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How do shoppers behave online? An observational study of online grocery shopping

Abstract

The pace of online shopping revenue growth means it is important for retailers and manufacturers to understand how consumers behave online; compared to their behaviour in bricks and mortar stores. We conducted a study in which the detailed behaviour of 40 shoppers was screen-recorded whilst they each undertook an online shopping 'trip'. The shopping trip comprised purchasing a basket of 12 commonly bought grocery categories at one of two major retailers. The shoppers were all inexperienced in online grocery shopping. Results show that online grocery shopping is fast, even for these consumers who were new to it – half of the online shoppers spent less than ten seconds purchasing from a category. This result is very similar to past studies in physical stores. Indeed, half of all the twelve item-shopping trips took less than ten minutes. Also, most purchases were made from the first category page displayed in the retailer's online store. Shoppers also consistently used the default display options chosen by the retailers but used a combination of navigational tools to find their products. We conclude that online shoppers do not behave differently from those offline in terms of time spent or effort expended. Online shopping, in the grocery context at least, seems to primarily reflect a desire for time efficiency on the part of the shopper. In that regard, online shopping seems very similar to in-store shopping. The study begins the job of documenting shopper behaviour into this new channel, and provides practical knowledge for retailers and manufacturers.

Key Words: Online shopping, Shopper behaviour

How do shoppers behave online? An observational study of online grocery shopping

Multichannel retailing is now the norm, with online being heralded as the fastest growing distribution channel. The use of the Internet to buy goods and services varies considerably across categories, countries and even areas within a country (urban vs. rural), however the overall trend is clear – consumers are buying more online. For example, the number of online shoppers overall in the United States is predicted to surpass 200 million, or over 60% of US households, in 2015 (Statista, 2015). In the UK, online retail sales are predicted to reach £52.25 billion in 2015 (Moth, 2015) and reached AU$19-24 billion annually in Australia during 2009 (Australian Bureau of Statistics, 2012).

Online grocery, although still quite small, is on the rise around the world with an annual growth rate of 14% over the last five years (Halzack, 2015). Retail Times (Briggs, 2014) reports over half of UK households buy groceries online at least occasionally, although Mintel report the rate of purchasing growth is slowing (Mintel, 2015). Large US supermarkets are rolling out online stores (e.g. Perez, 2015). European retailers are building more pick-up points to accommodate higher rates of online grocery buying (Ecommerce News, 2015). In Australia, the location for this study, online grocery is growing rapidly (Food Magazine, 2015) from a low base. China is seeing major investments and new business models emerging with options like same day delivery coming into play (Bell, 2015). Online shopping will become more important as populations grow older, communication technologies develop and consumers become more familiar with it.

Despite the growth and importance of online grocery, little is known about how people shop online for groceries and how online shopping patterns compare to in-store shopping behavior. Shopper's behaviour could potentially be affected, in terms of how they navigate and choose, by differences in channel

characteristics. Observing *what* consumers do online is a fundamental step towards understanding the online channel, and more knowledge in this arena will benefit academic researchers and industry (retailers and manufacturers). The focus of this study pertains to the *time* new online shoppers take to shop for groceries online.

Past research regarding online shopper behavior has mainly focused on comparing purchasing data from offline and online retailers. For example, Degeratu et al. (2000), using separate matched samples from online and offline modes in three categories, examined the effects of a set of attributes upon choice in online and offline environments. The authors found brand names are more important online than offline in some categories, and that price promotions have stronger effects online than in traditional, bricks and mortar supermarkets. Second, Danaher et al. (2003) examined matched samples of consumers; comparing the observed loyalty in each channel (online, in-store) to a baseline formed from the Dirichlet model of repeat-purchase. The study found large brands enjoy higher loyalty online than they theoretically should, whilst the effect was reversed for small brands. Andrews and Currim (2004) utilized the same data as Degeratu et al. (2000) and found online consumers have higher loyalty to brands than in-store purchasers; are less price sensitive and preferred buying larger pack sizes. A subsequent study of the same consumers, both on and offline, confirmed higher brand loyalty, higher loyalty to pack size and lower price sensitivity when purchasing online (Chu et al., 2010). Finally, Dawes and Nenycz-Thiel (2014) found there was little difference in the loyalty levels between online and offline purchasing regardless of the brand size and type, but found that private labels enjoyed slightly higher market shares online. In summary, past research has identified some differences in purchasing data from the two shopping environments. However, a search of the literature revealed no prior studies that have examined the way in which consumers shop online – such as the time taken to select categories and how quickly shoppers learn to navigate through a supermarket's site. This is the aim of this study.

