanisms. For, example, online marketplaces such as Amazon use specific algorithms to identify trusted sellers and give them a lion share of a web page's real estate (Taft, 2014). The results also showed that consumers prefer to buy *experience goods* on the new goods channel. Hence, retailers can use technologies such as product virtualization to enable the consumer experience the product online (Kim and Forsythe, 2010). Augmented reality and virtual reality experiences can add to consumer confidence about new products (Deborah Weinswig, 2016). Fashion brands have started offering online "dressing rooms" by using augmented reality to enhance retail experience (Alvarez, 2017). This emphasis can enhance the *acquisition value* further on new goods sites, which will drive repeat purchases.

Results also indicated that new goods' sites (*vis-à-vis* used goods' sites) are frequented by more *frugal* shoppers. Hence, new good websites can offer online coupons and discounts to attract frugal consumers. As *perceived uncertainty* is an issue with the perception of *acquisition value* for *frugal* shoppers, new good websites need to emphasise on the safety of transactions in these websites (Bansal and Zahedi, 2014).

Results showed that second-hand shoppers perceived higher levels of *uncertainty*, lower levels of *acquisition value* and preferred to buy *search* goods. Second-hand websites can reduce uncertainty by using a different set of cues as standard extrinsic cues such as brand name and warranty become irrelevant. As product quality varies greatly based on previous usage, these websites can provide value-added services to assure product quality. They can request the sellers to provide a detailed description of the history and owner of the product, especially for search goods. Other reassurances such as the "product is still under warranty" or "original accessories are unused" can also improve product quality perceptions. In the case of automobiles, previous maintenance details that the vehicle has always been serviced and repaired in workshops approved by the manufacturer can provide a positive history for the product reducing provenance risk. Websites can also certify using independent third-party agencies for information provision. For example, Quickr.com provides a car inspection report from an independent third-party vendor to provide an unbiased report for buyers and sellers of pre-owned cars (PTI, 2015). This report will enable the consumer to evaluate the quality of the car and consequently improve perceived *acquisition value*. Such assurances can improve consumers' perception of acquisition value for other product categories too. In the case of *experience goods*, it can be difficult to highlight the absence of "residue" in second-hand websites. A balanced minimal explanation might work as placing too much emphasis on previous use may backfire by highlighting contamination effects (Ackerman and Hu, 2017). Culturally too, our results show that *search* goods might enjoy greater success in the online second-hand market. Second-hand e-tailers may therefore focus on search goods in the Asian markets. Policymakers and reverse supply chain companies can promote the benefits of selling and buying of product categories such as automobiles, electronics and furnishing online. Thus, our research has a number of implications, not just from a theoretical standpoint, but from a managerial one as well.

Limitations and suggestions for future research

This study has its own limitations. First, it has investigated only Internet-based shoppers; researchers can study the value perception of mobile shoppers as well. This would be an interesting extension to our research. Second, the study has only investigated acquisition value; future studies can investigate transaction value or other hedonic values to verify their impact on acquisition value and e-loyalty. Third, while we found support for the notion that consumers who buy used goods online are less frugal, there is some research that could point to the opposite (Goldsmith *et al.*, 2014); we stated competing hypotheses. Hence, research can investigate this in depth in more countries to throw more light on this. Finally, our work included only one personality variable, frugality. Future work can incorporate other variables such as coupon proneness or domain-specific innovativeness.

Conclusion

This paper found that online second-hand shoppers (*vis-à-vis* those that shopped for new goods) were more uncertain and perceived lesser levels of acquisition value. Their frugality levels were also lower. Further, this research also showed that online shoppers were also more likely to buy products with sensory attributes (e.g. experience goods such as lipstick and other cosmetics) in new goods sites and products with non-sensory attributes (usually search goods such as pen-drives and electronic items) in second-hand goods sites. This paper compares the value sought by online second-hand and new goods shoppers. This study adds to the scant research on understanding the acquisition value perceived by consumers in online new goods and second-hand shopping channels, apart from giving specific managerial pointers.

