The impact of online review on fresh food purchase intention via mobile applications: An approach of Elaboration Likelihood Model (ELM) theory

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ABSTRACT

Today, consumers are interested in fresh food, and the convenience of mobile App shopping since the rise of various food delivery platforms gives consumers more choices and enables them to gather information through online reviews. This study aims to examine the impact of central and peripheral cues of Online Consumer Review (OCR) (including accuracy, completeness, timeliness, consistency, quantity, product ratings, and visual cues) toward purchase intention based on Elaboration Likelihood Model (ELM) and the mediating role of attitude. Previous studies explored the independent effects of central and peripheral cues on behavioral intention. However, approaching ELM, we argue that central and peripheral ones are processed jointly by online consumers rather than independently. By non-probability method with a convenience sample, data from 302 online shoppers in Vietnam were collected by online survey and analyzed with a Structural Equation Model (SEM). The results revealed that the accuracy, timeliness, consistency, quantity, and visual cues of Online Consumer Reviews (OCR) had a significant impact on attitude. Besides, attitude was found to play a fully mediating role between OCR consistency, visual cues, and purchase intention. It also played a partially mediating effect between OCR accuracy, timeliness, quantity, and purchase intention. The findings deepen insights into the factors of eWoM in the new context and propose significant implications for managers and marketers to have a better marketing strategy to improve business profitability, especially on e-commerce platforms.

1. Introduction

Online shopping has recently received increasing attention from the scientific community, and the fast development of the internet and mobile devices has fueled this phenomenon. In addition, consumer trust in sellers' information is decreasing, causing consumers to look for information shared from different sources.

According to Chen and Berger (2016), people sharing information is a necessary part of daily life, and technology helps people do more quickly and conveniently. Many studies on online reviews focus on reliability (Thomas et al., 2019), usefulness (Kang & Namkung, 2019), or expectations (Xu & Huang, 2019). However, very few studies have examined how online

reviews affect fresh food purchase intentions, especially when people buy on mobile applications, and whether attitudes play a mediating role in the relationship between online reviews and consumer purchase intentions.

Advertising messages from brands increasingly lose consumer trust (Keller, 2007) and make the information that comes from consumers' sharing even more valuable. We can see OCR provides a valuable source of information for consumers. Even positive reviews of a product or company are one of the best predictors of business growth.

In Vietnam, especially in the cities, the prolonged lockdown during the Covid-19 pandemic has become a natural catalyst that pushes consumers to purchase goods on the App. This is not out of the general development trend of the world. According to Zebra's 15th Annual Global Shopper (ZEBRA, 2022), 92% of ages 27 - 42, 87% of ages 43 - 58, and 65% of ages 59 - 77 choose mobile devices to purchase. In Vietnam, 65 million people (94.7%) out of 68.2 million people ages 16 - 64 spend up to 68.5% of 06 hours and 47 minutes daily shopping on Apps (Kemp, 2021). Meanwhile, according to Q&Me's survey (2020), in Hanoi and Ho Chi Minh City, food and beverage accounts for 33%, while fresh food accounts for 42%. It also shows a cue that finding information and buying products on the Apps are rising. Online reviews are considered non-commercial information, so the messages shown are a process of persuading and supporting the receivers' decision-making (Babić et al., 2016). Customer feedback is crucial for making informed decisions about products and services. It offers valuable insights into potential issues and significantly influences future customers' choices (Thakur, 2017).

In reality, consumers are interested in comments because they believe that they are like advice, created out of the control and influence of companies, so they will only reflect the truth about the product and are more reliable than information made by the business (Nielsen, 2015). That was proved in a recent study, which found that 79% of consumers trust online reviews, and their purchase behavior was also influenced extremely strongly (Murphy, 2019). According to Licata (2022), 93% of consumers reported that online reviews impact their purchasing decisions, while 84% believe that reviews play a crucial role in their purchasing process. In 2017, a study conducted by Northwestern University found that the probability of purchasing a product with five reviews is 270% higher compared to that of a product with no reviews (Mumuni et al., 2020).

A survey done by the Ministry of Industry and Trade (2022) showed that 41% of consumers chose Apps to make transactions after reading reviews. It is proved that online reviews are a source of information that powerfully influences consumers' purchasing decisions in Vietnam. Besides, online consumer reviews are considered a new field used by businesses as a tool to learn about customers' attitudes toward their products (Elwalda & Lu, 2016). So, the first research question is, which factors affect consumers' purchase intention to buy fresh food on App? When there are so many reviews from different people and of varying quality, the readers can ignore or consider carefully making their own choices, which makes the attitude change, like the claim that persuasive messages can change the receivers' attitude. Therefore, the second research question is whether attitude plays a mediating role in the relationship between online review quality and fresh food purchase intention via mobile Apps.

2. Literature review and research model

2.1. Foundational theory

2.1.1. Evaluative Likelihood Model (ELM)

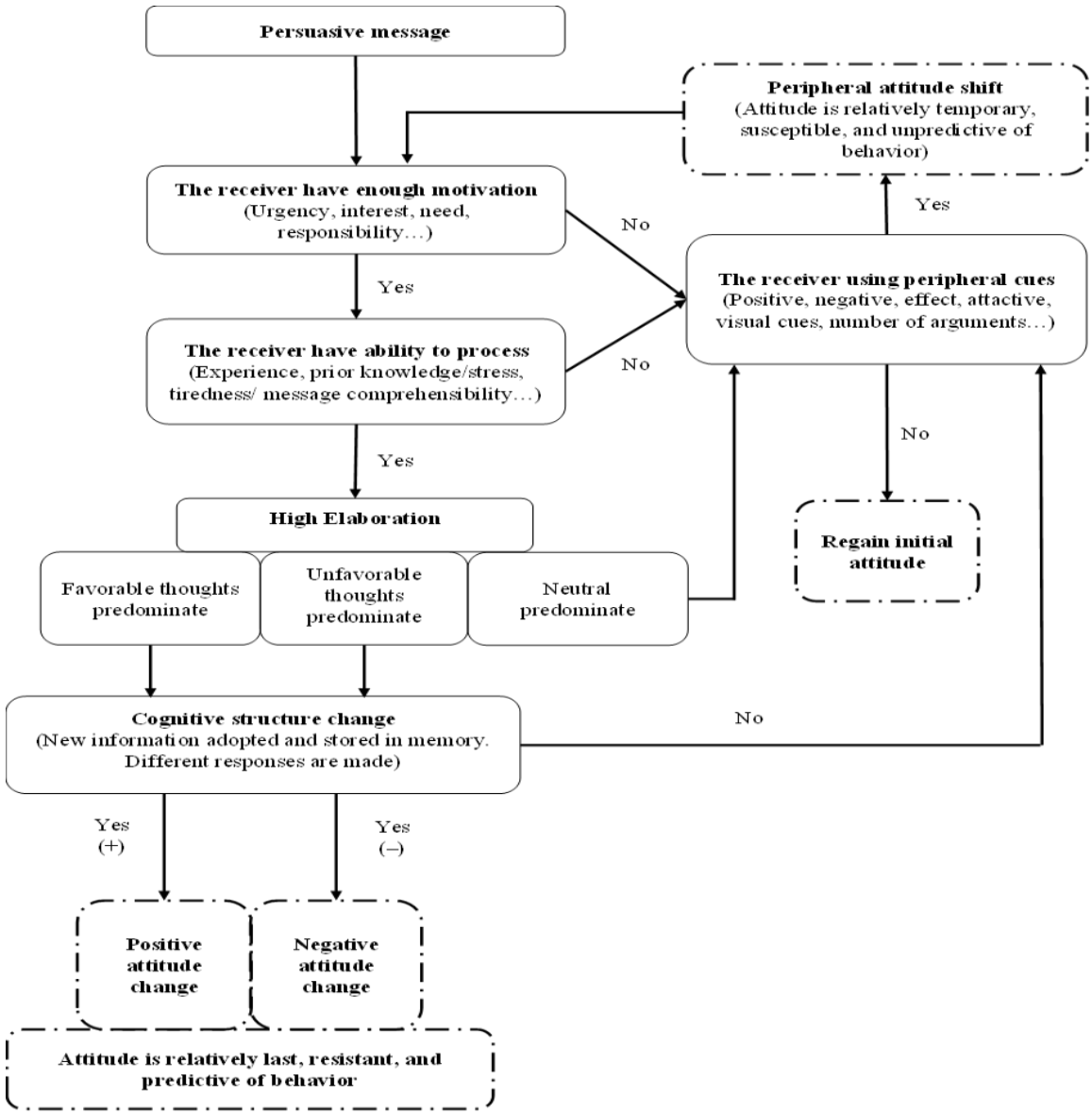
Petty and Cacioppo (1986) introduced ELM to explain how attitudes are formed and how the persuasion process takes place when individuals receive messages based on two routes:

Central and Peripheral route (See Figure 1). ELM also takes into account the receiving situation and the recipient's characteristics. In particular, elaboration is considered to be the power of consciousness toward a message (Marquart & Naderer, 2016).