Research on shopper navigation in physical stores singles out one important variable to consider, namely time. Shoppers are found to be extremely efficient in the way they find the few items they need among thousands of SKUs stocked, following habitual routes and using simple cues to navigate and localise the products they are accustomed to buying (Sorensen, 2009a). How does online shopping compare to offline when it comes to the time spent to find a category or brand, or the overall duration of a 'shopping trip'? Past research suggests that the online environment potentially reduces the amount of time required to shop (Bellman et al., 1999; Huang and Oppewal, 2006; Morganosky and Cude, 2000; Ramus and Nielsen, 2005; Sorensen, 2009a). Researchers mainly point to save-able shopping lists and retailer site cookies as ways to make it easier for shoppers to find what they have previously purchased. However, research on online navigation lacks detailed observation of actual shopper behaviour to compare and contrast it with what is known about in-store buying. This paper extends past work on shopper behaviour by observing duration times and search behaviour of a sample of online shoppers.

This paper provides the following contributions. First, it extends research on shopper navigation patterns to the online environment, and proposes a straightforward research method and associated set of metrics. Second, the findings provide benchmarks on what to expect in terms of navigation patterns in the online environment. Finally, it provides initial evidence on the importance of time and efficiency of online shopping, building on past knowledge about how shoppers behave in bricks and mortar stores.

Background, literature review and research propositions

Category selection times

The in-store literature reports the time taken for grocery shoppers to select a brand in a category is very quick. Typically, consumers are found to take

between 9 and 17 seconds on average to make a selection (e.g. Hoyer, 1984; Cobb and Hoyer, 1985; Le Boutillier et al., 1994). Laboratory studies on time taken to select show similar results to in-store observation. A summary of studies on shopper category selection times is shown as part of Table 1 below.

[INSERT HERE: Table 1 Summary of previous in-store shopping duration studies]

Table 1 shows there has been considerable research into in-store shopping selection and duration times. There is little in the way of research on shopping duration in the online world. However, general online search activities have been shown to be limited with online shoppers visiting just 1.2 book sites, 1.3 CD sites and 1.8 travel sites on average in a month (Johnson et al., 2004). Given these patterns, online shopping for items in specific grocery categories is unlikely to involve extended search and comparison. That said, it is unlikely to be quicker than in-store shopping (e.g. actually selecting a category, not including in-store traversal), which as stated, is quite brisk. Little evidence exists as to online shopping times, and it is an important question for retailers and researchers. Therefore, RQ1 is:

> *RQ1: How much time will shoppers take to select a grocery item from a category using an online shopping site?*

Shopping trip duration – online and in-store

Comparing shopping time durations across online and in-store modes is not necessarily straightforward. First, previous research has found shopper profiles differ between the two channels and so one would need to disentangle shopper type from shopping mode. Some studies have suggested males prefer online shopping more than females (Wood, 2011; Souitaris and Balabanis, 2007), but many others have found online purchasing skews towards females (Montgomery et al., 2004; Morganosky

and Cude, 2000; Raijas, 2002; Freeman, 2009; Hand et al., 2009). The varied results arise because some studies such as Wood (2011) ask about preference for shopping mode, whilst others examine the actual proportions of each gender that buy online (e.g. Montgomery et al., 2004; Morganosky and Cude, 2000).

Overall, for grocery products the majority of online and offline grocery shoppers are female, but online grocery shoppers tend to be younger and have higher incomes. However, this information on shopper profiles provides little detail about behavioural differences between shoppers in-store and online.

