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Elucidating the Behavior of Consumers toward Online Grocery Shopping: The Role of Shopping Orientation

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ABSTRACT

This research examined the factors affecting consumer buying intention in the online grocery market in Thailand. The conceptual framework incorporates the theories of technology adoption and shopping behavior, including the technology acceptance model, consumer shopping orientation, and online shopping experience. The study was conducted as a quantitative online self-administered survey of Thai consumers who had bought groceries online. The sample was primarily female, younger than 40 years of age, and highly educated. Most participants were infrequent online grocery buyers (once a month or less). The data were analyzed using structural equation modeling. The findings showed that the technology acceptance model variables had the strongest effect on attitude for online shopping, although all hypotheses were accepted. The predictive value of attitude for the online buying intention for groceries was very high. The implication of this research is that online shopping is both a technology decision and a consumer decision and needs to be examined as such.

KEYWORDS

Online grocery shopping; TAM; shopping orientation; product interest; website trust

Introduction

Thai food shopping habits have undergone a significant change in recent years. Traditionally, Thai shoppers have used small neighborhood shopping outlets or markets, shopping on a daily basis for their food, possibly from several retailers (Shannon and Mandhachitara 2008). Prior to 1997, there were fewer than 50 modern Western-style supermarkets in Bangkok and only a single hypermarket (or a large-format store selling food and other items like apparel or household goods). However, market liberalization in 1997 in response to currency pressures led to the influx of foreign supermarket and hypermarket chains, increasing the number of supermarkets and hypermarkets to 176 by 2006. By this time, more than 60% of Bangkok shoppers relied on supermarkets and hypermarkets for their shopping (Shannon and Mandhachitara 2008). In contrast to modern supermarkets, traditional outlets such as wet markets have started to be seen as inferior,

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due to disorganization and unsanitary conditions, although they do still retain their appeal for some market segments, particularly older and poorer customers (Gorton et al. 2009). However, this situation is continuing to change; most recently, major competitors, like Tesco, Big C, and Family Mart, have begun to set up smaller shops in neighborhoods rather than building big city periphery stores (Watts 2013). The reason for this is that shoppers still prefer convenient locations.

A possible development in Thai grocery shopping activities is online shopping. Online grocery shopping thrives in markets like the United Kingdom, where an estimated 20% of shoppers do some or all of their shopping online each month (IGD 2013). However, Thai shoppers have not been as enthusiastic. Even though Thailand is one of the largest markets for online grocery shopping in Asia, by 2012 fewer than 10% of shoppers had ever tried online grocery shopping (Nielsen 2012). This number is still relatively low, with reasons including low credit card usage and poor Internet penetration being cited as reasons for the lack of growth in this market (Watts 2013).

One of the interesting points of this study is that it addresses the shift from offline consumer behavior to online consumer behavior. This is a shift that has been happening slowly in the Thai market. Thai shoppers were relatively fast to switch between traditional channels (neighborhood stores and wet markets) to Western-style supermarkets following their introduction (Gorton et al. 2009; Shannon and Mandhachitara 2008; Watts 2013). However, their adoption of online grocery shopping has lagged behind, with only a small number of shoppers trying online grocery shopping (Nielsen 2012; Watts 2013). Online consumer behavior cannot be presumed to be identical to offline consumer behavior. Instead, it is likely that consumers may display different attitudes and relationships to online shopping than they do to the established activity of offline shopping.

While there are some reasons that Thai shoppers may not shop online for groceries, there has not been any academic research into why shoppers might shop online. There are also no academic studies of online grocery shopping in Thailand, although there are some studies on general online shopping. This study will examine the problem of how consumers formulate an intention to buy groceries online in order to fill this research gap and to provide retailers with useful information.

The aim of this research is to investigate the factors that affect consumer buying intentions for online grocery products in Thailand. There are three main objectives of this research, which are as follows:

1. To investigate the factors affecting consumer buying intentions for online grocery products in Thailand using the Technology Acceptance Model (TAM).

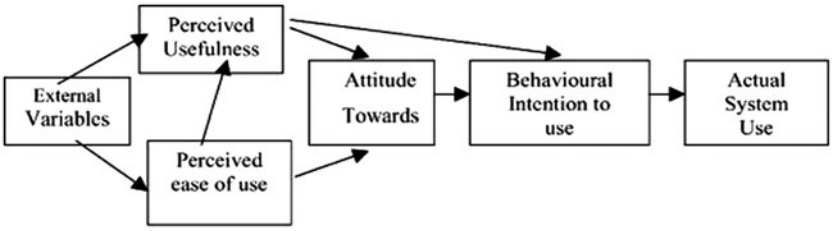

Figure 1. Original Technology Acceptance Model (TAM) formulation (Davis 1989).

2. To examine the impact of shopping orientation on consumer buying intention for online grocery products in Thailand, including entertainment, experiential, and convenience orientations.
3. To examine the impact of online buying experience, product interest, and website trust on consumer buying intention for online grocery products in Thailand.

Literature review and conceptual framework

The literature review for the study was conducted using a traditional approach. Theoretical and empirical information was selected based on quality, relevance, and recentness for inclusion (Oliver 2012). The literature was mainly sourced from academic peer-reviewed journals and academic books and textbooks in order to ensure the reliability and validity of the study (Oliver 2012). Most of the research included comes from within the past 10 years, with exceptions made for seminal research mainly into the TAM. Widely accepted articles are prioritized, although others are included as well.

TAM

The theoretical basis for this research is the TAM. The TAM is an attitude-behavioral model that is designed to elicit relationships in regard to the use of technology (Legris et al. 2003). The model was originally proposed by Fred Davis (1989) as a way to explain why people in organizations adopted information technology. The simplest form of the TAM, shown in Figure 1, states that the two factors that influence the adoption of technology include perceived usefulness (PU) and perceived ease of use (PEOU; Legris et al. 2003). PU relates to how useful the technology is seen as being, while PEOU relates to how much difficulty the users think they will experience. PU and PEOU influence attitudes toward the technology, which in turn influence the behavioral intention to use the technology (BI). Finally, BI influences actual technology use.

Table 1. Summary of previous studies on Technology Acceptance Model (TAM).

Authors	Topic	Methods	Findings
Ashraf et al. 2014	Cross-cultural application of TAM to online shopping in the United States, Pakistan, and Canada	Quantitative survey	TAM was accepted for all cultures, although predictive power of PU and PEOU did have different impacts. Additional variables, including trust and perceived behavioral control, also were significant but at different levels.
Bigné-Alcañiz et al. 2008	Online shopping adoption in Spain	Quantitative survey ($N = 445$)	TAM was accepted. Additional variables included online shopping information dependency and consumer innovativeness.
Ha and Stoel 2009	Online shopping in U.S. college students	Quantitative survey ($N = 298$)	Usefulness, trust, and enjoyment were external factors that influenced attitudes. PU influenced attitudes and BI, but PEOU did not influence BI.
Hui and Wan 2009	Online grocery shopping in Singapore	Quantitative survey ($N = 211$)	PU and PEOU were significant factors in BI for online shopping. Age (21 to 40) and income (> SGD 2,000/month) were also significant.
Zhu et al. 2011	Online shopping intentions	Quantitative survey ($N = 705$)	PU and PEOU were significant factors, along with trust and perceived risk.