The central route operates on motivation and cognitive ability, requiring a more complex process of careful consideration of the message. Responses through this route lead to stable and predictable attitudes. However, people do not always put in enough effort to understand messages thoroughly and are influenced by peripheral cues. It depends on each person's cognitive capacity. Accordingly, the message will only be considered superficially, based on simple cues, and is more persuasive when individuals' motivation and ability to process messages are low. This makes peripheral cues become stronger and more persuasive factors. The peripheral route can lead to weak, temporary, inconsistent, and unpredictable changes in attitudes and behavior.

Figure 1

Elaboration Likelihood Model - ELM



Note. The data are from "The elaboration likelihood model of persuasion" by R. E. Petty and J. T. Cacioppo, 1986, in R. E. Petty and J. T. Cacioppo (Eds.), *Communication and persuasion* (pp. 1-24), Springer

Based on ELM, researchers have long been interested in the concept, formation, and change of attitudes and also examined the relationship between attitudes and behavioral intentions in many different contexts, such as Vahdat et al. (2020), Dhir et al. (2021), Tandon et al. (2020), Chen et al. (2020), etc. If Petty and Cacioppo (1986) with the Elaboration Likelihood Model (ELM) were interested in the characteristics of the persuasive messages to determine when the attitude changes, Feldmann and Hamm (2015) also indicated that searching information combined with contextual factors will influence attitudes, as a result, it is facilitating for behavior change. From that point, it is shown that the relationship between attitudes and behavior is still one of the most attractive topics that have great attention from scientists.

In light of this theory, the research model in this article is proposed with two factor groups to form an online review, including central route factors with accuracy, completeness, timeliness, consistency and peripheral route factors with quantity, rating, and virtual cues. Then, these factors have an impact on attitude and, later on, behavioral intention, which has been approved in several previous studies.

2.1.2. Innovation Diffusion Theory (IDT)

IDT was found by Roger (1995) to explain new ideas or new technology acceptance processes. IDT could be used to explain why, how and the ratio of an idea or technology spreads in different contexts. Innovation acceptance process normally includes 05 stages : (1) Awareness, (2) Persuasion, (3) Intention, (4) Action, and (5) Confirmation. In the awareness stage, individuals firstly expose to innovation but lack some information. The first stage does not activate enough for consumers to find out further. In the persuasive stage, the innovation impacts directly on consumers, and then the consumers are interested in looking for innovative technology. In the coming stage of intension, consumers consider whether to accept the new technology or not. This is the most difficult time to launch out the innovations. In the action stage, the consumers will use new products at different levels or decide not to use. In the last stage, they confirm the usefulness and continue to use new products. In short, this paper uses IDT to explain the process that consumers accept to purchase fresh food via mobile Apps instead of traditional market as normal in which mobile apps are innovative technology needed to diffuse in consumers' community because of their convenience.

2.2. Online Consumer Review (OCR)

EWoM or OCR refers to comments and reviews posted on different platforms with the help of the internet. OCR is a form of eWOM (Zhu et al., 2017). However, OCR information is mainly based on actual consumers' experiments and post-purchase experiences. On the other hand, consumers tend to believe that OCRs are for non-commercial purposes compared to information provided by sellers, so OCRs are considered more trustworthy. Still, they can be positive or negative depending on the consumers' perspective (Sen & Lerman, 2007).

According to Shin et al. (2017), OCR quality is defined as the quality of arguments. It's considered a message's power to persuade others is often measured based on the comprehensiveness, accuracy, timeliness of information, trustworthiness, attractiveness, consistency of streamer interaction, and co-viewer involvement (Gao et al., 2021); comprehension, accuracy, opposing viewpoints, completeness, relevance, and timeliness (Thomas et al., 2019) whereas review quantity and consistency, reviewer reputation and expertise, product/service rating as well as reputation are considered as crucial peripheral cues; thereby it forms purchase intention. Some authors consider the online review concept to be univariate (Shin et al., 2017; Yang, 2018), while others approach it as a multivariate concept

(Meng & Choi, 2019; Teng et al., 2016). It can be said that the consistency of the concept of OCR was still opened for researchers. Depending on the consumer's cognitive background, these factors are divided into two processing routes in this paper: OCR Accuracy, Completeness, Timeliness, and Consistency belong to the central route while OCR quantity, Rating, and Visual cues belong to the peripheral routes (Petty & Cacioppo, 1986).

2.3. Consumers' Attitude towards fresh food purchase via mobile Apps

Attitudes are consistent behavioral responses to the triggers caused (Gunden et al., 2020). In simpler terms, attitude refers to a consumer's reaction towards a particular behavior, whether favorable or unfavorable according to Tandon et al. (2020). It can also be defined as people's cognitive response to a certain action, which reflects their willingness to experience and attempt to carry out their intentions.

Many studies have pointed out that attitude plays a crucial role in the relationship between different components of OCR and consumers' purchase intentions in various contexts (Teng et al., 2016; Wang et al., 2017), and it is considered the best way to evaluate people's psychology. According to Ajzen (2001), attitudes are developed in different contexts but still based on a unified view that it represents a summary of people's psychological evaluations and is measured by different attributes such as good-bad, harmful-beneficial, pleasant-unpleasant, and like-dislike, etc.

2.4. Purchase intention

Purchase intention is defined as a specific type of consumer behavior that describes their conscious planning or intention to make efforts to purchase a product or service (Thomas et al., 2019). Purchase intention is formed when there is a pending transaction and is considered an important indicator of actual purchase. In the context of e-commerce, purchase intention is the intent to buy online products and services based on an overall evaluation (Bilal et al., 2021). Intention is a psychological measure when purchasing products/services based on customers' overall evaluation and is useful for predicting their buying behavior. In other words, purchase intention is a type of consumers' psychological expression of actual shopping and their ability to choose and buy products. During the process of receiving information and making a purchasing decision, intention plays an important role. The researchers are often interested in intention because it is the strongest antecedent of behavior, even when it is formed from subjective sentiment. For online consumers, the more powerful intentions, the greater the purchase probability will be (Lee & Lee, 2013; Zhao et al., 2020).

2.5. Research model and hypothesis development

2.5.1. OCR dimensions and Attitude

OCR accuracy and attitude

ELM posits that OCR accuracy is considered the credibility of information and a crucial factor in determining the quality of arguments, and plays a key role in convincing everybody of the content of communication messages (Petty & Cacioppo, 1986; Teng et al., 2014). In situations where there is an excess of information, accuracy can help consumers build trust and reduce thinking about potential risks. This is particularly important in e-commerce transactions where buyers cannot interact with the seller face-to-face. Accuracy enhances the power of information, making it easier for buyers to make decisions. In reality, if consumers find reasonable and accurate reviews, they will tend to believe them immediately, and vice versa. If

the OCR is inaccurate, nor not what they knew or experienced, they will reject all information shown in the reviews (Thomas et al., 2019). Therefore, if consumers receive any accurate recommendation, they do not need to put effort into searching for more information, spend less money, or spend less time verifying unclear information, which helps consumers immediately form a positive perception, and attitude toward the message (Gao et al., 2021). Therefore, this study proposed the first hypothesis as follows:

H1 (+): OCR Accuracy has a positive effect on consumers' attitude toward fresh food purchases via mobile Apps

OCR completeness and attitude

When it comes to providing information to consumers, completeness is a key. According to Thomas et al. (2019), completeness means sufficiency, comprehensive and providing full information to meet consumers' needs. If information is incomplete, even if accurate, leads to negative attitudes and a lack of interest in the product or service. Not only do they provide accurate information, but the completeness of the reviews also strengthens the arguments and activates the central line in processing persuasive messages. Teng et al. (2014) found that comprehensiveness is one of the most important factors that increase the quality of information and give strength to arguments. In a market with too much asymmetrical information, consumers rely on comprehensive, rich, and complete information to make informed decisions. This reinforces their belief that they fully understand the product they have chosen (Gao et al., 2021). However, in reality, many consumers are skeptical from the beginning and require a convincing review. If OCR information is complete, it can persuade consumers to form or change positive attitudes toward the messages. Hence, the second hypothesis was proposed as follows:

H2 (+): OCR completeness has a positive effect on consumers' attitude towards fresh food purchase via mobile Apps

OCR timeliness and attitude

Timeliness refers to the current state of products and services. It is an essential factor in creating credibility and building trust with consumers (Thomas et al., 2019). Timeliness is another critical element that triggers the central route in information processing. It is considered one of the main factors that highlight the quality of information or argument. It is closely linked to completeness as it supports more depth to the information and the power of messages (Majali et al., 2022). Moreover, OCR timeliness enhances persuasion and creates positive attitudes toward online product purchases. According to Park et al. (2007), OCR quality relies not only on its persuasiveness but also on its timeliness. Especially, when purchasing via e-commerce, consumers depend heavily on online reviews. Hence, if OCRs are well-updated, meaning that the products are being repeatedly purchased and receiving good reviews, the information becomes more useful. The more new OCRs, the more reliable, prestigious, and useful the product/service becomes (Gao et al., 2021). If the consumers only see new recommendations they will form or change to a positive attitude. Therefore, the third hypothesis was consequently proposed as follows:

H3 (+): OCR timeliness has a positive effect on consumers' attitude toward fresh food purchase via mobile Apps

OCR consistency and attitude

OCR consistency refers to the agreement between this consumer's comments and the feedback of others while evaluating the same product or service (Chakraborty & Bhat, 2018). It

is also indicated by the degree of similarity and no conflict between a particular review from one consumer and others. This consistency also demonstrates the agreement between the information provided in the feedback and comments for the same product (Brand et al., 2022). If the OCR's information is consistent, then they are more likely to be perceived as credible (Cheung et al., 2012). From a psychological perspective, consistency will increase the power and credibility of the message; in the meantime, it contributes to creating a favorable attitude on consumers. OCR consistency via e-commerce and social networking is also considered an important sign in increasing the reliability of information (Brand et al., 2022; Thomas et al., 2019). Based on that reason, this study continued to propose the fourth hypothesis:

H4 (+): OCR consistency has a positive effect on consumers' attitude toward fresh food purchases via mobile Apps

OCR quantity and attitude

OCR quantity is defined as linked to the number of opinions posted from the view of consumer perception (López & Sicilia, 2014). The number of OCRs corresponds to the number of information shared by consumers. According to Park et al. (2007), the number of OCRs is crucial in influencing consumers' purchasing decisions and acts as a significant peripheral cue in processing information. Petty and Cacioppo (2012) also pointed out that the more information, the more correlation between intention and behavior increases. Moreover, many researchers believe that OCR quantity can shape attitudes and adjust the consistency of intention behavior. OCR quantity factor is more likely to influence consumer attitudes than the message made by the experts (Teng et al., 2014). OCR quantity can indicate a product's popularity, under the assumption that the number represents the number of consumers who have purchased the product. Accordingly, a large number of OCRs serve as a positive sign providing evidence of former consumer experiences (Petty & Cacioppo, 1986; Thomas et al., 2019). Therefore, the fifth hypothesis was as follows:

H5 (+): OCR quantity has a positive effect on consumers' attitude toward fresh food purchases via mobile Apps

Online product/service ratings and attitude

According to Thomas et al. (2019), a rating of a product or service is a conclusive overall evaluation. Product ratings are considered a peripheral cue that significantly impacts consumers' trust in information. Ratings are typically given in the form of star symbols, making it a simple and effective visual cue that helps consumers judge the credibility of a product or service more easily. In other words, a higher rating indicates that the product or service has been positively experienced by many consumers, which can influence the purchasing decisions of potential customers. Cheung et al. (2009) have argued that positive ratings can significantly affect attitudes and purchasing intentions. According to Thomas et al. (2019), product ratings are an important peripheral cue that significantly impacts consumer attitude. They act as visual cues that do not require people to put much effort into looking at but still convince them to believe that products with many-star reviews are reputable, better quality products leading to a higher number of orders compared to low-star ones. Positive product/service ratings are a sign of a good quality product/service, which boosts consumers' positive attitudes toward the products/services, enhancing their trust and influencing their purchasing intentions. Therefore, the sixth hypothesis was proposed as follows:

H6 (+): Product/service ratings have a positive effect on consumers' attitude toward fresh food purchases via mobile Apps

Visual cues and attitude

Visual cues, also known as peripheral messages, are vivid messages communicated by messengers at the periphery. These cues play an important role in attitude formation (Sung et al., 2020). Peripheral cues can include logos, images, and colors that are not directly related to the persuasive message. In the case of online reviews, visual cues could be photos, or clips attached to written words on fresh food selling apps. These visual cues are presented clearly and vividly by consumers' emotions and experience of products/services. Visual images are considered a simple peripheral cue because they largely bypass how the brain works and ignore information processing (Lazard et al., 2018; Petty & Cacioppo, 1986). Vivid visual cues have been proven to have a certain impact on attitudes and play an important role in product selection among consumers in various contexts (Gunden et al., 2020; Lazard et al., 2018; Lin et al., 2012; Xu & Huang, 2019; Zhai et al., 2022). However, it is still a significant cue that many researchers tend to ignore (Sung et al., 2020). According to the ELM, nonverbal behavior is also considered as a message argument (Guyer et al., 2019; Petty & Cacioppo, 1986). This is consistent with Blair's claim that a visual image can be more powerful than a statement (Blair, 2012). Based on it, the seventh hypothesis was proposed as follows:

H7 (+): Visual cues have a positive effect on consumers' attitude toward fresh food purchases via mobile Apps

2.5.2. OCR dimensions and purchase intention

Accuracy is a crucial factor that can affect consumer behavior by enhancing the credibility of information (Thomas et al., 2019). In situations where information is limited or asymmetric, the accuracy of online reviews plays a significant role in helping consumers make informed decisions about products.

Moreover, completeness is closely linked to the accuracy of the information that consumers receive. Accurate and complete information is essential for promoting consumer behavioral intention and facilitating informed decision-making (Abedi et al., 2019).

Timeliness plays a crucial role that adding value to a product and is often considered the glue that holds a quality product together. That is why timeliness observed a positive impact on purchasing intention in various contexts (Cheong et al., 2020; Thomas et al., 2019).

According to Thomas et al. (2019), the consistency of reviews plays a crucial role in shaping consumer purchasing intentions. When reviews convey consistent information, it helps consumers understand the product better.

Quantity is an important cue, it is an indicator of the number of previous consumers and a signal of product popularity (Park & Kim, 2008). A large number of OCRs is generally considered more trustworthy than a small number, making it a significant cue for potential buyers.

Product/service evaluation helps consumers choose highly-rated products/services easily without thinking too much about similar options (De Pelsmacker et al., 2018).

Purchase intention depends on how a consumer perceives the product/service. Highly rated products are easily identifiable and preferred over similar options (De Pelsmacker et al., 2018; Nan et al., 2017).

Not only that, but visual cues also prove that realistic, colorful images will become a stimulus that makes it easier for consumers to make purchasing decisions (Wang et al., 2020). Based on the above arguments, the following hypotheses are proposed:

H8 (+): OCR Accuracy has a positive effect on the intention to purchase fresh food via mobile Apps

H9 (+): OCR Completeness has a positive effect on the intention to purchase fresh food via mobile Apps

H10 (+): OCR Timeliness has a positive effect on the intention to purchase fresh food via mobile Apps

H11 (+): OCR Consistency has a positive effect on the intention to purchase fresh food via mobile Apps

H12 (+): OCR Quantity has a positive effect on the intention to purchase fresh food via mobile Apps

H13 (+): Ratings have a positive effect on the intention to purchase fresh food via mobile Apps

H14 (+): Visual Cues have a positive effect on the intention to purchase fresh food via mobile Apps

2.5.3. Attitude and purchase intention

Many research papers have highlighted the significance of OCR, as it can shape consumers' attitudes and influence their purchase decisions (Cheung et al., 2012; Erkan & Elwalda, 2018; Filieri et al., 2017; Lin et al., 2012; Xu & Huang, 2019). Therefore, it is not surprising that Ajzen (2001) emphasized that the ability to predict behavioral intentions depends on the formation of attitudes. Cialdini et al. (1981) also indicated that attitudes play a crucial role in predicting behavior. When customers realize the benefits of OCRs that are consistent, logical, attractive, and convincing, they tend to form a positive attitude, which in turn increases the probability of purchase (Shin et al., 2017). Based on the above discussion, the last hypothesis was proposed as follows:

H15 (+): Consumers' attitudes toward fresh food purchases via mobile Apps have a positive effect on purchase intention