Past studies suggest shoppers shop online to save time and increase convenience (Richmond, 1996; Sorensen, 2009b; Merz, 2013). Online shopping avoids travel and parking, physical store navigation and contending with other shoppers. Just how much time would be saved shopping for groceries online compared to in-store shop is unknown. Estimates of average supermarket shop durations (i.e. time spent in the store) range from 13 to 40 minutes in studies using RFID; and 14 to 31 minutes using other methods (e.g. observation), as shown in Table 1. Shopping trip time should be highly contingent on the number of items purchased, but many of the studies reported in Table 1 do not report on items purchased. Three do, however - Silberer et al. (2007) reported an average of 13 minutes, while Hui, Bradlow and Fader (2009) reported an average of 48 minutes, both studies having a similar average number of items purchased of between 6 and 7. Anic and Radas (2006) reports a 42 minute average (35 minutes of shopping & navigation, 6 minutes waiting), for 10-20 items on average. The reason for such large difference in the average shop durations is unknown. It may be caused by data collection differences (observation, Bluetooth, RFID), the location of the study (US, AUS, Europe) and/or the size of the store. Even though these studies have a wide range of average shopping trip durations, they all suggest the time taken per category is at least two minutes, and in the

Hui, Fader and Bradlow study, (2009) the total time of 48 minutes for 7 categories equals approximately six minutes in the store, for each category bought. After deducting time taken at checkout, the time spent in-store per category is realistically several minutes overall. This is a large figure compared to studies showing category selection times of 9-17 seconds (e.g. Hoyer, 1984; Cobb and Hoyer, 1985; Le Boutillier et al., 1994). The reason is probably as Hui, Fader and Bradlow (2009) report: a significant proportion of time in-store is not actually selecting merchandise, it is moving through the store. An online shopping 'trip' should therefore be much quicker than an equivalent in-store trip (leaving aside travel and checkout time) because it does not require physical movement through a retail space. However, no empirical studies report online trip durations. Therefore, RQ2 is

> *RQ2: How long will consumers take to select a basket of items as part of an online shopping trip?*

New shopper learning

Next, we consider purchase and navigation durations of new online supermarket shoppers as they become familiar with it. One could argue new online shoppers, who have not purchased groceries using this channel (but who are familiar with the retailer), will quickly adapt to the new environment. The reason for this expectation is that much about the basic task, namely selecting brands on a website, is familiar to consumers. They know the brands they have bought before, and usually have several brands with which they are familiar. Therefore product selection times and site navigations times will decrease quickly. An alternative argument is that new online shoppers will take quite some time to adapt. They will require many shops to decrease category selection and navigation times. Arguably, the difference in the online world, with products listed in a vertical array and not a 'shelf' as in a store; as well as the inability to physically inspect the good, may take time to adapt to. We posit that the former scenario is more likely, as consumers have an incentive to learn, evidence shows they do usually learn quickly (Hoch and

Deighton, 1989); and the task to be learned is not highly complex. Quite often consumers do not engage in lengthy decision making processes (Olshavsky and Granbois, 1979), and instead revert to satisficing. Indeed, shoppers may well be quicker by the end of a single shopping trip than they were at the start of it. This would be consistent with in-store behaviour where shoppers shop faster towards the end of their trips (Sorensen, 2012) However, there is no empirical evidence on this basic aspect of online purchasing. We therefore pose RQ3:

> *RQ3: Will the time taken by an inexperienced shopper to select a grocery item decrease over the course of a shopping trip?*

Extent of supermarket category page viewing

When purchasing in-store, the customer has an entire product category arrayed on the shelves in front of them. A shopper uses physical movement and visual recognition to select a particular brand from potentially dozens of other brands. As mentioned previously, this is usually a quick process measured in seconds. In contrast to the physical store, online supermarkets handle categories with large numbers of brands by only displaying a small portion of them on a page. A shopper cannot visually scan an entire category to find a brand. Depending on their display setting or navigational tool effectiveness, to view all the brands, they must typically 'scroll' through the pages of the supermarket site. Shoppers may not wish to take time to view many pages in a category, as it is time-inefficient; and it is likely the case for many shoppers that they have a repertoire of acceptable brands, so they could feasibly encounter one of them within a few pages of search. There is little empirical research on online page views, but Breugelmans, Campo and Gijsbrechts (2006) found items located on the first page of a category yielded higher purchases (possibly impacted by stores including key selling offers there). This finding suggests the number of pages viewed is likely to be small, but documenting this important issue is still required. Therefore, we pose RQ4:

RQ4: To what extent will online grocery shoppers peruse multiple pages of offerings within any given category?