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Appendix

Scale items	Factor loadings	Mean	SD	Composite reliability	AVE
Perceived uncertainty (Pavlou *et al.*, 2007)				0.82	0.53
I feel that purchasing products from the website involves a high degree of uncertainty	0.83	2.96	1.35		
I feel the uncertainty associated with purchasing products from the website is high	0.74	2.94	1.34		
I am exposed to many transaction uncertainties if I purchase products from the website	0.64	2.74	1.32		
There is a high degree of product uncertainty (i.e. the product you receive may not be exactly what you want) when purchasing products from this website	0.71	3.13	1.48		
Acquisition value (Audrain-Pontevia *et al.*, 2013)				0.94	0.74
This product deserved the sacrifices I made	0.81	4.51	1.76		
This product deserved the time and money I invested in buying it	0.91	4.73	1.75		
The price paid is fair if we consider the product performance	0.85	4.86	1.74		
e-Loyalty (Srinivasan *et al.*, 2002)				0.91	0.59
I rarely consider switching to another website for online shopping	0.66	3.90	1.59		
As long as the present service continues, I doubt that I would switch websites	0.60	4.19	1.60		
I try to use the website whenever I need to make a purchase	0.80	4.61	1.59		
When I need to make a purchase, this website is my first choice	0.83	4.62	1.67		
I like using this website	0.82	4.94	1.52		
To me this website is the best retail website to do business with	0.81	4.30	1.50		
I believe that this is my favourite retail website	0.85	4.40	1.55		
Frugality (Lastovicka *et al.*, 1999)				0.90	0.54
If you take good care of your possessions, you will definitely save money in the long run	0.81	4.59	1.18		
There are many things that are normally thrown away that are still quite useful	0.59	4.23	1.18		
Making better use of my resources makes me feel good	0.84	4.66	1.14		
If you can re-use an item you already have, there's no sense in buying something new	0.65	4.15	1.26		
I believe in being careful in how I spend my money	0.78	4.66	1.13		
I discipline myself to get the most from my money	0.76	4.5	1.15		
I am willing to wait on a purchase I want so that I can save money	0.72	4.29	1.18		
There are things I resist buying today so I can save for tomorrow	0.73	4.28	1.20		

Notes: Satorra–Bentler $\chi^2(203) = 437.781$, $p < 0.001$ ($\chi^2/df = 2.15$); comparative fit index (CFI) = 0.961, non-normed fit index (NNFI) = 0.955; Tucker–Lewis index (TLI) = 0.968; root mean square error of approximation (RMSEA) = 0.049; standardised root mean residual (SRMR) = 0.043; ($N = 481$)

Table AI. Study constructs and scale items, descriptive statistics, factor loadings and reliabilities

Table AII.
Squared correlations among latent constructs (Fornell and Larcker, 1981)

	Perceived uncertainty	Acquisition value	Frugality	Loyalty
Perceived uncertainty	1			
Acquisition value	0.01	1		
Frugality	0.01	0.27	1	
e-Loyalty	0.01	0.30	0.32	1

Table AIII.
Fit indices for the measurement invariance

Model	χ^2 (df)	p-value	$\Delta\ \chi^2$ (Δ df)	CFI (Δ CFI)	RMSEA (Δ RMSEA)
Configural invariance	719.46 (406)	<0.001		0.947	0.057
Equal factor loadings (full metric invariance)	756.45 (424)	<0.001	40.239 (18)	*0.944 (0.003)*	*0.057 (0.000)*
Equal indicator intercepts (full metric scalar invariance)	809.816 (442)	< 0.001	86.889 (18)	*0.938 (0.006)*	*0.059 (0.002)*

Notes: Change in fit indices are below the recommended cut-off values; (ΔCFI < 0.01 and ΔRMSEA < 0.015) (Steenkamp and Baumgartner, 1998; Cheung and Rensvold, 2002; Byrne, 2008) (The Δ values are shown in brackets)

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