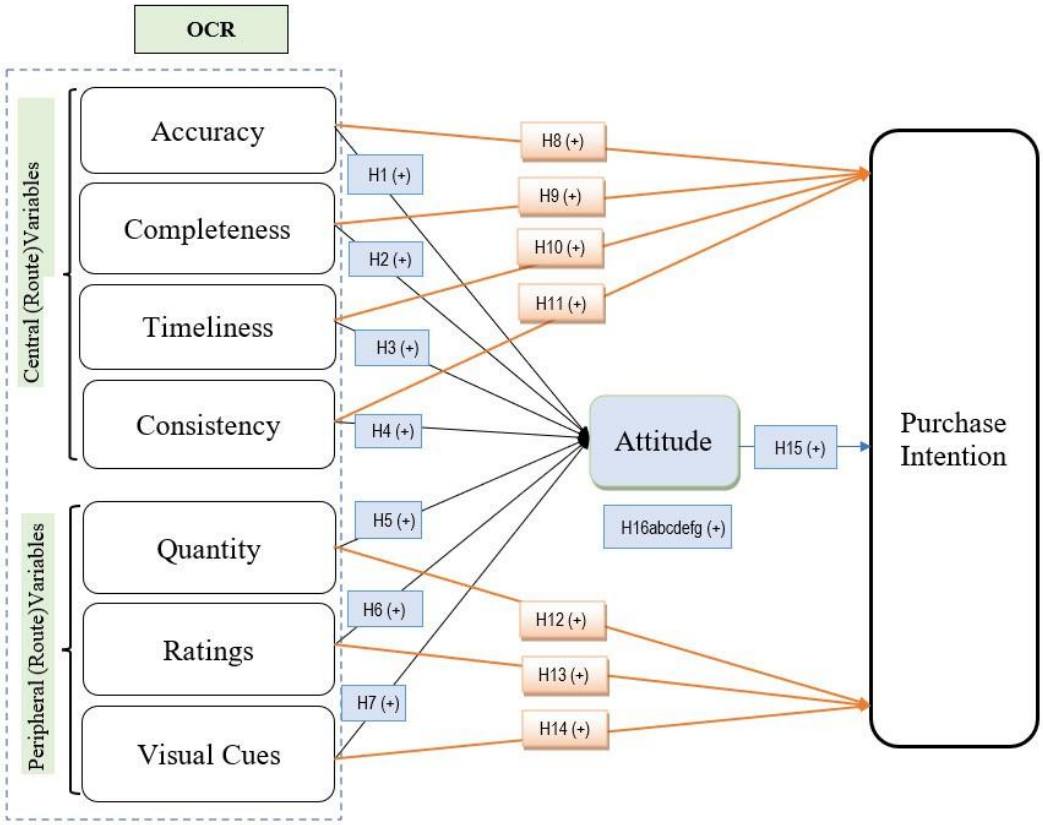
2.5.4. The mediating role of attitude

In the online environment, there are many studies found the mediating role of attitude in different contexts, such as authors Rasty et al. (2013), Pop et al. (2023), Dhir et al. (2021), Tandon et al. (2020), Chin et al. (2020), etc., accordingly, attitude is proven to play a mediating role in the relationship between identified factors and purchasing behavior. Based on existing documents, there is a need for more empirical research on the mediation of attitudes in this context. To achieve this goal, the study proposes hypotheses that need to be tested as the following:

H16abcdefg (+): Consumer Attitude plays a mediating role in the relationship between (a) OCR accuracy, (b) Completeness, (c) Timeliness, (d) Consistency, (e) Quantity, (f) Ratings, (g) Visual cues and purchase Intention to buy fresh food via mobile Apps

Figure 2

Proposed Research Model



Note. The Authors

3. Research methodology

3.1. Research design

The mixed research methodology was designed with both qualitative and quantitative research. The qualitative research was first carried out through eight in-depth interviews with experts to explore and identify constructs and their relationships in the research model and a focus group with n = 10 to validate the measurement scales. Eight experts include marketing academicians, managers, and business owners who have conducted food apps for their businesses. Furthermore, since these measurement scales were built in Europe or The United States, a focus group was implemented to adjust ambiguous words, to avoid translation mistakes, and to remove or add some statements to meet with a new research context in Vietnam. Afterward, based on revised questionnaires, a quantitative survey was conducted by convenient sampling from three sources : (i) surveying directly customers at night classes, shopping centers, or cinemas, (ii) sending emails to existing customers lists of supermarkets and shopping centers, and (iii) sharing the link Google form on social media. Four hundred answer sheets were expected, but only 302 were usable for statistical analysis. Respondents were required to share about their favorite fresh foods, recalled the past purchase experience via mobile applications, and spoken out their purchase intention.

The research sample was inclined to females with 56.6% and males with 40.7%. The age group of 41 - 50 years old accounted for the most, with 42.1% ; the rest of the groups are 18 - 30 and 31 - 40 years old with 31.8% and 26.2%, respectively. Almost 71.5% of respondents had

monthly income above VND 10 million, and educational level mainly was college and university degree holders (45.7%). Respondents' fresh food purchases include : (1) meat and fish (82%), (2) fresh fruit and vegetables (67%), and (3) rice and beans (39%).

3.2. Measurement scales

The measurement scales of all constructs in this study were derived from various sources, namely OCR accuracy from Filieri and McLeay (2013), Thomas et al. (2019); OCR completeness from Yang (2018); OCR timeliness from Cheung et al. (2008), Filieri and McLeay (2013); OCR consistency from Cheung et al. (2012); OCR quantity from Park et al. (2007); Product/service ratings from Meng and Choi (2019) with 04 indicators for all; Visual cues from Sung et al. (2020) with 03 indicators; Attitude from Kang and Namkung (2019) with 04 indicators and purchase intention from Yang (2018) with 05 indicators. All indicators were measured by five-point Likert scales.

4. Results and discussion

4.1. Data normalcy and Common Method Bias (CMB)

At the beginning, the study was carried out to test data normalcy based on the value of skewness and kurtosis, and the result indicated that they were within the acceptable range of + 3 to - 3. Then, the common method bias was examined with Harman's single-factor test in concurrence with the previous research (e.g., Dhir et al., 2021). The result exhibited that a single factor explained 34.03% of the total variance (less than 50%). According to Podsakoff et al. (2003), this dataset had on common bias issues since the variance is less than the cut-off limit of 50%.

4.2. Testing the scales of constructs by EFA and Cronbach's Alpha

After testing the data normalcy and Common Method Bias (CMB), the study continued to check Cronbach's Alpha reliability, and the results asserted that the Cronbach's Alpha value of nine variables was higher than 0.70 (the lowest was 0.847 and the highest was 0.980), total-item correlations were above 0.30. As a result, the reliability was satisfied (Nunnally, 1978).

The exploratory factor analysis was sequentially analyzed. Because the loading factor of indicator RT04 was lower than 0.3, the study deleted it and the analysis result exhibited to meet the statistical requirement that the KMO index was 0.858 (above 0.50) and Barlett testing was significant at the level of less than 0.05. Nine factors were extracted as per the initial research model, with the cumulative extracted variance equaled 86.772 % (above 50%), eigenvalues were more than 1. The loading factors were very high (the highest was RC03 = 0.992 and the lowest was AT01 = 0.658) (see Table 1). Therefore, nine constructs in the research model with 35 indicators were extracted to meet the requirement of convergent validity and discriminant validity (Hair et al., 2010).

Table 1

EFA and Cronbach's Alpha Results

Indicators	Scale content	Loading weight
Accuracy Cronbach's Alpha α = 0.957		
RA04	The information from reviews on Apps is accurate	0.927
RA02	The information from reviews on Apps is reliable	0.903
RA01	The reviews on Apps are thoroughly written	0.895

Indicators	Scale content	Loading weight
RA03	The reviews on Apps are precisely formulated	0.893
Completeness Cronbach's Alpha α = 0.957		
RP02	The reviews on Apps provide complete descriptions	0.927
RP03	The review on Apps covers all of the necessary topics	0.903
RP01	The review on Apps provides sufficient information	0.895
RP04	The reviews on Apps contain a variety of information	0.893
Timeliness Cronbach's Alpha α = 0.847		
RT03	The reviews on Apps are current	0.956
RT01	The reviews on Apps are timely	0.900
RT02	The reviews on Apps are up-to-date	0.763
Consistency Cronbach's Alpha α = 0.980		
RC03	The reviews on Apps are consistent with other reviews	0.992
RC01	The reviews on Apps are similar to other reviews	0.987
RC02	The different reviews on Apps are consistent with each other	0.969
RC04	There are a number of overlaps among different reviews on Apps	0.900
Quantity Cronbach's Alpha α = 0.907		
RQ03	The number of reviews on Apps is large	0.956
RQ04	The quantity of information of reviews on Apps is large	0.847
RQ01	The more positive reviews on the App, the more favorable opinions	0.816
RQ02	The reviews on Apps are adopted when their quantity is large	0.694
Rating Cronbach's Alpha α = 0.928		
PR02	Star rating on Apps helps me to rapidly select the best fresh food	0.982
PR04	Star rating on Apps helps me choose fresh food	0.972
PR01	Overall ranking score enables me to identify the food that could satisfy my needs	0.942
PR03	Overall ranking score facilitates my purchase	0.888
Visual Cues Cronbach's Alpha α = 0.972		
VC02	The photos and clips attached with reviews on Apps clearly express the emotions	0.969
VC01	The photos and clips attached with reviews on Apps realistically express the emotions	0.959
VC03	The photos and clips attached with reviews on Apps express the experience so vividly	0.909

Indicators	Scale content	Loading weight
Attitude Cronbach's Alpha α = 0.882		
AT02	The reviews on Apps make me confident in purchasing food	0.968
AT03	The reviews on Apps are helpful for my decision-making	0.862
AT04	When buying fresh food online, I always read the reviews on App	0.758
AT01	I like purchasing fresh food via the App	0.658
Intension Cronbach's Alpha α = 0.904		
PI01	I have a favorable opinion after reading the reviews on the App	0.883
PI02	I intend to buy after reading the reviews on the App	0.882
PI04	I would consider buying the recommended fresh food on the App	0.796
PI03	I am willing to buy the recommended fresh food on the App	0.791
PI05	I would recommend the fresh food Apps to others	0.732

Source. Data analysis result of the research

4.3. CFA analysis for the full measurement model

Confirmed Factor Analysis (CFA) was evaluated in a full measurement model, including nine first-order variables (OCR Accuracy, Completeness, Timeliness, Consistency, Quantity, Rating, Visual cues, Attitude, and Intension) with 314 degrees of freedom. Some following criteria were investigated: + *Uni-dimensionality*: To improve the good fit for the model, seven items with high modification index were removed one by one (RA03, RC04, RQ02, PR01, AT03, PI04, and PI05) and tested again. CFA results proved the good fit model with: Chi-square χ^2/df = 851.191; d/f = 314; p-value = 0.000; CMIN/df = 2.711 (within 2 to 5); GFI = 0.845; TLI = 0.935; CFI = 0.946 (above and near to 0.9); RMSEA = 0.075 (below 0.08). The uni-dimensionality was then satisfied.

