# What motivates consumers' continued usage intentions of food delivery applications in post-COVID-19 outbreak? Comparing Generations X, Y and Z

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**Abstract**

**Purpose** – *Food delivery applications (FDAs) are becoming more and more well-liked across Generations X, Y and Z, with Asia experiencing the biggest growth. These three generations of consumers have distinct views toward using FDAs because they were influenced by various social environments, cultures and experiences. Therefore, marketers ought to present customers with various values. The purpose of this study is to investigate how the theory of consumption values (TCV) affects the intention of various generational cohorts to continued usage intentions.*

**Design/methodology/approach** – *Online surveys were distributed to 745 Thai customers who had previously ordered meals from FDAs to collect information. The data were analyzed using partial least squares structural equation modeling and multigroup analysis.*

**Findings** – *Results reveal that there are significant differences among Generations X, Y and Z, while emotional value is insignificant. Generation X is concerned about functional and conditional value, whereas Generation Y expresses the highest concern on epistemic and social value. Meanwhile, Generation Z pays attention to epistemic, functional and social value.*

**Originality/value** – *The novelty of this study contributes to TCV affecting the different FDAs consumption value among Generations X, Y and Z, while the previous research only focused on gender and age difference, and this study firstly combines FDAs with TCV to predict the consumers' intention to continuously use FDAs in the post-COVID-19 outbreak.*

**Keywords** *Consumption values, Food delivery applications, Generation cohort, Market segmentation, Multigroup analysis*

**Paper type** *Research paper*

## 1. Introduction

The COVID-19 pandemic has increased the company's demand for digital transformation. Even traditional businesses are now somewhat compelled to conduct business online (Kumar and Shah, 2021). Particularly, in the restaurant business, it changed consumer habits and contributed to the rapid transformation into online services for survival from the outbreak (Silva *et al.*, 2022). To keep afloat or take advantage of the digital platform, new companies have initiated the food delivery applications (FDAs) business (Kumar and Shah, 2021). FDA implementation has met consumer needs for convenient food services and personal cleanliness in addition to commercial requirements for businesses (Silva *et al.*, 2022). These applications make an easy way to order food and drinks from various restaurants without having to go to the restaurant, help the consumers conveniently see listed restaurants, menus, track the status of orders, find out interesting promotion, find the nearest restaurant, ratings, make online payment and check order statuses without physical

contact with restaurants (Burlea-Schiopoiu *et al.*, 2022). Moreover, FDAs have also offered more opportunities for different restaurant business operators, including street food and local food vendors, to earn more income and attract new groups of customers (Chotigo and Kadono, 2021). FDAs have emerged as a global trend. A segment of mobile applications with high growth rates includes this one (Silva *et al.*, 2022). According to Statista (2022a), the global market for meal delivery was around US$130.2bn in 2022 and was projected to reach US$223.7bn by 2027. Asia accounted for 44% of all finalized deals worldwide for online food and meal delivery in the third quarter of 2022. With about 31% of the deals, the USA came in second, while 17% were in Europe (Statista, 2023a, 2023b). One of the Southeast Asian industries with the highest growth rates is online meal delivery in Thailand (Sirikeratikul, 2020). When things return to normal, a huge worry is that consumers will continue to hang out and eat out. Consumer behavior of using FDAs during outbreaks will probably change either in a positive or negative way and that might affect the restaurants or food service providers significantly. Thus, the restaurants and FDA providers should be well-prepared. Nevertheless, prior studies explore the factors affecting the adoption intentions to FDAs (Ali *et al.*, 2021), intention to use FDAs (Chotigo and Kadono, 2021), customer satisfaction with FDAs (Bunarunraksa and Nuangjamnong, 2022), during the COVID-19 crisis period. There are a few research on the intention to continue using FDAs after the COVID-19 pandemic. This study tries to bridge that gap in primary research. In addition, there have been significant conceptual gaps about FDAs in the past.

The existing studies primarily focus on the application of technology acceptance, such as the unified theory of acceptance and use of technology (UTAUT) (Okumus *et al.*, 2018), the technology acceptance model (Prabowo and Nugroho, 2019), and extended technology acceptance model (Lee *et al.*, 2017). Few research have used any important theories of consumer behavior to investigate how customers react to FDAs. For instance, Ray *et al.* (2019) used the uses and gratifications theory to examine how customers behaved toward FDAs. Similar to this, Kaur *et al.* (2020) investigated customer opposition to using FDAs. The lack of comprehensive consumer behavior research restricts the knowledge offered to practitioners and researchers because the majority of results provided so far only touch on the technological aspects of FDAs. However, a number of academics have used the theory of consumption values (TCV) to explain consumer choice behavior. Nevertheless, few findings have demonstrated the values influencing the use of the FDAs (Kaur *et al.*, 2021). TCV encourages comprehension of how consumers select a particular product from a range of goods and brands and decide whether to buy it or not (Sheth *et al.*, 1991). This theory might have been applied to the online setting to learn more about how much value consumers place on digital products and services, especially how social media can improve brand experiences (Mäntymäki and Salo, 2015). TCV is a well-established and widely used theoretical framework used to study the nuances of purchase intention among consumers (Choe and Kim, 2019; Talwar *et al.*, 2020) and continuous intentions (Dhir *et al.*, 2020). TCV includes both cognitive and affective aspects of consumption and creates a multidimensional and holistic understanding of associated values (Tandon *et al.*, 2021).