Lastly, few studies have addressed how online shoppers interact with online store formats and tools. These include tools such as the ability to sort, that is, change the way in which items for sale are sorted on the page - (Breugelmans et al., 2006); the number of items displayed to the shopper on each page (Lohse and Spiller, 1998); and navigational tools - how the shopper uses the interface to move through the website (Waite, 2006). We believe that online shoppers who are new to the format will have little incentive or knowledge to change the default display settings. This expectation is consistent with studies cited earlier that show shoppers generally behave as if time minimisation is important. However, given there is little knowledge about this specific behaviour online we aim to document the incidence of shoppers keeping the 'sort by' and items per page default settings, and the proportion of selections made after using site navigational tools.

Method

Data and observational procedure

To address the research questions, a sample of 40 consumers who had not previously undertaken online grocery shopping was recruited between November 2012 and January 2013.

The sample was recruited via snowball and convenience sampling techniques. The sample comprised members of the general public. The sample consisted primarily of younger females, reflecting the online shopper profile (Fram and Grady, 1997; Morganosky and Cude, 2000; Raijas, 2002; Montgomery et al., 2004; Andrews and Currim, 2004; Burke, 2002; Hansen, 2005; Lokken et al., 2003; Hui and Wan, 2009). Respondents were rewarded for participating with a $30 gift card. The 40 consumers were asked to

purchase from two Australian online supermarkets a list of 12 grocery items. The sample size is comparable to in-store studies of shopper navigation (e.g. Silberer et al., 2007). The number of purchases totals over 900, again comparable to past in-store work such as Dickson & Sawyer (1990).

Respondents were informed that their task was to conduct two online shops. They were required to purchase one item from each of the 12 categories on a pre-prepared shopping list (that is, 'buy' one but without actually proceeding to an online checkout). The order of each respondent's shopping list was randomised. They were asked to complete the task as they normally would, as if they were actually purchasing for their consumption. The rationale for 12 items is that it is the mean average number of items bought on a supermarket trip (Anic and Radas, 2006; Baron and Lock, 1995; Sorensen, 2011; Schmidt, 2012; Sorensen, 2012). While online baskets tend to be larger than those in-store, it is also likely the case that new online shoppers will buy modest basket sizes initially. Also as infrastructure such as pick up points grows with no delivery charges, smaller online shops are likely to increase. Therefore 12 items was considered an appropriate shopping list.

While purchasing online was unfamiliar to respondents, the task - buying groceries - was quite realistic. The approach should therefore provide a high degree of external validity. Respondents did not actually purchase the items, as this would have involved them entering payment details during a process in which their activity was screen-recorded. However, numerous studies have successfully employed purchasing scenarios not involving actual payment (e.g. Ehrenberg and England, 1990; Janiszewski and Cunha, 2004; Yang and Lynn, 2014).

The 12 categories were selected so as to vary the number of available stock keeping units per category (that being, bananas offered 3 options while yoghurt offered 241). The variety of categories was diverse (i.e. pet products, packaged and non-packaged food, beverages and health products). We

included four pet food categories (both wet and dry cat and dog food) to introduce variation into the shopping task, requiring more choices in one complex category compared to single items in most of the other categories. Australia has one of the highest rates of pet ownership in the world (Australian Veterinary Association, 2013). Also, using pet food and milk provides bulky as well as non-bulky categories. Lastly, bananas were included, as they are one of the most popular supermarket items (Bellos, 2015; Collier, 2014).

The shopper's choices, durations and site navigation were recorded using video screen capturing software (Mac QuickTime Player Pro). Video recording has been used for in-store observational research in the past Scamell-Katz (2004; 2012), finding quite different results to what shoppers claim if asked. All shops were conducted on either a MacBook Pro or iMac, at a central location.