Note. PU: perceived usefulness; PEOU: perceived ease of use; BI: behavioral intention; SGD: Singapore dollar.

Table 1 summarizes previous studies that have applied the TAM to relevant areas such as online shopping, particularly online grocery shopping, where possible. These studies show that, in general, the basic relationships described in Figure 1 are consistent. There are some finer points within this discussion. For example, a cross-cultural study showed different degrees of effect for the relationships in different cultures, which the authors posit is because of different external contexts for shopping within these cultures (Ashraf et al. 2014). Another study showed that while PU was significant for BI, PEOU was not significant (Ha and Stoel 2009). This could have been because online shoppers were already comfortable with the process of using the Internet and did not consider ease of use as a significant barrier (Ha and Stoel 2009). One notable finding is that no consistent set of external factors was used. Although trust and perceived risk have been commonly used (Ashraf et al. 2014; Ha and Stoel 2009; Zhu et al. 2011), other authors used factors like consumer innovativeness, demographics, and perceived enjoyment (Bigné-Alcañiz et al. 2008; Ha and Stoel 2009; Hui and Wan 2009).

Shopping orientation and consumer buying intention

Consumers do not all have the same attitude toward shopping, but instead have different thoughts, emotions, and preferences (Solomon et al. 2010).

Shopping orientation determines the motivation and preferences for shopping experiences. Entertainment, experiential, and convenience shopping orientations are examined in this study.

Entertainment shoppers

Entertainment-oriented shoppers view shopping as a pastime or entertaining activity, rather than primarily as a utilitarian activity (Handa and Gupta 2014). These are shoppers who like to window-shop and look at displays and who do not feel bored while shopping (Handa and Gupta 2014). Entertainment-oriented individuals do not eschew all online activities; for example, they are more likely to play online games, and to spend money on those games, than some others (Lee 2009). However, online shopping, which is essentially a solitary activity, may not be as satisfying for entertainment-oriented shoppers because of the lack of social involvement and opportunities to engage with the merchandise and store environment (Solomon et al. 2010).

In general, non-online shoppers are more entertainment-oriented than online shoppers (Handa and Gupta 2014). Entertainment-oriented shoppers may be more likely to visit a shopping destination like a mall that has other features, such as eating areas or entertainment like cinemas, and may not actually spend very much during their shopping expeditions (Temperley and Ho 2008). Entertainment-oriented shoppers may try online shopping from curiosity or because they are bored or at a time when going shopping would be inconvenient, although as with in-person shopping, they may not actually buy very much (Handa and Gupta 2014). In general, the relationship between the entertainment orientation and online shopping is less clear in the literature than with experiential or convenience shoppers. Evidence suggests that entertainment-oriented shoppers may try online shopping but may not engage in it routinely, preferring instead to venture into the retail environment. This leads to a mild positive relationship between entertainment orientation and online shopping.

Experiential shoppers

Experiential-oriented shoppers like to shop around for a wide selection of choices to make sure they can get the best deal (Handa and Gupta 2014). Experiential shoppers are essentially hedonic shoppers, who view shopping not as a utilitarian activity but as a goal-directed activity for their own enjoyment (Delafrooz et al. 2009). Experiential shoppers may even view shopping as a game or a sport, with the goal being to get the best deal and the best products (Solomon et al. 2010).

Online shoppers have been found to be less experiential-oriented than non-online shoppers (Handa and Gupta 2014). However, online trial shoppers may be slightly more experiential-oriented than regular online shoppers, probably because they are inquisitive and interested in having a novel experience. Experiential shoppers may prefer to shop in a shopping area that has a dense population of shops and choices (Temperley and Ho 2008). This means that experiential shoppers may be in the shopping category that is most likely to visit a shopping mall or other destination specifically for the purpose of shopping (Temperley and Ho 2008). However, experiential shoppers may also enjoy online shopping because of the wide selection available and the ability to pick and choose their preferred products, including products not available elsewhere (Delafrooz et al. 2009). The evidence regarding the experiential shopper is mixed but suggests that the experiential shopping orientation may lead consumers to at least try online shopping or use it occasionally to broaden their selection.

Typically, offline shopping is more connected with experiential benefits. However, there are plenty of factors related to online shopping that make this type of shopping attractive to experiential buyers as well. Some online buyers even define online shopping as something that they can enjoy and is sociable. Indeed, online buyers claim to engage in experiential browsing for several reasons: (1) sociality—collectors, hobbyists, and eBay customers state that they sometimes form online relationships with other online shoppers who share the same interests; (2) auction activities; (3) hobby searching; and (4) bargain hunting (Wolfinbarger and Gilly 2000). All of this brings a lot of positive emotional experience to hedonic shoppers: surprise, interest, and finding the best deals. As a result, some of them can become strong ambassadors of online shopping.

Since experiential shoppers seek pleasure while shopping, they tend to be more attracted to well-organized and well-designed online shopping websites, which are easy to use and attractive and appealing. These websites can create some kind of relationship that can later help users develop a sense of community and belonging. The degree of interactivity of the website is also important, as it is a strong factor that can support the forming of this type of connection because experiential shoppers find more enjoyment in interactive environments than in pure text environments (Zhou et al. 2007). All of this—pleasure of shopping, building relationships, and bringing enjoyment—potentially lead to higher shopping satisfaction for hedonic shoppers, who thus have a positive shopping experience that they are then happy to share.

Experiential shoppers are more likely to spread and share the news through word-of-mouth or social media, where they typically have a large friendship community. They tend to share their positive experiences, joyful

moments, and new findings and, thus, if they are satisfied with their online shopping experience, they may significantly affect and enhance the attitudes of other people toward online shopping.

Convenience shoppers

Convenience-oriented shoppers are those who want shopping to be as fast and easy as possible (Handa and Gupta 2014). They want short lines, no waiting in line, shopping at any time, and good deals. While they may want to inspect the goods briefly, they are definitely not interested in shopping as entertainment (Handa and Gupta 2014). Convenience is viewed as one of the main benefits of online shopping as consumers can shop at any time, can usually receive rapid delivery, and can easily search and choose from a wide variety of products rather than having to physically search through different stores (Delafrooz et al. 2009). Convenience-oriented consumers also appreciate the wealth of easily available information available, which they can use to make a more informed decision (Delafrooz et al. 2009).

Handa and Gupta (2014) found that online shoppers were more convenience-oriented than non-online shoppers. Another study of online shopping found that convenience-oriented shoppers are very likely to shop online, particularly those shoppers who are time-poor but have relatively high incomes (Temperley and Ho 2008). A study on Malaysian online shoppers showed that convenience orientation was the most significant of a number of shopping orientations studied in determining whether consumers would shop online (Kwek et al. 2010). Impulse shopping orientation, brand orientation, and quality orientation also had significant relationships but were not as strong. In general, convenience orientation can be said to have a strong positive relationship with online shopping adoption behaviors. Since convenience shoppers are more concerned with convenience and deals than experience, not being able to handle the products is a lesser concern.