+ *Convergent validity:* The analysis results indicated that all the loading factors were higher than 0.50 (Lowest: PI03 = 0.770 and highest: RA02 = 0.980) and significant at the level of 0.05. Therefore, all constructs obtained the convergent validity (see Figure 3).

+ *Composite reliability* and *Average variance extracted*: By Excel software to calculate the formula of composite reliability ρc (Joreskog & Van Thillo, 1971, p. 111) and variance extracted ρvc (Fornell & Larcker, 1981), the results were exhibited in Table 2. Nine constructs met the statistical requirement of Composite Reliability (CR) greater than 0.7 and Average Variance Extracted (AVE) greater than 0.5 (Bagozzi & Yi, 1988).

+ *Discriminant validity*: Table 2 indicated that all square roots of each construct's AVEs were higher than the inter-contruct correlations of its associated constructs, and the discriminant validity was established (Fornell & Larcker, 1981).

Table 2

CR, AVE Statistics and Correlation Matrix

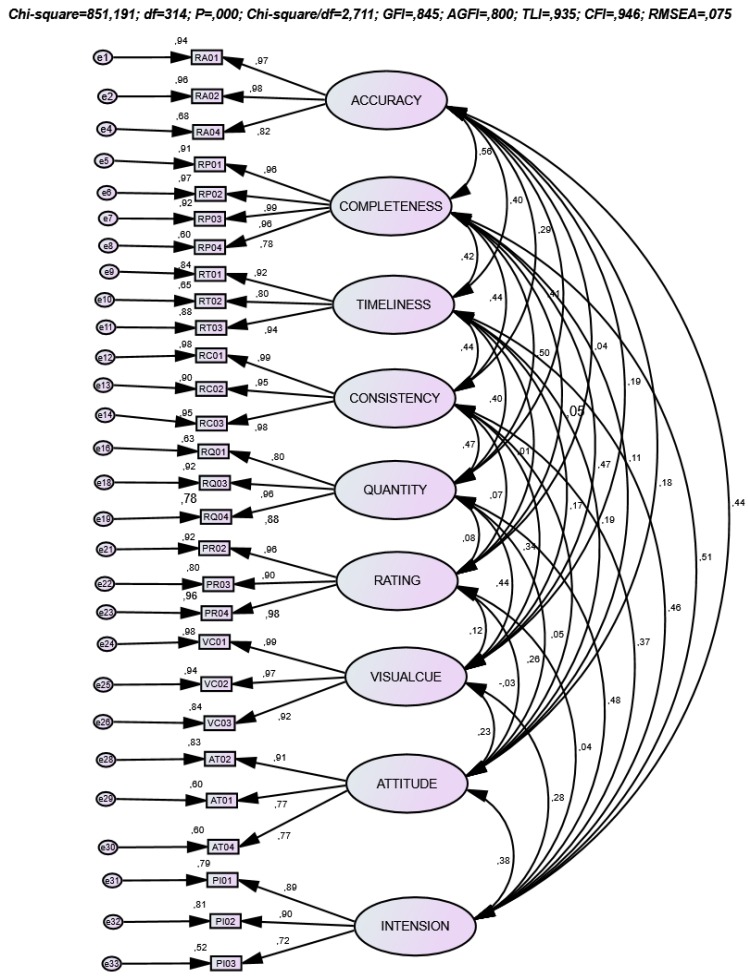
Constructs	CR	AVE	RA	RP	RT	RC	RQ	PR	VC	AT	IN
Accuracy	0.844	0.645	**(0.803)**								
Completeness	0.958	0.781	0.558	**(0.884)**							
Timeliness	0.812	0.744	0.397	0.416	**(0.863)**						
Consistency	0.880	0.763	0.287	0.439	0.444	**(0.873)**					
Quantity	0.912	0.719	0.411	0.502	0.398	0.466	**(0.848)**				
Rating	0.962	0.894	0.045	0.054	0.008	0.069	0.084	**(0.946)**			
Visual cues	0.972	0.740	0.187	0.470	0.171	0.342	0.440	0.120	**(0.860)**		
Attitude	0.861	0.702	0.181	0.115	0.189	0.050	0.258	-0.032	0.233	**(0.838)**	
Intension	0.878	0.707	0.442	0.511	0.461	0.369	0.481	0.043	0.284	0.381	**(0.841)**

Note. Square roots of the average variance extracted are shown (in bold) on the diagonal of the matrix. Non-diagonal values are cross construct correlations

Source. Data analysis result of the research

Figure 3

CFA Result for Full Measurement Model (Standardized Estimate)



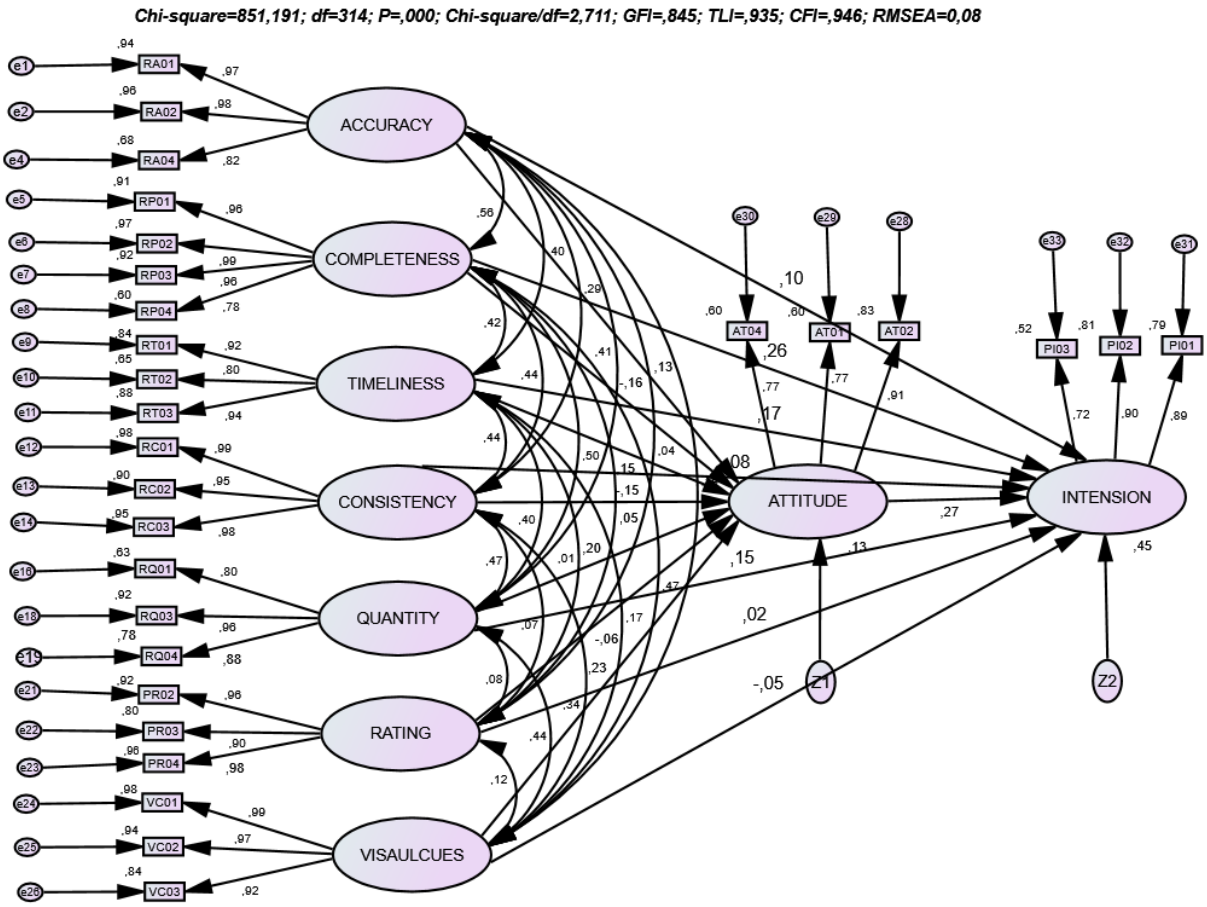
Source. Data analysis result of the research

4.4. Hypotheses testing by SEM

Structural Equation Modeling (SEM) technique was applied to evaluate eight proposed hypotheses in the research model. The SEM results exhibited that the model achieved a good fit: Chi-square = 851.191; df = 314; p-value = 0.000; CMIN/df = 2.711; GFI = 0.845; TLI = 0.935; CFI = 0.946; RMSEA = 0.08 (see Figure 4). Estimated results in Table 3 indicated that nine out of fifteen hypotheses were statistically significant and supported with p-value < 0.05. In other words, OCR Accuracy, Timeliness, Quantity, Visual cues impacted Consumer Attitude toward fresh food shopping via Apps, and Attitude sequentially influenced purchase intention at the significant level of 0.05 in which OCR Quantity had the strongest impact with β = 0.180, next is Visual cues and Timeliness with β = 0.159 and 0.150. Furthermore, OCR Accuracy, Completeness, Timeliness, and Quantity had a significant impact on purchase intention in which OCR timeliness had the strongest influence with β = 0.104. This research also conducted the durability and reliability of standardized estimates in the research model by bootstrapping with the repeated sample N = 2,000 (Efron & Tibshirani, 1993). The results indicated that although there was bias, it was not so high and acceptable (from -0.003 to 0.003), and the CR was also less than 1.96. Therefore, it could be concluded that the estimates were reliable.