Second, not all facets of the hypothesis have been covered in prior research on TCV in the context of FDAs. The scale is made up of five parts: functional, social, emotional, conditional and epistemic value (Sheth *et al.*, 1991). In the study of Wahyuningsih *et al.* (2022), TCV is used to examine customer satisfaction and online word of mouth regarding FDAs while combining all five components into one measure, namely, consumer value. This study's findings only offer broad conclusions; they do not, however, adequately explain how functional, social, emotional, conditional and epistemic values relate to FDAs. In addition, Tandon *et al.* (2021) predicted customers' purchase intent for FDAs by examining functional, social and conditional values. However, they have not looked at the aspect of emotional and epistemic values. To assess customers' intention to continually buy food via mobile applications in the post-COVID-19 outbreak, the current study applies the TCV to cover research gaps. The following are the three research questions (RQs) for this study:

*RQ1*. Which five consumption values influence consumers' intention to continuously use food delivery applications in the post-COVID-19 outbreak?

Third, consumers are worried and afraid of the spread of disease during the COVID-19 situation, so food delivery services are an option to alleviate such concerns because there is a wide variety of food menus, as well as providing convenience, helping alleviate the hassle of going out to find food and drink, saving travel time and ensuring hygienic safety. During the outbreak of the virus, this kind of consumer behavior is clearly more prevalent. Nevertheless, there is an important question whether consumer behavior in using the FDAs will change once the situation returns to normal. It is likely that travel and in-store dining restrictions will continue to ease within the next five years. This should result in substantial growth in the food and travel related industries, so it is a doubt whether consumers will continue to use the FDAs. Although many consumers are currently using FDA services, it cannot be confirmed that they will continue to use them in the long term (Yap and Lee, 2023). Moreover, there are less consumers who want to use the same mobile applications repeatedly than application developers expected (Lee and Kim, 2019). Another important thing is the long-term sustainability of the industry's significant digital transformation. It is necessary that businesses ensure that FDAs, which help mediate between restaurants and consumers, will continue to be used after the end of the COVID-19 pandemic (Kumar and Shah, 2021).

Moreover, few past studies have focused on factors influencing the continued use of FDAs across generations (Zhao and Bacao, 2020), especially in the post-COVID period. Age segmentation is a very useful tool for marketers (Thompson *et al.*, 2018). Considering the diversity of consumer demographics, it is difficult to satisfy all customers with just one service or product (Dolnicar *et al.*, 2018). Because each generation has different lifestyle preferences, targeting consumers therefore requires understanding the values and motivations of different generations (Rahulan *et al.*, 2015). Each generation of consumers is shaped by different social environments, cultures and experiences. Therefore, they have different attitudes toward purchasing products or services. Marketers are required to provide them with different offers, customer experience and business models. The mass market segmentation is primarily classified into generation because each generation born and grown up in the same time period will go through the same experiences and milestones. As a result, people with similar social and cultural experiences are more likely to have similar sets of values, attitudes and behaviors (Kotler *et al.*, 2021). Most past studies have suggested a link between the overall consumption value structure, without making comparisons between consumers in each generation. The market segmentation theory asserts that specific strategies are needed for each type of consumer (Zhou *et al.*, 2020). In addition, researchers have previously used cohorts to examine generational differences in consumer behaviors, such as purchasing (Schade *et al.*, 2016), online shopping (Brand *et al.*, 2022), branding (Gentina *et al.*, 2016) and online food purchasing behavior during the COVID-19 pandemic for Generations X, Y and Z (Wahyuningsih *et al.*, 2022); however, those studies did not explore the intentions of Generations X, Y and Z to continue using FDA services after the COVID-19 pandemic. This research was therefore conducted with the aim of filling this gap.