Experience of online buying and consumer buying intention

The third aspect of this research is how online shopping experiences influence the consumer buying intention for online groceries. In general, online grocery and food shopping is more conservative than other types of online shopping, and consumers may be less willing to take part in it (Chu et al. 2010). This is in part because of differences in the assessment of product quality and the perishability of grocery products, which are likely to be perceived as more problematic than nonfood items. Online and offline shoppers for products are likely to show different characteristics. For example, offline shoppers are more price-sensitive, less brand-loyal, and

less size-loyal than online shoppers when buying food products (although these relationships are not evident for nonfood products; Chu et al. 2010). Previous authors indicated that trust and perceived risk are factors associated with behavioral intention for online shopping (Ashraf et al. 2014; Ha and Stoel 2009; Zhu et al. 2011). In this study, online buying experience is posited as a determining factor that increases trust and reduces perceived risk, which may explain the differences in online shopping.

One study of online shopping acceptance proposed that previous experience in online shopping is one of the external factors that contributes to the acceptance of online shopping. Online shopping experience includes components such as previous frequency of online purchases and satisfaction levels with previous online shopping. There are positive relationships between frequency of purchase and satisfaction with past purchases and future online shopping intention (Zhou et al. 2007). Put simply, this model suggests that the more experience the consumer has of online shopping, the more likely he or she is to continue the practice.

Empirical evidence suggests that online shopping experience does not automatically lead to consumers shopping online for groceries (Huang and Oppewal 2006). These authors conducted a study that showed that even consumers who shop online for other products might not shop online for groceries. There are a number of possible reasons for doing so, including time limitations on delivery, delivery fees (which increase the perceived cost), and shopping orientation. Based on this evidence, it is reasonable to state that online shopping experience may have a positive impact on online shopping intention. However, this is not assured. Consumers may have confounding factors that reduce their willingness to buy groceries online.

Product interest and consumer buying intentions

A further factor that could influence consumer buying intention is product interest. Product interest generally refers to the amount of attention the individual invests in the purchase (Park 2002). This can be viewed as analogous to product involvement, but it is not precisely the same, as it relates to the personal interest as well as the amount of difficulty involved in the purchase and how much social involvement the product demands. For example, Park (2002) noted that individuals may be highly interested in routine purchases if they have hobbies or interests that relate to them, while nonroutine purchases such as fashion may not be as interesting (although they may have more implications from a personal involvement perspective). Park (2002) studied the antecedents of online shopping intention. He found that product interest was one of the strongest factors (based on beta coefficient) in a model of online purchase intention. Thus, he concluded that those with a

high interest in a particular product category were more likely to purchase the category online. Other studies have also shown that product interest influences purchase intention. For example, a study on Fair Trade products showed that those with a high level of product interest in Fair Trade and ethical products were more likely to seek them out for purchase (de Pelsmacker et al. 2006). Product or issue interest was found to have a positive impact on attitudes toward the product outside the product characteristics, which increased consumer buying intention.

Website trust and consumer buying intention

One of the obvious characteristics of online shopping is that it happens on a website. Thus, website characteristics are likely to influence the purchase. One factor that influences consumer buying intention for online shopping is website trust, or general trust in the function and capability of the website (Park 2002). For example, websites that are trusted to maintain privacy and security and to be effective are likely to encourage consumer buying intention for that particular site (Park 2002). Online trust has been consistently found to be related to consumer buying intention for specific websites (Urban et al. 2009). Trust in websites is developed through effective and efficient website design, in addition to basic features like privacy and security (Urban et al. 2009).

These authors also found that repeated use of a given website led to increased website trust. Furthermore, consumers were unlikely to continue using a website that they did not trust. Thus, website trust contributes to buying decisions and results from repeated buying decisions. However, the role of website trust in the buying decision for experienced Internet users is uncertain. For example, a study in Malaysia showed that trust in a website is one of the main factors affecting whether a consumer decides to make online purchases (Chin et al. 2009). When the authors reconfigured the model to connect website trust, social influence, and buying intention, social influence fully mediated the relationship between website trust and buying intention (Chin et al. 2009).

Related research from different cultures

Previous studies have examined online shopping, including online grocery shopping, in different countries around the world. Many of these models have used shopping orientation and/or the TAM or related models in their analysis of the consumer perception of online shopping and consumer responses. One such study examined the role of consumer trust in the formation of online shopping intentions in Ireland (Connolly and Bannister 2007).

These authors were concerned with establishing an instrument to measure consumer trust in online shopping sites. They proposed that factors including perceived security and privacy controls, integrity and competence of the vendor, along with third-party recognition (for example trust pilot) and the legal framework would influence trust in online shopping. However, their analysis showed that perceived integrity and competence along with perceived security controls and external control beliefs were the determining factors in trust formation (Connolly and Bannister 2007). This finding is important for the current study because it demonstrates that some parts of the PU of the online shopping site include its site design characteristics and perceived competence of the company. A study in Jordan used a similar model to examine the effects of online trust and its formation using an adapted TAM approach (Al-Debei, Akroush, and Ashouri 2015). These authors included trust, perceived benefits (PU), perceived web quality (PEOU), and electronic word of mouth (e-WOM) in their analysis of online shopping . They found that trust and perceived benefits had a direct influence on shopping intention but that perceived web quality only had indirect effects through e-WOM (Al-Debei et al. 2015).

Some studies have also provided useful insights by comparing different groups of consumers, such as non-online shoppers and online shoppers. One such study took place in Sweden, using the theory of planned behavior (TPB), which is a general-purpose attitude-behavior decision model derived from the same antecedent models as the TAM (Hansen 2008). This author surveyed 1,058 consumers, including those who did not shop online, those who shopped online for things other than groceries, and those who shopped online for goods including groceries. The author found that personal values including conservation and self-enhancement influenced attitudes toward online shopping, which in turn influenced willingness to buy groceries online. He also found that these effects had different magnitudes depending on the consumer group. All three groups had strong negative effects from conservation, but the effects of self-enhancement varied in both strength and direction (Hansen 2008). Another study focused on Spanish shoppers who did not shop online to understand what discouraged these shoppers (Hernández García, Iglesias Pradas, Chaparro Pelaez, and Pascual Miguel 2011). The authors used the TAM and innovation diffusion theory to examine motivations and anti-motivations for online shopping. They found that PU and perceived compatibility did have a positive effect on online shopping intention among these nonshoppers but that perceived compatibility was the much stronger influence on the consumer decision (Hernández García et al. 2011). These studies demonstrate that the influence of technology factors may vary between different groups and may influence nonadopters and adopters differently.