Figure 4

SEM Analysis Result (Standardized)



Source. Data analysis result of the research

Table 3

Results of Hypotheses Testing

Relationship	Est.	S. E	CR	P	Hypothese
Attitude ← Accuracy	0.087	0.044	1.965	0.049	H1: Supported
Attitude ← Completeness	-0.069	0.043	-1.599	0.110	H2: Rejected
Attitude ← Timeliness	0.150	0.065	2.289	0.022	H3: Supported
Attitude ← Consistency	-0.076	0.037	-2.053	0.040	H4: Rejected
Attitude ← Quantity	0.180	0.069	2.596	0.009	H5: Supported
Attitude ← Rating	-0.058	0.051	-1.133	0.257	H6: Rejected
Attitude ← Visual cues	0.159	0.051	3.109	0.002	H7: Supported
Purchase Intension ← Accuracy	0.041	0.025	1.644	0.001	H8: Supported
Purchase Intension ← Completeness	0.091	0.025	3.672	****	H9: Supported
Purchase Intension ← Timeliness	0.104	0.037	2.837	0.005	H10: Supported
Purchase Intension ← Consistency	0.026	0.020	1.291	0.197	H11: Rejected
Purchase Intension ← Quantity	0.089	0.039	2.300	0.021	H12: Supported
Purchase Intension ← Rating	0.011	0.028	0.380	0.704	H13: Rejected
Purchase Intension ← Visual cues	-0.022	0.029	-0.769	0.442	H14: Rejected
Purchase Intention ← Attitude	0.284	0.046	6.233	****	H15: Supported

Source. Data analysis result of the research

4.5. Mediating analysis

Since H2, H4, and H6 were rejected, the attitude did not play a mediating role in the relationship between OCR Completeness, Consistency, and Rating with Purchase Intension. It implied that the hypotheses H16b, H16d, and H16f were rejected. The mediating analysis results on Table 4 showed that Attitude fully mediated the relationship between Visual cues with Purchase Intension since the direct relationship between Visual Cues and Purchase Intension was not significant (P-value = 0.468 greater than 0.05). However, Attitude exhibited partially mediating role in the relationship between Accurancy, Timeliness, and Quantity with Intension since the direct effect was significant. The finding also indicated that with the contribution of the mediating variable of Attitude, the effect of Accuracy, Timeliness, Quantity, and Visual cues on purchase intension raised from 0.102 to 0.137; 0.174 to 0.215; 0.152 to 0.205, and -0.046 to 0.016. Therefore, it also concluded that the hypotheses H16a, H16c, H16e and H16g were supported.

Table 4

Mediating Analysis Results

Dependent variable	Attitude		Intension (Direct effect)		Intension (Indirect effect)		Total effect	Hypothesis
Independent	Beta	P-value	Beta	P-value	Beta	P-value	Beta	
Accurancy	0.132	0.039	0.102	0.002	0.035	0.020	0.137	H16a – S
Completeness	**-0.069**	**0.110**	0.091	***				**H16b – R**
Timeliness	0.153	0.070(*)	0.174	0.010	0.041	0.049	0.215	H16c – S
Consistency	**-0.076**	**0.040**	0.026	0.197				**H16d – R**
Quantity	0.197	0.045	0.152	0.093(*)	0.053	0.023	0.205	H16e – S
Rating	**-0.058**	**0.257**	0.011	0.704				**H16f – R**
Visual cues	0.231	0.004	-0.046	**0.468**	0.062	0.001	0.016	H16g - S
Attitude			0.268	0.001				

Source. Data analysis result of the research

4.6. Result discussion

This study used ELM as the theoretical framework to investigate the influence of specific information cues derived from online consumer reviews, including 04 central route dimensions (accuracy, completeness, timeliness, consistency) and 03 peripheral route dimensions (quantity, ratings, visual cues) on the mediator (consumer attitude toward fresh food shopping via App) and afterward on the dependent construct (purchase intension). The measurement scales of these variables were inherited from previous research and adjusted to meet the online shopping context in Vietnam. Although the research result generally supported the effects of these cues on consumer attitude and purchase intention, it was revealed that the rating of online reviews did not affect consumer attitude and intention as previously assumed. Particularly, review accuracy, timeliness and quantity not only had significant impact on attitude but also on purchase intension. This implies that consumers feel secure using online Apps to purchase if products/services have a large number of reviews and these reviews are updated and accurate. These results are consistent with the previous research of Thomas et al. (2019) and Gao et al. (2021). The finding of the rating makes us a bit surprising but it is explained that, at present, there are so many fake ratings made by the shop itself that confuse consumers. Thus, consumers do not often look at the rating to make a purchase decision. Furthermore, although information completeness did not have a significant relationship with attitude but it was found to impact purchase intention. This finding is also the same as the previous studies of Yang (2018), Thomas et al. (2019).

Moreover, contrary to the proposed hypotheses, consistency negatively influenced attitude and did not significantly affect on purchase intention. Assumed that continuous positive reviews may be created by online shops to deceive customers. Thus, consumers are very careful with such reviews. Lastly, the study found that attitude fully mediated the effect of visual cues on purchase intention, while partially mediating the relationship of OCR accuracy, timeliness, and quantity with purchase intention. Based on the above findings, the study has tried to contribute to marketing literature as well as to provide managers with a new outlook for e-

commerce strategies. The management should cooperate with reputable brands, and invest in logistics systems to ensure fresh and good quality foods for consumers. Furthermore, customer care should be enhanced to have good interaction with consumers and encourage them to give out more online positive reviews.

5. Managerial implications and limitations

5.1. Managerial implications

Based on the research findings, some managerial implications are suggested as follows:

Firstly, it's clear that nowadays most consumers rely on the accuracy of reviews for online shopping decisions, but fake information has made them more cautious. This has significantly impacted their willingness to buy fresh food on Apps. Therefore, marketers should consider creating a team that can interact with consumers and respond to their questions as quickly as possible. Moreover, sellers must ensure that all product descriptions are accurate and reliable to build customer trust.

Secondly, the timeliness of the information demonstrated through continuous comments will give customers peace of mind, and the food they buy will be fresh. Fresh food is a typical product, so to avoid hesitation and doubt, additionally customers to give positive comments, sellers must also ensure transportation from the place of sale to consumers must achieve the best quality. Attracting customers with quality will create positive reviews and build a good reputation for the brand most naturally.

Thirdly, OCR quantity is also a significant factor that influences consumer attitude and intention. In the fast-paced city, people prefer to buy food as conveniently and quickly as possible. They don't tend to compare too much information but rely on the quantity of the product's reviews to make a purchase decision instead. Therefore, the marketer should stimulate consumers to leave feedback as much as possible and respond to queries and issues as soon as possible. The large number of reviews will make consumers think that this product has many orders and then increase their purchasing intention.

Fourthly, visual cues like pictures and brief video clips of advertised products have a significant influence on consumer attitude and purchase intention. This suggests that marketers must encourage their customers to provide reviews with accompanying images or video clips of the product. Additionally, the seller must exercise caution when describing the products and ensure that the introductory images or video clips are authentic and not copied from other sources. This is one of the ways sellers can demonstrate their respect for customers, resulting in a positive experience for new customers and enhancing consumer's purchase intention.

Fifthly, attitudes can take various forms and are often context-dependent. However, when it comes to online reviews, attitudes hold a considerable influence over consumer shopping behavior. Therefore, brands must prioritize creating a positive attitude among their consumers by taking care of customer feelings, which can nurture positive attitudes and increase consumers' purchase intentions.

Contrary to the hypothesis, completeness, ratings, and consistency do not affect the consumer attitude toward purchasing fresh food via mobile Apps. Duplicate reviews, similar words, images, and information, or too many reviews praising the same product may be considered unreliable. This reduces the authenticity of product descriptions and can reduce customer trust. Hence, sellers should avoid creating fake reviews to increase brand interaction, which can have the opposite effect on customer psychology.