The time taken to select a product was calculated as the time between the correct category being located on the online supermarket website and the time at which an item was added to the cart. Total shopping trip duration was calculated as the time between when the respondent had successfully logged on to the online supermarket website and when the twelfth category had been selected and added to the cart. Multiplying shoppers by retailers and categories gives a maximum of 40x2x12=960 possible brand selection observations. In 30 of the shopping 'trips' the shopper only purchased 11 items. To facilitate the overall reporting of equivalent trip durations for our 12-item basket, for these 30 missing trips we therefore added 1/11th of the time elapsed calculated from that shopper.

Results

We report the results in four parts. First, we describe how long shoppers take to select an item from a product category and compare the results with published work on in-store shopping. Second, the total shopping trip duration

of these online shoppers is reported and compared to in-store behaviour. Third, we examine the extent to which shoppers became quicker at the shopping task. Last, we examine shoppers' use of navigation tools.

RQ1. The time online shoppers take to select an item

The distribution of item selection times is shown in Figure 1. The graph shows the proportion of selections and the number of seconds taken to purchase a brand from the category. The modal time taken to select an item from a category was 7 seconds, the median was 13 seconds and the mean was 19 seconds.

[INSERT HERE: Figure 1: Percentage of all shoppers selecting all categories x seconds]

The three measures of central tendency show that the data is positively skewed. The mean is inflated by some very long category selection times of over one minute. Therefore the mean selection time reported in previous in-store studies may also be similarly skewed. So while the mean is useful for comparison, the percentage of selections made under *x* seconds provides additional insights to the actual purchase behaviour of online shoppers. Over all the categories, 42% of selections were made in ten seconds or less, and in 5% of cases the selection took 60 seconds or more.

Table 2 shows the selection times for each category. The broad pattern is that regardless of category, online shoppers make selections quickly with means ranging from 14 to 29 seconds. 75% of all selections were made within 24 seconds.

[INSERT HERE: Table 2: Average selection times for all shoppers and each category]

The overall answer to RQ1 is that online shopping selection times for grocery items are quick, with a mean of 19 seconds and a median of 13. Comparing the results of this online study to those conducted in-store show that shoppers behave in a similar manner across the two shopping methods. In-store studies report mean selection times for items in a category of 9 to 17 seconds (as per Table 1) with an overall mean across them of 12 seconds per category. This figure is somewhat under the mean of 19 seconds here. The slightly higher online duration reported here is probably attributable to the respondents being new to online supermarket shopping and being unfamiliar with the formats. Also, some of the categories were perhaps less familiar to some respondents, even though they were all highly bought categories. Our average of 19 seconds is somewhat inflated by some outliers, as is the case in past in-store studies such as Hoyer (1984).

RQ 2 Shopping trip duration

The mean average time taken to select a basket of 12 items is just over 11 minutes; the median is just under 10 minutes. 50% of all twelve-item basket shops took less than 11 minutes, as per Table 3. The median and mode are less than the mean, so these online shopping trip durations are positively skewed. Next, the mean average time to make a selection from a category in this study is 19 seconds, so multiplying by 12 categories produces 228 seconds or 3.8 minutes of actual selection time over the course of the shop. The remainder, indeed two thirds of the trip time in this study, is time taken to navigate between categories – (11.3 minus 3.8) = 7.5 minutes. That is, the shoppers spent more time going between categories than they did selecting items when at the category.

[INSERT HERE: Table 3: Basket of goods (total duration - averages)]

Now we endeavour to compare these results to those from in-store studies. Many studies reporting average in-store times do not report the number of items purchased. However, by considering several specific studies and

relating category selection times to overall trip durations, we can still make insightful conclusions.

As mentioned, the average items purchased per trip is 12 (e.g. Sorensen, 2012). The average grocery in-store time duration across a range of studies is as follows. The US Time Use Institute reports an average of 39 and 42 minutes for men and women respectively, not including travel time. Anic and Radas (2006) report an average of 35 minutes not including travel time or checkout, for an average of '10-20 items' (p.36). Silberer, Buttner and Gorbach (2007) reports 13 minute duration not including travel, but including checkout time, for an average basket of 7 items. Personal communication with the first author of that study revealed checkout time was normally quite short. The figure suggests the approximate time to purchase a 12-item basket would be, conservatively, 20 minutes. Hamrick et al (2011) report an average of 44 minutes not including travel time (basket size not reported). Prud'homme and Boyer Prud'homme and Boyer (2005) report figures of 48-58 minutes, 57% of which is travel, suggesting time in-store is 20-25 minutes including checkout. These studies imply an average 12-item basket would take approximately 30 minutes to purchase, and of that, arguably 10 minutes could be spent at the checkout, leaving 20 minutes of selection and in-store navigation. The mean average of our online results of 11.3 minutes is therefore considerably quicker than what it would be in-store.