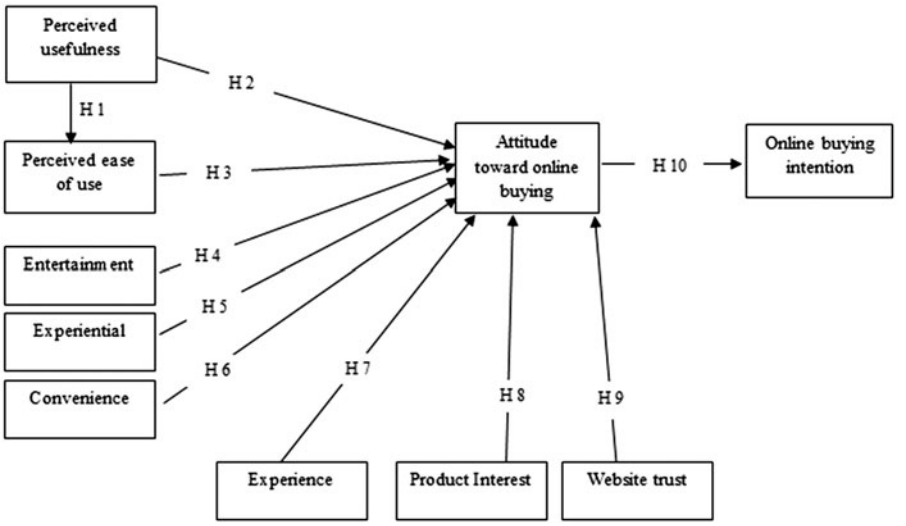

Figure 2. Conceptual framework.

Another group of authors also reminds us that the context and situation of shoppers is important in their choice of online grocery shopping behavior (Hand, Dall'Olmo Riley, Harris, Singh, and Rettie 2009). These authors studied online shoppers in Europe using a mixed-methods approach. They found that personal situational factors, for example, illness, moving, or having a baby, increased the likelihood of using online shopping, while experiencing service problems with the online store was likely to cause them to stop using grocery delivery (Hand et al. 2009). Thus, while the TAM and shopping orientation may create conditions for adoption of online shopping, there may also be situational factors that encourage (or discourage) its adoption.

There are also some theoretical gaps in the literature on online grocery shopping, including the role of shopping orientations. A seminal study did establish four distinct online shopping consumer orientations, including convenience shoppers, variety seekers, balanced buyers, and store-oriented shoppers (Rohm and Swaminathan 2004). However, further research has not been done to establish how these shopping orientations play out in terms of online grocery shopping or whether they have remained stable over the long term.

Conceptual framework

Using the theoretical and empirical evidence above, a conceptual framework and hypotheses have been proposed for the study, as shown in Figure 2. This conceptual framework is based on the TAM, which has been shown to be effective in a number of previous studies of online shopping (Ashraf et al. 2014; Bigné-Alcañiz et al. 2008; Ha and Stoel 2009; Hui and Wan 2009; Zhu et al. 2011). There are four hypotheses that

address the direct relationships expressed in TAM, including H1, H2, H3, and H10. These hypotheses are stated as follows:

- H1: PEOU positively influences the PU of online grocery shopping.
- H2: PU positively influences consumer attitudes toward using online grocery shopping.
- H3: PEOU positively influences consumer attitudes toward using online grocery shopping.
- H10: Consumer attitude toward using online grocery shopping positively influences consumer buying intention to use online grocery shopping.

Following general practice with the TAM (King and He 2006; Legris et al. 2003), this study also introduces external factors that influence attitudes toward using online grocery shopping. The first set of hypotheses (H4, H5, and H6) address the impact of shopping orientations (entertainment, experiential, and convenience orientations, respectively) on attitudes toward online shopping. These hypotheses are supported by a number of studies on online shopping, although they have not been applied directly to online grocery shopping (Delafrooz et al. 2009; Handa and Gupta 2014; Lee 2009; Temperley and Ho 2008). These studies suggest that convenience orientation has a strong positive relationship with attitudes toward online shopping, while entertainment and experiential orientations may also have relationships:

- H4: Entertainment orientation positively influences consumer attitudes toward using online shopping.
- H5: Experiential orientation positively influences consumer attitudes toward using online shopping.
- H6: Convenience orientation positively influences consumer attitudes toward using online shopping.

A further component of the conceptual framework is online shopping experience (H7). This factor is ambiguous. Theoretically, online shopping experience should positively influence online grocery shopping (Zhou et al. 2007). In practice, however, even very experienced online shoppers may not buy groceries online for a variety of reasons (Huang and Oppewal 2006). This relationship will be tested as a positive relationship in this framework, although the empirical results may be different. The final hypothesis is stated as follows:

- H7: Experience of online buying positively influences consumer attitudes toward using online grocery shopping.

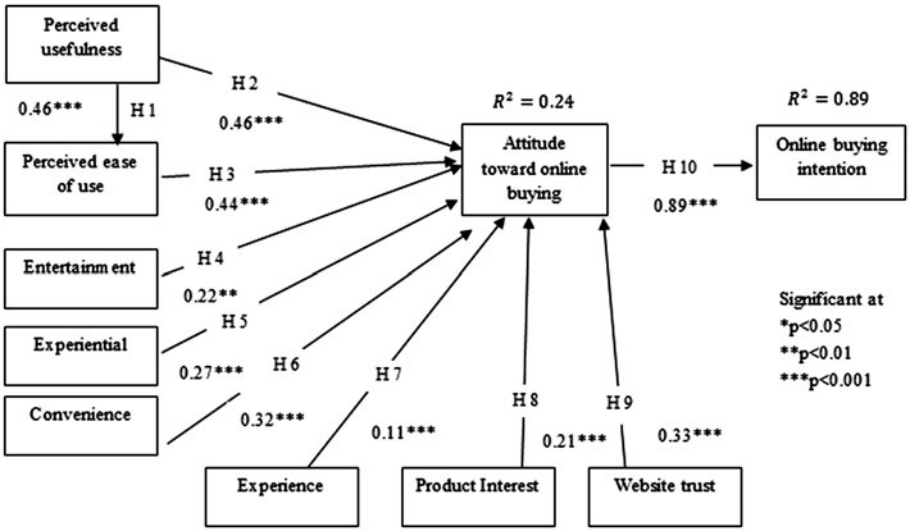

Figure 3. Research model path analysis and hypothesis testing.

The final two components of the conceptual model relate to attitudes toward the product and shopping channel, respectively. These factors influence attitudes toward the purchase and online shopping generally. Product interest has been shown to relate to the willingness to purchase products online (de Pelsmacker et al. 2006; Park 2002). Similarly, website trust—an attitude toward the website—has been shown to be positively related to consumer purchase intentions toward a particular website, although it may be mediated by other factors (Chin et al. 2009; Park 2002; Urban et al. 2009). Based on these two factors, the final hypotheses are stated:

- H8: Product interest positively influences consumer attitudes toward using online grocery shopping.
- H9: Website trust positively influences consumer attitudes toward using online grocery shopping.