Finally, the study's findings are summarized in Kaur *et al.* (2021), who investigated the impact of gender and age on the link between TCV and purchase intention in relation to FDAs, which has divided consumers into two groups, namely, young users and old users, but did not study consumers in each generation. In addition, Wahyuningsih *et al.* (2022) conducted a comparative study of Generations X, Y and Z consumers who use online applications to purchase food from restaurants; that study proposed a model based on TCV. The differences between three generations were tested using analysis of variance (ANOVA) statistics, and the mean was compared to test how consumers across the three generations had different opinions toward various aspects of TCV. In this regard, ANOVA

and the mean value calculation do not estimate causal–predictive relations. Due to the aforementioned research gap, the differences were compared using a multigroup analysis (MGA) technique with more than two groups (Henseler *et al.*, 2009). This test combines the permutation and bootstrapping approaches to produce a criterion that is similar to the overall *F*-test. For assessing more than two groups, this method can be compared to ANOVA *F*-test while maintaining the familywise error rate and offering the necessary statistical power without relying on distribution assumptions (Cheah *et al.*, 2023). The current study compares the moderating impacts of different generations in an effort to close research gaps. The following is a description of the RQs.

*RQ2*. What are the differences in relationship between TCV and consumers' intention to continuously use food delivery applications in the post-COVID-19 outbreak among Generations X, Y and Z?

## 2. Literature review

### *2.1 Theory of consumption values*

Sheth *et al.*'s (1991) multifaceted theoretical framework revealed the generic consumption values theory, which explains why consumers pick one product or brand over another and why they buy or use a particular product. There are five different types of consumption values that affect consumer behavior: functional, social, emotional, conditional and epistemic values.

*2.1.1 Functional value.* Functional value is defined as the advantage felt or attained from a situation's functional, practical and physical performance (Sheth *et al.*, 1991). Functional value takes into account a product's performance, reliability, soundness and price benefits. Consumers' rational buying behaviors and preferred products are primarily influenced by price, quality and value (Candan *et al.*, 2013). According to utility theory, when consumers make a purchase decision, they always try to maximize their purchase utility, which is derived from the comparison between the benefit of the product and the cost incurred (Rizkalla and Setiadi, 2020). In the context of FDAs, functional value defined as the benefits and value for money, which FDA consumes perceived that they can ordering food at a reasonable price.

*2.1.2 Social value.* The benefit that is perceived and acquired by one or more social groupings is referred to as social value. Through affiliation with stereotypical demographic, socioeconomic and cultural-ethnic groups, an alternative might gain social significance. In other words, goods that encourage social interaction among users or improve their social standing have higher social values. On the basis of a profile of chosen imagery, social value is assessed (Sheth *et al.*, 1991). According to Wang *et al.* (2020), consumers typically gauge social value based on a product or service's association with and relevance to their social group. This pertains to the perceived social status increase that consumers experience when using FDAs in the context of the current study (Talwar *et al.*, 2020), as well as the improvement in self-image that consumers experience in their social contexts as a result of using FDAs to order food (Kaur *et al.*, 2021).

*2.1.3 Emotional value.* The emotional value is defined as the perceived utility acquired from an alternative's capacity to arouse feelings or affective states (Sheth *et al.*, 1991). Emotions are characterized as feelings or emotional reactions to elements such as situations, things, commercials and brands in the context of consumer behaviors. The advantage derived from the emotional and sensual state is known as emotional value. This value is connected to how consumers react to a product (Candan *et al.*, 2013). Products and services are frequently linked to strong emotions (such as the romance sparked by a candlelit supper or the dread sparked by a scary movie) (Sheth *et al.*, 1991). This study defined emotional value as a product's ability to elicit emotions or affective states in the ordering via FDAs.

*2.1.4 Conditional value.* The perceived utility gained by an option as a result of the particular circumstance or conditions facing the decision-maker is referred to as the conditional value of an option. When physical or social conditions exist that increase an option's functional or social worth, it gains conditional value. On a profile of desirable contingencies, conditional value is evaluated. The usefulness of a choice frequently depends on the circumstances (Sheth *et al.*, 1991). Conditional value is concerned with the temporally limited benefits that a good or service offers, depending on a particular situation (Wang *et al.*, 2020). This study defined conditional value as the "features, advantages and merits that drive value derived by consumers when the users purchase food via FDAs, such as the listing of favorite restaurants, delivery fee discounts" (Kaur *et al.*, 2021) and better promotional schemes (Talwar *et al.*, 2020).

*2.1.5 Epistemic value.* The ability of an option to pique interest, offer novelty and/or satisfy a need for information is what is referred to as the epistemic value of that option. A product would be seen as having epistemic value if it could provide customers with novel experiences that would satisfy their requirements for novelty, curiosity and knowledge. Epistemic value is undoubtedly provided by the brand-new experiences (Sheth *et al.*, 1991). According to this study, epistemic value is the novelty and sense of interest sparked by seeing advertising and other people using FDAs, all of which can increase the value associated with using FDAs (Kaur *et al.*, 2021).