RQ 3 Decrease in time taken to shop over time

Selection times became quicker as the shoppers shopped. The average time taken to purchase the first category from the first retailer was 33 seconds, declining to 15 seconds by the 12th purchase. When the shopper commenced purchasing from the second retailer, their first category selection in that retailer was again 33 seconds, and again declined to 15 seconds by the 12th purchase. The decline in selection times across the 24 category selections per shopper (12 in each of 2 retailers) is graphed in Figure 2. Shoppers took one or two selections in the second retailer to again become accustomed to

the different layout, but again learned to quickly select. Therefore, consumers can apparently learn to shop quickly for groceries from a specific online site quite readily. This finding also suggests that experienced online supermarket shoppers would buy even faster than the results reported here or that online shoppers also increase their purchasing speed towards the end of their trips as happens in-store (Sorensen, 2012).

[INSERT HERE: Figure 2 Average Time Taken to Select Items Online]

RQ 4 Number of pages viewed

The average number of pages viewed was very low, averaging just one, as shown in Table 4. 85% of selections were made after viewing one page of a product category, only 2% were made after 5 or more pages were viewed. We calculated the correlation between the category figures for % of selections being made having viewed one page, and the mean selection time of that category. The correlation is -0.92, indicating lower selection time is closely related to viewing fewer pages as one might expect. The correlation between the % of selections made on the first page and the mean selection time is -0.87. In addition, nine in ten items purchased were selected on the first page of the category.

These results indicate online shoppers; in this sample at least, indicate a fairly low willingness to extensively search for brands over multiple pages of a retailer's site. They are prepared to select a brand they see very early on in any particular category. One may argue this result of very low rates of page search could be an artefact of shoppers not actually purchasing the items, therefore exhibiting lower search than what would occur in real paid-for shopping. However, the results are very consistent with past in-store studies. Those studies have found very low rates of shoppers undertaking actions such as picking items up – for instance Hoyer (1984) reported shoppers usually only handled one item, as did Dickson and Sawyer (1990). Our result

that shoppers viewed very few pages online is consistent with the truncated examination of brands in-store.

[INSERT HERE: Table 4: Average pages viewed and selection page for all shoppers and each category]

Extent to which shoppers customise presentation and navigation options

The final piece of analysis concerns shopper's usage of the two online website customisation options: sort options and items displayed per page plus the usage incidence of the two navigational tools (i.e. the search bar or product category menu). The percentage of shoppers who used the 'default' options for sorting and the number of items per page was expected to be high. Previous studies had found very few shoppers change these options (Wu and Rangaswamy, 2003; Breugelmans et al., 2006) and as a whole very few social media or peer-to-peer network users change from default options either (Gross and Acquisti, 2005; Good and Krekelberg, 2003). Table 5 shows that for this study, in the pursuit of finding and selecting one item from twelve product categories the default sort by option was used 87% of the time and the default number of items displayed per page was relied upon 96% of the time. In addition, six in ten items that were successfully found and selected were done so through the use of the search bar navigational tool. In short, shoppers relied on the default website settings in the majority of cases.

[INSERT HERE: Table 5: Sort by, items per page & navigational tools]

Discussion

We conducted a novel study in which the online navigation of 40 grocery shoppers was recorded moment by moment. The overall finding is that online grocery shopping behaviour appears very much like in-store shopping behaviour. This sample of shoppers, given a realistic online shopping task, (1) Selected brands in a category very quickly (2) Completed their basket of shopping in approximately 11 minutes – quicker than in the physical store,

which we attribute to the absence of physical store traversal here; (3) Learned to navigate and make category selections quite quickly; (4) Viewed very few online 'pages' of brands per category; and generally did not customise online options such as the sort order for brands or the number of items per page.