Therefore, the study proposes the research model and hypotheses as shown in Figure 3.

Research methodology

Research approach

The research approach chosen is a quantitative survey approach. Quantitative research uses standardized data collection instruments and techniques and statistical analysis to collect data and extract information and knowledge (Creswell 2014). This can be contrasted with qualitative

research, which uses smaller, nonstandardized studies and techniques. The quantitative approach was chosen because it provides generalizable, standardized data that can be applied to a population (Saunders et al. 2009). While it is limited in its ability to generate new insights, it is the best way to test hypotheses based on existing theories and information (Creswell 2014). Quantitative research is typically conducted as either a survey or an experiment; surveys collect data, while experiments control the environment and other variables (Cooper and Schindler 2014). This research uses a survey design. The survey design was selected because designing an experiment to control for preexisting attitudes and experiences would be very difficult.

Sampling procedure and sample size

The sampling procedure used for this study is convenience sampling. Convenience sampling is a nonprobabilistic technique but can still be used for quantitative studies in some situations (Saunders et al. 2009). It is commonly used in consumer surveys, in situations where there is no known population to select from, and where there is a cost or time resource justification for using the process (Saunders et al. 2009). In this research, there is no enumerated or other measure of the target population, and online shopping is an increasingly common consumer behavior. This suggests that the use of a convenience sampling technique is reasonable.

The sample size is selected with regard to the estimated population size and the analysis technique. Structural equation modeling (SEM) needs a larger sample size than comparable techniques such as linear regression, a fact that is often not acknowledged (Westland 2010). SEM-based studies consistently have small sample sizes that do not ensure statistical reliability (Westland 2010). Rules of thumb for sample size range from a ratio of 5 data points per free parameter to 20 data points per free parameter, but an initial sample size of 200 is usually considered sufficient for most models (Kenny 2014). Based on this rule-of-thumb measure and the proposed research model, an initial sample size of 200 could be selected because it is the recommended sample size. However, a calculation for a sample size of a large but unknown population offers a larger sample size. This calculation is $n = (\mathrm{P}(100\text{-}\mathrm{P})\ \mathrm{Z}\,\hat{}\,2)/\mathrm{E}\,\hat{}\,2$, where P(100-P) is the proportion of responses for a given question, Z = critical value for the desired confidence level, and E = maximum allowable error (confidence interval [CI]; Gill and Johnson 2010). Using this calculation, the sample size is $n = (0.5(0.5)^{*}\ [\![\ 1.96]\!]\ \hat{}\,2)/\ [\![\ 0.05]\!]\ \hat{}\,2 = 384.16$, using standard assumptions of a 95% confidence level, ± 5% CI, and $p = 0.5$. Since this is a larger sample size than the initially proposed size ($n = 200$), the larger sample size ($n = 384$) or higher will be used.

Data collection

Data were collected using an online questionnaire. A questionnaire is a standard survey instrument used to collect open-ended or closed-ended data from each participant (Brace 2013). The advantages include efficiency (since the researcher's effort goes into designing the questionnaire and distributing it) and comfort for participants (who have mostly filled in questionnaires before). A self-administered questionnaire was selected because none of the usual reasons for a researcher-administered questionnaire, such as difficult terms or population illiteracy, apply (Cooper and Schindler 2014). Thus, it is a better use of the researcher's time, as well as the participant's time, to use self-administered questionnaires.

An online questionnaire was chosen because it can be easily distributed and collected (Brace 2013). Usually, an online questionnaire could have a potential respondent bias, since people who do not use the Internet would not have a chance to respond (Cooper and Schindler 2014). However, in this case it can be presumed that the population consists entirely of Internet users, since the research examines online behavior. A standard survey site was selected for the questionnaire. In order to make sure the questionnaire worked in its intended setting, pretesting of the design and feedback was conducted online.

Data analysis

Data analysis was conducted using SEM in SPSS's LISREL add-on package. LISREL is a tool specifically designed for SEM and other multivariate analysis approaches (Byrne 2013). SEM is a technique that uses variances and covariances of the components in a proposed model to determine the relationships within the model (StatSoft 2015). It is commonly used for causal modeling or path analysis, which tests the application of a full theoretical model within the data. This is an advantage over alternative approaches such as linear regression, which mainly focus on only a single set of relationships at a time (Byrne 2013).

Data analysis

Demographic profile of the sample

The demographic information collected from the sample ($n = 400$) including age, gender, education level, and income per month is shown in Table 2.

Table 2. Demographic information of respondents.

	$N = 400$	
Demographic data	*n*	Percentage
Age		
20–29 years	144	36.0
30–39 years	164	41.0
40–49 years	62	15.5
50–59 years	20	5.0
60 and older	10	2.5
Total	400	100.0
Gender		
Male	123	30.8
Female	277	69.3
Total	400	100.0
Higher education		
Lower than bachelor's	51	12.8
Bachelor's	240	60.0
Master's	98	24.5
PhD	11	2.8
Total	400	100.0
Income per month		
15,000 baht or less	46	11.5
15,001 to 35,000 baht	139	34.8
35,001 to 55,000 baht	119	29.8
More than 55,000 baht	96	24.0
Total	400	100.0

Descriptive statistics of consumer behavior

Consumers were also asked several questions about their buying behavior for online groceries, as shown in Table 3.

Descriptive statistics of factors influencing online purchase intention

Means and standard deviations were calculated for all factors influencing online purchase intention, as shown in Table 4.

Skewness (SK) and kurtosis (KT) were also assessed as a means of understanding the shape of the distribution, with $SK = 0$ and $KT = 0$ indicating a normal distribution (Hanneman et al. 2012). None of the variables had $SK = 0$, but instead the values were all negative, ranging from $SK = -0.14$ entertainment (EN) to $SK = -1.52$ (WT). This indicates that all the variables were unevenly distributed and left-skewed. However, in only one case, website trust (WT) was $SK > |1|$, meaning that it is highly asymmetrical (Hanneman et al. 2012). A similar situation exists for kurtosis, with no variable having $KU = 0$. Six variables had $KU > 0$, indicating heavier tails and a flatter distribution than a normal distribution (Hanneman et al. 2012). These variables included perceived ease of use (PEU), EN, experience of online buying (EOB), product interest (PI), WT, attitude toward online buying (ATUOB), and online buying intention (OBI). Three variables, experience (EXP), convenience (CON), and PEU had KU <0, indicating lighter tails and a more peaked distribution. Only one variable (WT)

Table 3. Consumer behavior for online groceries.

	$N = 400$	
Consumer behavior	*n*	Percentage
Have you ever purchased groceries online?		
Yes	400	100.00
No	0	0
Total	400	100.00
How often do you purchase groceries online?		
Less than once per month	145	36.30
Once per month	126	31.50
2 to 4 times per month	102	25.50
More than 4 times per month	27	6.80
Total	400	100.00
How did you find out about online grocery products?		
Internet search engine	170	42.50
Social media	106	26.50
Family	11	2.80
Company website	57	14.30
Friend	32	8.00
Newspaper	17	4.30
Other	7	1.80
Total	400	100.00

Table 4. Latent variable data analysis.