Besides, maintaining fresh food quality from sales to delivery and improving the Apps for customers is crucial. Therefore, application developers should create conditions for consumers to make their comments as simple and easy as possible. Brands should take care of customer feelings to increase consumers' positive attitudes and purchasing intentions by creating an App or a website that provides easy-to-use food reviews to attract customers from diverse platforms, where customers can contribute by leaving comments about the products. This method of communication is vital for managers and marketers to receive feedback during the pre-and post-purchase stages, which can help them understand customers better.

5.2. Limitations and further research

Firstly, the data collected for the study is only used for the emerging market in Ho Chi Minh City, others have been excluded. This limitation makes it difficult to apply the study results to other research contexts, and the findings may not be representative of the population of the whole country. Secondly, data was collected using the convenience sampling method, which may affect the generalizability of the research results. Therefore, it is recommended that future studies expand this topic to other regions and apply more diverse survey methods and samples to ensure a more comprehensive understanding of consumer behavior. Thirdly, the effects of online reviews are mostly found positive, future studies should consider the negative effects of fake information and reviews on actual shopping behavior. Finally, future studies can add more relevant variables to explore the mediating role of emotional trust in purchase intention.

References

Abedi, E., Ghorbanzadeh, D., & Rahehagh, A. (2019). Influence of eWOM information on consumers' behavioral intentions in mobile social networks. *Journal of Advances in Management Research, 17*(1), 84-109. https://doi.org/10.1108/JAMR-04-2019-0058

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology, 2*(1), 27-58. https://doi.org/10.1146/annurev.psych.52.1.27

Babić, A., Sotgiu, F., de Valck, K., & Bijmolt, T. (2016). The effect of electronic word of mouth on sales: A meta-analytic review of platform, product, and metric factors. *Journal of Marketing Research, 53*(3), 3-16. https://doi.org/10.1509/jmr.14.0380

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*, 74-94.

Bilal, M., Jianqiu, Z., Dukhaykh, S., Fan, M., & Trunk, A. (2021). Understanding the effects of eWOM antecedents on online purchase intention in China. *Information, 12*(5), 1-15. https://doi.org/10.3390/info12050192

Blair, J. A. (2012). The possibility and actuality of visual arguments. *Groundwork in the Theory of Argumentation: Selected Papers of J. Anthony Blair*, 205-223.

Brand, B., Kopplin, C. S., & Rausch, T. M. (2022). Cultural differences in processing online customer reviews: Holistic versus analytic thinkers. *Electronic Markets, 32*(3), 1039-1060. https://doi.org/10.1007/s12525-022-00543-1

Chakraborty, U., & Bhat, S. (2018). Credibility of online reviews and its impact on brand image. *Management Research Review, 41*(1), 148-164. https://doi.org/10.1108/MRR-06-2017-0173

Chen , H. S., Liang, C. H., Liao, S. Y., & Kuo, H. Y. (2020). Consumer attitudes and purchase intentions toward food delivery platform services. *Sustainability, 12*(23), 1-18. https://doi.org/10.3390/su122310177

Chen, Z., & Berger, J. (2016). How content acquisition method affects word of mouth. *Journal of Consumer Research, 43*(1), 86-102. https://doi.org/10.1093/jcr/ucw001

Cheong, J., Muthaly, S., Kuppusamy, M., & Han, C. (2020). The study of online reviews and its relationship to online purchase intention for electronic products among the millennials in Malaysia. *Asia Pacific Journal of Marketing and Logistics, 32*(7), 1519-1538. https://doi.org/10.1108/APJML-03-2019-0192

Cheung, C. M., Lee, M. K., & Rabjohn, N. (2008). The impact of electronic word-of-mouth: The adoption of online opinions in online customer communities. *Internet Research, 18*(3), 229-247. https://doi.org/10.1108/10662240810883290

Cheung, C. M. Y., Sia, C. L., & Kuan, K. K. (2012). Is this review believable? A study of factors affecting the credibility of online consumer reviews from an ELM perspective. *Journal of the Association for Information Systems, 13*(8), 618-635. https://doi.org/10.17705/1jais.00305

Cheung, M. Y., Luo, C., Sia, L. C., & Chen, H. (2009). Credibility of electronic word-of-mouth: Informational and normative determinants of online consumer recommendations. *International Journal of Electronic Commerce, 12*(4), 9-38. https://doi.org/10.2753/JEC1086-4415130402

Chin, P., Isa, S., & Alodin, Y. (2020). The impact of endorser and brand credibility on consumers' purchase intention: The mediating effect of attitude towards brand and brand credibility. *Journal of Marketing Communications, 26*(8), 896-912. https://doi.org/10.1080/13527266.2019.1604561

Cialdini, R. B., Petty, R. E., & Cacioppo, J. T. (1981). Attitude and attitude change. *Annual Review of Psychology, 32*(1), 357-404. https://doi.org/10.1146/annurev.ps.32.020181.002041

De Pelsmacker, P., Dens, N., & Kolomiiets, A. (2018). The impact of text valence, star rating and rated usefulness in online reviews. *International Journal of Advertising, 37*(3), 340-359. https://doi.org/10.1080/02650487.2018.1424792

Dhir, A., Sadiq, M., Talwar, S., Sakashita, M., & Kaur, P. (2021). Why do retail consumers buy green apparel? A knowledge-attitude-behaviour-context perspective. *Journal of Retailing and Consumer Services, 59*, 1-11. https://doi.org/10.1016/j.jretconser.2020.102398

Efron, B., & Tibshirani, R. J. (1993). An introduction to the bootstrap. *Monographs on Statistics and Applied Probability, 57*(1), 1-436.

Elwalda, A., & Lu, K. (2016). The impact of Online Customer Reviews (OCRs) on customers' purchase decisions: An exploration of the main dimensions of OCRs. *Journal of Customer Behaviour, 15*(2), 123-152. https://doi.org/10.1362/147539216x14594362873695

Erkan, I., & Elwalda, A. (2018). Your comments are important to me! The impacts of online customer reviews in shopping websites. *International Journal of Internet Marketing and Advertising, 12*(1), 1-18. https://doi.org/10.1504/IJIMA.2018.089200

Feldmann, C., & Hamm, U. (2015). Consumers' perceptions and preferences for local food: A review. *Food Quality and Preference, 40*, 152-164. https://doi.org/10.1016/j.foodqual.2014.09.014

Filieri, R., & McLeay, F. (2013). E-WOM and accommodation: An analysis of the factors that influence travelers' adoption of information from online reviews. *Journal of Travel Research, 53*(1), 44-57. https://doi.org/10.1177/0047287513481274

Filieri, R., Hofacker, C. F., & Alguezaui, S. (2017). What makes information in online consumer reviews diagnostic over time? The role of review relevancy, factuality, currency, source credibility and ranking score. *Computers in Human Behavior, 80,* 122-131. https://doi.org/10.1016/j.chb.2017.10.039

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.

Gao, X., Xu, X. Y., Tayyab, S., & Li, Q. (2021). How the live streaming commerce viewers process the persuasive message: An ELM perspective and the moderating effect of mindfulness. *Electronic Commerce Research and Applications, 49*, 1-11. https://doi.org/10.1016/j.elerap.2021.101087

Gunden, N., Morosan, C., & DeFranco, A. (2020). Are online food delivery systems persuasive? The impact of pictures and calorie information on consumer behavior. *Journal of Hospitality and Tourism, 4*(4), 457-472. https://doi.org/10.1108/JHTI-07-2020-0127

Guyer, J., Briñol, P., Petty, R., & Horcajo, J. (2019). Nonverbal behavior of persuasive sources: A multiple process analysis. *Journal of Nonverbal Behavior, 43*, 203-231. https://doi.org/10.1007/s10919-018-00291-x

Hair, J. F., Wolfinbarger, M. F., Ortinau, D. J., & Bush, R. P. (2010). *Essentials of marketing research*. McGraw-Hill Press.