Results of this study can benefit both retailers and brand managers. First, for retailers the study underscores to retailers that shoppers want to see their favorite brands quickly. This outcome is not necessarily intuitive, for example retailers may be tempted to show on the first page brands currently on deal, or brands for which they earn higher margins. The results here suggest that such strategies, which would likely increase shopper navigation time, may not be wise. While the choice of which brands to display on the first page is obviously very important, having easy-to-use search options and making it easy for shoppers to discern where their preferred brand(s) might be located in the page arrays is also highly relevant. For brand managers, the results show how valuable a first-page position is for brands on an online grocery store site.

The results here also suggest that retailers such as supermarkets should be able to create 'norms' for their online sites, that is, expected levels of category selection duration and shopping trip duration. The findings suggest that some categories take longer to buy from than others, for example shampoo, had longer selection times and more page views possibly because it is bought less often per year (and so brand familiarity may be lower) or has more SKUs than in other categories used here.

The shoppers in this study, who had never bought online groceries, learned quickly. This observation is good news for online retailers – it suggests if they can induce consumers to merely try their online offering, they will quickly learn how to use it. The obstacle to take-up of a retailer's site is therefore probably not that shoppers find it difficult to use, but rather, it might simply be a lack of

familiarity or reluctance to trial for the first time. Inducements for trial would appear to be a highly relevant tactic for online retailers.

Next, as stated earlier, shoppers do not appear to wish to hunt for the best buy. Indeed they do not even look at many of the options. That fact, taken in conjunction with the knowledge that consumers are polygamously brand-loyal (Ehrenberg et al., 2004) means that if they see one of the brands they know and use, it will likely be bought. Visual recognition in a fast-paced task in a crowded environment is crucial. Therefore, there is still a strong rationale for brand managers to use mass-reach advertising to help consumers to recognize their brands in the world of online shopping. Without brand familiarity, a brand is unlikely to be bought, as the results in this study are very consistent with the idea that consumers readily satisfice and select one of a repertoire of known and acceptable brands – and will not usually engage in extensive search or perusal.

Overall this review of previous in-store studies and the experimental online situation shows great similarity between offline and online grocery buyers in terms of selection times. Buyers in-store already massively restrict their choice to a few options, and offline buyers appear to do the same, taking little time to select their brands. While category selection times were slightly longer in this online study compared to in-store, the overall shopping trip was much quicker. Whether or not online shopping is intrinsically better for shoppers is still open to debate, because while the time spent selecting a basket of goods was much quicker than in-store and the shopper does not incur travel time, online shopping often necessitates a delivery fee or a subsequent pick up from a retail location.

Directions for Future Research

This exploratory study revealed a number of useful insights into online grocery shopping, and it presents some opportunities for further research. The market

studied was Australia, for which online grocery is in a growth phase (Food Magazine, 2015). The approach could be extended to other countries in which online grocery shopping is growing, to determine if the same broad pattern of results holds elsewhere. Next, the study here focused on grocery, as it is typically purchased as a basket of goods. There are other product categories for which consumers often buy multiple items together, such as hardware and cosmetics. Categories such as these might require longer periods of time for comparison and consideration. Insights into the extent of search, selection times and page views of such categories would be of interest to researchers in electronic commerce generally as well as marketing scholars who focus on shopping behaviour and brand choice. There is also a need for more observational research of actual purchases in this area. Next, the study used the same 12-item basket for all shoppers so that the duration times for all shoppers and categories could be meaningfully summarised. However, future research should compare how shopping duration varies according to different types of baskets.

Another potentially fruitful avenue is to combine the approach used here with its focus on duration times, with the technological advance of eye-tracking technology (Tobii, 2013; Pieters and Warlop, 1999) to ascertain the extent to which shoppers actually peruse items on an online shopping 'page'. This study found very brief selection times and low numbers of page views, but the question arises as to what is actually looked at on the pages from which items were selected – is it the case that shoppers look at everything on those few pages they actually look at and select one item; or do they even confine their attention to specific items on the one or two pages per category they peruse?

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