Variable	Name	$\bar{X}$	SD	CV	SK	KU	Level
Perceived ease of use	PEU	3.93	0.93	0.24	−0.96	0.68	Agree
Entertainment	EN	3.74	0.64	0.17	−0.14	0.26	Agree
Experiential	EXP	3.47	1.02	0.29	−0.61	−0.13	Agree
Convenience	CON	3.85	0.71	0.18	−0.29	−0.38	Agree
Experience of online buying	EOB	4.24	0.76	0.18	−0.87	0.12	Strongly Agree
Product interest	PI	4.01	0.75	0.19	−0.63	0.24	Agree
Website trust	WT	4.53	0.62	0.14	−1.52	2.52	Strongly Agree
Perceived usefulness	PU	3.93	0.80	0.20	−0.49	−0.18	Agree
Attitude toward online buying	using ATUOB	3.81	0.85	0.22	−0.50	0.18	Agree
Online buying intention	OBI	3.43	0.80	0.23	−0.43	0.37	Agree

The value of the mean can be interpreted as: 4.21–5.00 is strongly agree 3.21–4.20 is agree 2.61–3.20 is neutral 1.81–2.60 is disagree 1.00–1.80 is strongly disagree.
$\bar{X}$: mean; SD: standard deviation; CV: coefficient of variation; SK: skewness; KU: kurtosis.

had a KU significantly higher than 0 (KU = 2.52). Thus, the distributions indicate that most variables are close to a normal distribution, while WT is non-normal.

Correlation coefficient matrix

Pearson correlation was used to identify potentially significant relationships between variables. There were significant correlations between all variables in the correlation matrix (Table 5). The *r* values for these correlations were lowest for PI-CON and WT-EOB ($r = 0.11$ in both cases). The highest correlation was for ATUOB-PU ($r = 0.70$). All variables had significant correlations with the outcome variable OBI, with the highest such correlation being OBI-ATUOB ($r = 0.47$) and the lowest correlation being OBI-PI

Table 5. Correlation matrix.

Variable	PEU	EN	EXP	CON	EOB	PI	WT	PU	ATUOB	OBI
PEU	0.54									
EN	0.49**	0.56								
EXP	0.62**	0.65**	0.80							
CON	0.60**	0.36**	0.59**	0.63						
EOB	0.18**	0.14**	0.12	0.27**	0.58					
PI	0.15**	0.51**	0.39**	0.11*	0.25**	0.56				
WT	0.53**	0.39**	0.48**	0.35**	0.11*	0.09*	0.55			
PU	0.59**	0.58**	0.56**	0.48**	0.17**	0.31**	0.44**	0.56		
ATUOB	0.66**	0.64**	0.66	0.51**	0.18**	0.33**	0.47**	0.70	0.53	
OBI	0.36**	0.26**	0.28**	0.32**	0.19**	0.05**	0.34**	0.43**	0.47**	0.60

Note. PU: Perceived Usefulness; ATUOB: Attitude toward Using Online Buying; OBI: Online Buy Intention; PEU: Perceived Ease of Use; EN: Entertainment; EXP: Experiential; CON: Convenience; EOB: Experience of Online Buying; PI: Product Interest; WT: Website trust.

(0.05). This outcome justified the continued examination of the variables using confirmatory factor analysis (CFA).

CFA

CFA is used to investigate the relationship of the explicit variables and their latent underlying constructs. Beta (β), representing the factor loading, standard error (SE), and *t*-test and R^2 outcomes are used to assess each variable. A summary table (Table 6) provides information for each of the factors. All scales have $\alpha > .7$, indicating that they are suitable for explanatory research in this context (Bryman and Bell 2015).

Model testing results

The model testing results (Table 7) show general consistency with the criteria for passage. The chi-square/*degree of freedom (df)* value (0.96) was below the threshold of <2.00, with *p* (.50) being above the $p > .05$ value. This indicates an initial acceptable fit. The goodness fit index (GFI) (0.97), adjusted goodness fit index (AGFI) (0.93), comparitive fit index (CFI) (1.00), root mean square residual (RMR) (0.03), standardized root mean square residual (SRMR) (0.03), and root mean sqaure error of approximation (RMSEA) (0.00) all indicate that the fit is acceptable based on both absolute and relative fit measures. Thus, the model can be accepted as being appropriate for the research context.

Following the goodness-of-fit analysis, the SEM was constructed (Figure 2).

Conclusions and discussion

Conclusions of the study

The purpose of this study was to investigate the factors that affect consumer buying intention for online grocery products in Thailand. The objectives of the study included investigating the factors affecting buying

Table 6. Summary of confirmatory factor analysis outcomes.

Latent variable	Observe variable	*b*	SE	*t*	R^2	AVE	CR	Cronbach's alpha
PEU	X1	0.79	(0.05)	13.26**	0.41			
	X2	0.76	(0.05)	13.04**	0.40	0.54	0.97	0.75
	X3	0.65	(0.05)	10.23**	0.26			
EN	X4	0.68	(0.09)	4.04**	0.21			
	X5	0.82	(0.12)	4.63**	0.31	0.56	0.94	0.79
	X6	0.74	(0.09)	4.46**	0.26			
EXP	X7	0.88	(0.06)	15.89**	0.56			
	X8	0.89	(0.06)	15.81**	0.67	0.80	0.98	0.87
	X9	0.91	(0.06)	19.33**	0.89			
CON	X10	0.80	(0.05)	9.53**	0.26			
	X11	0.73	(0.06)	6.03**	0.21	0.63	0.97	0.76
	X12	0.84	(0.05)	12.01**	0.43			
EOB	X13	0.67	(0.04)	15.85**	0.51			
	X14	0.65	(0.03)	17.14**	0.57	0.58	0.98	0.75
	X15	0.93	(0.04)	21.18**	0.79			
PI	X16	0.81	(0.04)	20.57**	0.73			
	X17	0.70	(0.04)	18.32**	0.62	0.56	0.98	0.74
	X18	0.73	(0.04)	16.61**	0.54			
WT	X19	0.78	(0.04)	17.18**	0.74			
	X20	0.75	(0.03)	17.64**	0.68	0.55	0.98	0.77
	X21	0.69	(0.03)	15.46**	0.61			
PU	Y1	0.78	–	–	0.44			
	Y2	0.75	(0.06)	10.06**	0.54	0.56	0.98	0.73
	Y3	0.72	(0.05)	12.82**	0.65			
ATUOB	Y4	0.69	–	–	0.53			
	Y5	0.73	(0.03)	19.99**	0.54	0.53	0.99	0.76
	Y6	0.77	(0.04)	19.81**	0.58			
OBI	Y7	0.81	–	–	0.56	0.60	0.98	0.74
	Y8	0.77	(0.05)	14.70**	0.70			
	Y9	0.74	(0.05)	12.88**	0.64			

Note. *b*: Beta; SE: Standard; *t*: t-statistic; R^2: R-squared; AVE: Average Variance Extracted; CR: Composite reliability; PU: Perceived Usefulness; ATUOB: Attitude toward Using Online Buying.