Joreskog, K. G., & Van Thillo, M. (1971). *New rapid algorithms for factor analysis by unweighted least squares, generalized least squares and maximum likelihood.* https://files.eric.ed.gov/fulltext/ED054228.pdf

Kang, J. W., & Namkung, Y. (2019). The information quality and source credibility matter in customers' evaluation toward food O_2O commerce. *International Journal of Hospitality Management, 78*, 189-198. https://doi.org/10.1016/j.ijhm.2018.10.011

Keller, E. (2007). Unleashing the power of word of mouth: Creating brand advocacy to drive growth. *Journal of Advertising Research*, *47*(4), 448-452. https://doi.org/10.2501/S0021849907070468

Kemp, S. (2021). *Digital 2021: Vietnam*. Datareportal. https://datareportal.com/ reports/digital-2021-vietnam?rq=digital%202021%20vietnam

Lazard, A., Mackert, M., Bock, M., Love, B., Dudo, A., & Atkinson, L. (2018). Visual assertions: Effects of photo manipulation and dual processing for food advertisements. *Visual Communication Quarterly, 25*(1), 16-30. https://doi.org/10.1080/15551393.2017.1417047

Lee, J., & Lee, J. N. (2013). How purchase intention consummates purchase behaviour: The stochastic nature of product valuation in electronic commerce. *Behaviour & Information Technology, 34*(1), 57-68. https://doi.org/10.1080/0144929X.2013.853837

Licata, R. (2022). *Why online reviews are important for customers & businesses*. Terakeet. https://terakeet.com/blog/online-reviews/

Lin, T., Lu, K. Y., & Wu, J. J. (2012). The effects of visual information in eWOM communication. *Journal of Research in Interactive Marketing, 6*(1), 7-26. https://doi.org/10.1108/17505931211241341

López, M., & Sicilia, M. (2014). Determinants of E-WOM influence: The role of consumers' Internet experience. *Journal of Theoretical and Applied Electronic Commerce Research, 9*(1), 7-8. https://doi.org/10.4067/S0718-18762014000100004

Majali, T., Alsoud, M., Yaseen, H., Almajali, R., & Barkat, S. (2022). The effect of digital review credibility on Jordanian online purchase intention. *International Journal of Data and Network Science, 6*(3), 973-982. https://doi.org/10.5267/j.ijdns.2022.1.014

Marquart, F., & Naderer, B. (2016). *Communication and persuasion: Central and peripheral routes to attitude change.* Springer Press.

Meng, B., & Choi, K. (2019). Tourists' intention to use Location-Based Services (LBS): Converging the Theory of Planned Behavior (TPB) and the Elaboration Likelihood Model (ELM). *International Journal of Contemporary Hospitality Management, 31*(8), 3097-3115. https://doi.org/10.1108/IJCHM-09-2018-0734

Ministry of Industry and Trade. (2022). *Báo cáo chỉ số thương mại điện tử Việt Nam 2022* [Vietnam e-commerce index report 2022]. https://vecom.vn/bao-cao-chi-so-thuong-mai-dien-tu-viet-nam-2022

Mumuni, A. G., O'Reilly, K., MacMillan, A., Cowley, S., & Kelley, B. (2020). Online product review impact: The relative effects of review credibility and review relevance. *Journal of Internet Commerce, 19*(2), 153-191.

Murphy, R. (2019). *Local-consumer-review-survey-2019*. BrightLocal. https://www.brightlocal.com/

Nan, G., Yang, J., & Dou, R. (2017). Do only review characteristics affect consumers' online behaviors? A study of relationship between reviews. *Journal of Electronic Commerce Research, 18*(4), 330-345.

Nielsen. (2015). *Global trust in advertising.* The Nielsen Company. https://www.nielsen.com/us/en/insights/report/2015/global-trust-in-advertising-2015/#

Nunnally, J. C. (1978). An overview of psychological measurement. In *Clinical diagnosis of mental disorders: A handbook* (pp. 97-146). Springer Press.

Park, D. H., & Kim, S. (2008). The effects of consumer knowledge on message processing of electronic word-of-mouth via online consumer reviews. *Electronic Commerce Research and Applications, 7*(4), 399-410. https://doi.org/10.1016/j.elerap.2007.12.001

Park, D. H., Lee, J., & Han, I. (2007). The effect of on-line consumer reviews on consumer purchasing intention: The moderating. *International Journal of Electronic Commerce, 11*(4), 125-148. https://doi.org/10.2307/27751234

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In R. E. Petty & J. T. Cacioppo (Eds.), *Communication and persuasion* (pp. 1-24). Springer.

Petty, R. E., & Cacioppo, J. T. (2012). Attitude-behavior link. In R. E. Petty & J. T. Cacioppo (Eds.), *Communication and persuasion: Central and peripheral routes to attitude change* (pp. 185-195). Springer Science & Business Media.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Pop, R. A., Hlédik, E., & Dabija, D. C. (2023). Predicting consumers' purchase intention through fast fashion mobile apps: The mediating role of attitude and the moderating role of Covid-19. *Technological Forecasting and Social Change, 186*, 1-17. https://doi.org/10.1016/j.techfore.2022.122111

Q&Me. (2020). *Vietnam mobile Apps popularity 2020*. Ho Chi Minh: Q&Me Vietnam Market Research. https://qandme.net/en/report/vietnam-mobile-app-popularity-2020.html

Rasty, F., Chou, C. J., & Feiz, D. (2013). The impact of Internet travel advertising design, tourists' attitude, and internet travel advertising effect on tourists' purchase intention: The moderating role of involvement. *Journal of Travel & Tourism Marketing, 30*(5), 482-496. https://doi.org/10.1080/10548408.2013.803394

Roger, E. M. (1995). *Diffusion of innovations* (4th ed.). Free Press.

Sen, S., & Lerman, D. (2007). Why are you telling me this? An examination into negative consumer reviews on the web. *Journal of Interactive Marketing, 21*(4), 76-94. https://doi.org/10.1002/dir.20090

Shin, S. Y., Van Der Heide, B., Beyea, D., Dai, Y., & Prchal, B. (2017). Investigating moderating roles of goals, reviewer similarity, and self-disclosure on the effect of argument quality of online consumer reviews on attitude formation. *Computers in Human Behavior, 76*, 218-226. https://doi.org/10.1016/j.chb.2017.07.024

Sung, H., Kim, H., & Cho, M. (2020). How can TV food programs be used as an effective restaurant marketing tool? An extension of ELM with perceived risk. *Sustainability, 12*(17), 1-17. https://doi.org/10.3390/su12177131

Tandon, A., Dhir, A., Kaur, P., Kushwah, S., & Salo, J. (2020). Behavioral reasoning perspectives on organic food purchase. *Appetite, 154*, 1-12. https://doi.org/10.1016/j.appet.2020.104786

Teng, S., Khong, K. W., Chong, A. Y. L., & Lin, B. (2016). Examining the impacts of electronic word-of-mouth message on consumers' attitude. *Journal of Computer Information Systems, 57*(3), 238-251. https://doi.org/10.1080/08874417.2016.1184012

Teng, S., Khong, K., & Goh, W. (2014). Conceptualizing persuasive messages using ELM in social media. *Journal of Internet Commerce, 13*(1), 65-87. https://doi.org/10.1080/15332861.2014.910729

Thakur, R. (2017). Customer engagement and online reviews. *Journal of Retailing and Consumer Services, 41*, 48-59. https://doi.org/10.1016/j.jretconser.2017.11.002

Thomas, M. J., Wirtz, B., & Weyerer, J. (2019). Determinants of online review credibility and its impact on consumers' purchase intention. *Journal of Electronic Commerce Research, 20*(1), 1-20.

Vahdat, A., Alizadeh, A., Quach, S., & Hamelin, N. (2020). Would you like to shop via mobile Apps technology? The technology acceptance model, social factors and purchase intention. *Australasian Marketing Journal, 29*(2), 187-197. https://doi.org/10.1016/j.ausmj.2020.01.002

Wang, S., Kao, G. H. Y., & Ngamsiriudom, W. (2017). Consumers' attitude of endorser credibility, brand and intention with respect to celebrity endorsement of the airline sector. *Journal of Air Transport Management, 60*, 10-17. https://doi.org/10.1016/j.jairtraman.2016.12.007

Wang, X., Ming, M., & Zhang, Y. (2020). Are "people" or "animals" more attractive? Anthropomorphic images in green-product advertising. *Journal of Cleaner Production, 276*, 1-12.

Xu, X., & Huang, Y. (2019). Restaurant information cues, diners' expectations, and need for cognition: Experimental studies of online-to-offline mobile food ordering. *Journal of Retailing and Consumer Services, 51,* 231-241. https://doi.org/10.1016/j.jretconser.2019.06.010

Yang, X. (2018). Influence of informational factors on purchase intention in social recommender systems. *Online Information Review, 44*(2), 417-431. https://doi.org/10.1108/OIR-12-2016-0360

ZEBRA. (2022). *The world has changed - Have retailers?* https://www.zebra.com/content/dam/zebra_dam/en/reports/vision-study/retail-shopper-report-vision-study-2023-en-us.pdf

Zhai, L., Yin, P., Li, C., Wang, J., & Yang, M. (2022). Investigating the effects of video-based e-word-of-mouth on consumers' purchase intention: The moderating role of involvement. *Sustainability, 14*(15), 1-19. https://doi.org/10.3390/su14159522

Zhao, Y., Wang, L., Tang, H., & Zhang, Y. (2020). Electronic word-of-mouth and consumer purchase intentions in social e-commerce. *Electronic Commerce Research and Applications, 41,* 1-15. https://doi.org/10.1016/j.elerap.2020.100980

Zhu, D., Ye, Z., & Chang, Y. (2017). Understanding the textual content of online customer reviews in B2C websites: A cross-cultural comparison between the U.S. and China. *Computers in Human Behavior, 76*, 483-493. https://doi.org/10.1016/j.chb.2017.07.045