Table 7. Summary goodness-of-fit measures for full model.

Fit index	Value	Criteria
X^2/degree of freedom	0.96	<2.00
p value	0.50	>0.05
Goodness of fit index	0.97	>0.90
Adjusted goodness of fit index	0.93	>0.90
Comparative fit index	1.00	>0.95
Root mean square residual (RMR)	0.03	<0.05
Standardized RMR	0.03	<0.05
Root mean square error of approximation	0.00	<0.05

intention for online grocery products using the TAM; examining the impact of shopping orientation on consumer buying intention; and examining the impact of experience of online buying on buying intention. The key findings of the study include the following:

- Finding 1: Overall, the TAM was reflected in the findings, including the internal PEU-PU relationship and the relationships of PU-ATUOB and PEU-ATUOB.
- Finding 2: Convenience orientation is the strongest consumer orientation associated with buying intention for online grocery products in

Table 8. Summary of hypothesis results.

Hypothesis	Result
H1: Perceived ease of use positively influences the perceived usefulness of online grocery shopping.	Accepted
H2: Perceived usefulness positively influences consumer attitudes toward using online grocery shopping.	Accepted
H3: Perceived ease of use positively influences consumer attitudes toward using online grocery shopping.	Accepted
H4: Entertainment orientation positively influences consumer attitudes toward using online shopping.	Accepted
H5: Experiential orientation positively influences consumer attitudes toward using online shopping.	Accepted
H6: Convenience orientation positively influences consumer attitudes toward using online shopping.	Accepted
H7: Experience of online buying positively influences consumer attitudes toward using online grocery shopping.	Accepted
H8: Product interest positively influences consumer attitudes toward using online grocery shopping.	Accepted
H9: Website trust positively influences consumer attitudes toward using online grocery shopping.	Accepted
H10: Consumer attitudes toward using online grocery shopping positively influences consumer buying intention to use online grocery shopping.	Accepted

Thailand. Entertainment and experiential orientations have lower levels of influence on buying intention.

- Finding 3: Website trust is the strongest factor in online buying experience in terms of its influence on buying intention for online grocery products in Thailand. Product interest and experience of online buying were found to be somewhat weaker.
- Finding 4: Attitudes toward online shopping is the strongest factor in the buying decision for online grocery products in Thailand.

Major findings

Table 8 summarizes the hypothesis test results for each of the factors in the study. These results show that all hypotheses were accepted at a statistical significance level ($p < .05$). Each of the individual outcomes is discussed below, grouped by the key findings.

Finding 1: TAM hypotheses (H1, H2, H3)

The first objective was to apply the TAM to the online buying decision to understand the influence of PU, PEOU, and attitudes on buying intention for online groceries. The first three hypotheses directly addressed the TAM. Hypothesis 1 (PU-PEU), hypothesis 2 (PU-ATUOB), and hypothesis 3 (PEU-ATUOB) were drawn from the TAM framework. All three of these tests were significant at $p < .01$. Thus, all three of these hypotheses were accepted. The strongest path coefficient observed was for H2 ($\beta = 0.46$), followed by H3 ($\beta = 0.44$) and H1 ($\beta = 0.39$). This suggests that the strongest relationship for ATUOB is PU, with PEU having a weaker influence. There is also a weak positive relationship of PU and PEU. This is consistent with other studies using the TAM, which typically show a strong relationship

for PU and attitudes, with weaker and inconsistent relationships for PU-attitudes and PEU-PU (Legris et al. 2003). It is also consistent with the findings of previous research. For example, Hernández García et al. (2011) found that PU was a significant factor in the decision of nonshoppers to shop online in Spain, while Al-Debei et al. (2015) found that online shopping intention of shoppers in Jordan was directly related to perceived benefits (their model of PU), but not directly related to perceived website quality (their model of PEU). These consistent findings show that online shoppers generally and online grocery shoppers specifically are more concerned with the usefulness of online shopping than with ease of use specifically. The reason for this could be that users are now generally experienced online shoppers or that the ease of use of an online shopping site is consistently high, making it an unimportant concern for consumers. Whatever the reason for this, it is clear that the relative importance of the TAM factors is internationally consistent. The implication of these three findings is that PU of online shopping is somewhat more important in regard to attitudes toward online buying for grocery products than PEU. However, PEU has a relatively weak direct influence on the buying decision as well as an indirect influence through PU. Thus, firms cannot ignore PEU, even if the PU of their website is strong.

Finding 2: Shopping orientation hypotheses (H4, H5, H6)

The second objective was the examination of the influence of shopping orientation on attitudes toward online buying. This objective was expressed as a series of three hypotheses, including hypothesis 4 (entertainment shopping orientation), hypothesis 5 (experiential shopping orientation), and hypothesis 6 (convenience shopping orientation). All of these hypotheses tested significantly ($p < .01$) and were accepted. Of these three hypotheses, CON had the strongest path coefficient in relation to ATUOB ($\beta = 0.32$), followed by EXP ($\beta = 0.27$) and EN ($\beta = 0.22$). This is not surprising given the nature of the three shopping orientations. Specifically, consumers with a strong convenience shopping orientation want shopping to be fast and easy and tend to prefer shopping situations where they can save time and money while avoiding lines (Handa and Gupta 2014). Thus, online shopping, where consumers do not have to leave the house or stand in line and can easily compare prices and features, would be ideal for convenience-oriented consumers. In contrast, the entertainment shopping orientation is associated with shopping as a pastime or social activity (Handa and Gupta 2014). Thus, online shopping could be a poorer experience for these consumers. Experience-oriented consumers, who like to feel, touch, and try on their purchases, may not be drawn to online shopping (Handa and Gupta

2014), Moreover, in most cases, an experiential shopping orientation shows an insignificant or negative relationship with online buying (Park 2002). However, the shopper could be attracted by something new, innovate or unique (Temperley and Ho 2008). One of the possibilities of this study is that online shopping has expanded such that the influence of shopping orientations is now inconsistent. Nowadays, consumers are becoming used to online shopping. They have more experience of online shopping and they seem to view it as enjoyable. Instead of actually touching and seeing, consumers' experience is shifting toward searching, scanning, and reading the product details described online (Zhou et al. 2007). This is a change from earlier studies on online shopping orientation such as that conducted by Rohm and Swaminathan (2004), in which online shopping was viewed as specific to certain orientations rather than being spread across different orientations. It is possible that the change in online shopping acceptance and approaches to online shopping could have reduced differences in preference based on shopping orientation. This research also focuses on grocery products, which are low-involvement products. Low-involvement products are inexpensive and can be easily found such as washing and cleaning products, food and beverages and paper. Consumers are familiar with these products and do not need to see or touch the actual product before making a decision. Moreover, in most cases, the experiential shopping orientation shows an insignificant or negative relationship with online buying (Park 2002). A further possibility is that online shopping orientation could shift with the consumer's culture, although this has not been tested extensively, presenting an opportunity for further study.

Thus, the evidence of this study is consistent with the tenets of shopping orientation theory, which suggests that channel choices occur partly as a result of consumer shopping orientations. However, it is notable that these factors were weaker in terms of their influence on ATUOB than the TAM variables. This suggests that the usability and usefulness of online shopping may be more of a factor for individual shoppers than their shopping orientation, although shopping orientation is strong enough not to be ignored.

Finding 3: Online experience hypotheses (H7, H8, H9)

The third objective addressed the role of online shopping experience in the buying decision. This objective was met using three different aspects of shopping experience, including experience of online buying (EOB; H7), product interest (PI; H8), and website trust (WT; H9). All three of these variables were hypothesized to have a positive relationship with ATUOB. The model test supported these hypotheses in all three cases ($p < .01$). Of

these three factors, the strongest path coefficient was observed between WT-ATUOB ($\beta = 0.33$). There were somewhat weaker path coefficients observed for PI-ATUOB ($\beta = 0.21$) and EOB-ATUOB ($\beta = 0.11$). These findings suggest that WT is a significant factor in ATUOB, with the magnitude of its influence similar to that of CON (although lower than PU and PEU). However, PI was much weaker and is more consistent with the influence of EN. Surprisingly, EOB was the weakest factor in the model in terms of its influence on ATUOB. Given that food shopping is such a conservative shopping practice (Chu et al. 2010) and that there are high perceived risks associated with online grocery buying, such as the risk of not receiving what was intended (Ashraf et al. 2014; Ha and Stoel 2009; Zhu et al. 2011), it is a surprise that increased experience of online shopping did not contribute more to the individual's attitudes toward online grocery buying. Instead, experience seemed to provide only a relatively minor support for the online shopping decision. Product interest may not be as strong a factor because consumers may not be interested per se in groceries or may not need to seek them out (de Pelsmacker et al. 2006). However, the much stronger influence of website trust is not surprising, given that it has routinely been shown to influence online buying intentions (Urban et al. 2009). One possibility here is that consumers at different levels of shopping experience may show different responses to conservative influences and attitudes or that other attitudes may influence the consumer decision, as shown in the Swedish research by Hansen (2008). It is also possible that the real difference could be between online shoppers and non-online shoppers, following Hernández García et al.'s (2011) Spanish study. These authors both demonstrated that online shopping was to some extent dependent on personal attitudes and online shopping experience, as consistent with the findings of the current study conducted in Thailand. Thus, the effect of experience may be consistent between different cultures, although it is also possible that there may be additional factors that encourage consumers to shop online regardless of experience, as found by Hand et al. (2009). These are questions that would be suitable for additional comparative research.

Finding 4: The impact of attitude on buying intentions (H10)

The research was concluded with a final hypothesis test of ATUOB and OBI for grocery products in Thailand. This hypothesis test represented the accumulation of the influence of factors from the TAM, shopping orientation, and online buying experience, as expressed above. This hypothesis was accepted ($\beta = 0.89$, $p < .01$). Furthermore, the R^2 value of this variable path was the highest of any of the predictor–outcome variable paths ($R^2 = 0.89$). This suggests that 89% of variation in OBI was influenced by

variations in attitude. Thus, ATUOB can be said to have a strong influence on the buying intention for online groceries, predicting almost all of the variance in this response. This result is similar to that of Ha and Stoel (2009). Ha and Stoel (2009) conducted research on online shopping by U.S. college students and found that consumer attitudes influenced the intention to shop online. In addition, the result also supports Bigné-Alcañiz et al. (2008). They conducted research using TAM to investigate Spanish consumer behavior toward online shopping. The result revealed a positive relationship between attitude and behavioral intention. Thus, the result of this research is supported by several other studies (Ashraf et al. 2014; Zhu et al. 2011; Hui and Wan 2009). It is also consistent with studies in other countries that have used the TAM or related attitude-behavior models, such as the study of Connolly and Bannister (2007) in Ireland, Al-Debei et al. (2015) in Jordan, Hansen (2008) in Sweden, and Hernández García et al. (2011) in Spain. This strongly suggests that the relationship proposed within the TAM and its related models such as the TPB is consistent across cultures, although the effects may vary in magnitude depending on contextual factors. Therefore, this element of the research model can be strongly supported from international empirical findings on consumer technology adoption choices. It is also worth noting that, according to the research model (Figure 14), while PU and PEU had the strongest path coefficients, other variables, including WT-ATUOB, CON-ATUOB, and EXP-ATUOB, were also moderately strong. In conclusion, the results support a combined model incorporating TAM, shopping orientation, and shopping experience variables, rather than simply using the TAM framework.

Practical implications

The main practical implications of these findings are for online grocery retailing. The findings revealed several factors that influenced consumers shopping online for groceries in Thailand. The most important factors were the TAM factors (PU and PEU). This finding implies that retailers must make sure that their sites are seen as both useful and easy to use in order to encourage customers. This means that they should balance maximum flexibility and usability (for example, allowing food and nonfood orders at the same time) with ease of use (such as providing search functions and logical site organization and flow). However, there are also other site-related factors that influence the consumer decision to shop online, especially website trust. This means that the retailer needs to promote website trust, for example, by using secure communications and payment methods and protecting personally

identifiable information. Finally, the retailer needs to be aware that certain types of shoppers will be more attracted to online buying, especially convenience shoppers and, to a lesser extent, experiential shoppers (who may be more likely to try the site out). Thus, the retailer should not lose focus on their brick-and-mortar premises for entertainment and experiential shoppers.

Academic implications

The implication of this research for academic study is that including shopping orientation and online shopping experience factors in the TAM does help to improve the predictive capability of the TAM for online shopping. This is important given the increasing use of the TAM and its variants to explain consumer technology usage such as online shopping and mobile shopping. This also offers more opportunities to extend the TAM framework in further research to better account for environments in which people are increasingly using technology in everyday life. At the same time, it also calls for an examination of shopping orientations to determine whether there are distinct online shopping orientations. This type of research could extend knowledge of online shopping and its antecedents.

Limitations

There are several limitations to this study. One of the obvious limitations is that it only included individuals who had previously shopped online for groceries. Thus, while it provides some explanation as to why some individuals shop online for groceries, it does not provide any insight into why individuals *do not* shop online. This could be an opportunity for future study since it could not be taken for granted that nonshoppers have poor attitudes or lower levels of other factors. Another limitation is that the study is cross-sectional. This means that the study only reflects the current state of the Thai online grocery market. This situation could change if, for example, new supermarket chains or Amazon entered the online grocery market. They may also change as consumer attitudes toward online shopping in general change due to increased adoption of innovations. This suggests that the results are time-bound. Finally, this research did not go into great detail about groceries as perishable or nonperishable products. It specifies grocery in general. Thus, for future research, deeper analysis or qualitative research is suggested.

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