### *2.2 Continued usage intentions*

As it is claimed that the cost to acquire a new client can be up to five times more than the cost to keep an existing customer, ongoing usage is more important than initial usage (Bhattacherijee, 2001).

Studies on the intention to continue using information systems (IS) have multiplied recently and now encompass a variety of scenarios, including the intention to keep using mobile applications, m-services and m-commerce, among others (Franque *et al.*, 2020). Because it is thought to be crucial for the long-term viability of an IS, it is desired to explore the direct effects on the continuity intention of using mobile applications, even if the majority of earlier research on these systems strongly stressed the initial acceptance (Silva *et al.*, 2022). It is challenging to comprehend the continued usage intention of consumers from the perspective of IS alone, and in FDAs systems, it is necessary to understand the factors that influence the willingness of consumers to continue usage (Wang *et al.*, 2020). For the FDAs system, unlike ordinary mobile applications, it integrates different online and offline entities, such as restaurants or vendors, delivery staff and customers. Therefore, it is important for relevant stakeholders to comprehend the drivers behind consumers' continued use of FDAs in the context of the COVID-19 outbreak (Zhao and Bacao, 2020).

### *2.3 Market segmentation*

Smith (1956), who underlined that market segmentation offers a reasonable and more exact adjustment of product and marketing effort to consumer or user requirement, was the first to recognize and establish market segmentation in academic literature. Due to the intense market competition of today, many businesses are now required to understand the competitive factors that influence the particular market to which the segmentation strategy will ultimately apply and then choose the most advantageous segmentation and the market and customer demands can be better understood with the use of effective segmentation (Zhou *et al.*, 2020). It is almost hard to please every consumer with a single service or product due to the diversity of consumers. Therefore, the segmentation of the market into smaller, more focused and generally homogeneous consumer segments provides the business with a number of competitive advantages, and segmentation greatly improves comprehension of the traits of the relevant market, consumer behavior prediction, the

discovery and exploration of new market prospects and identification of potential groupings (Dolnicar *et al.*, 2018). Recently, many researchers have planned to partition the market based on the generational divide. This notion is based on the observation that the environmental background of the development process, including music, sports, regulations and many historical events at the time, has had a significant impact on each generation. These teams are referred to as "cohorts" by demographers. Cohort members share similar fundamental experiences (Rodríguez *et al.*, 2015).

### *2.4 Generation cohort theory*

Generation cohort theory considers that people who were born in the same time period, grow up in similar historical, social, cultural, political and economic environments share similar preferences for certain things in life, reside in the same community and encounter similar external experiences in their late adolescence and early adulthood. They share comparable values, beliefs, attitudes, preferences and traits because of acquired knowledge and common experiences as each generation cohort goes through key events together (Inglehart, 1997; Rahulan *et al.*, 2015). Because each generation has its own beliefs about the kind of desired lifestyle, it is crucial to understand the values and motivations of each generation to target particular consumers (Rahulan *et al.*, 2015). By concentrating on various generations, it is easier to segment the market and develop more effective strategies and product positioning (Brand *et al.*, 2022). Because members of a cohort are thought to have comparable values, segmentation based on generation cohorts has become a very helpful tool for marketers (Thompson *et al.*, 2018). To compare the differences between consumer generations in terms of shopping (Schade *et al.*, 2016), consumer decision-making (Solka *et al.*, 2011), online purchase (Brand *et al.*, 2022) and online food ordering behavior (Wahyuningsih *et al.*, 2022), researchers use generation cohorts. Generations X, Y and Z, which make up the segmentation used in this study, have been divided into three categories.

*2.4.1 Characteristics of Generation X.* According to Koksal (2019), Generation X refers to those who were born between 1965 and 1979. They are one of the most educated generations and are known for their skepticism, pragmatism and awareness of risk avoidance (Gurau, 2012). Generation X people are those who were not born in the digital age but eventually accepted many or most features of modern technologies (Calvo-Porral and Pesqueira-Sanchez, 2020). Due to their higher level of discretionary income, they have a higher purchasing power than preceding generations. They want to shop with detailed knowledge about the products. When making new purchases, they are more cautious about product qualities, particularly those of internet information (Brand *et al.*, 2022). With greater experience and family responsibilities, they are likely to seek high-quality products and services, make a comparison and try to receive adequate information about prospective purchases (Dabija *et al.*, 2018).

*2.4.2 Characteristics of Generation Y.* Individuals who were born between 1980 and 1994 are referred to as members of generation Y (Koksal, 2019). They have grown up around technology and have been in regular contact with digital media and the internet. They are more optimistic about information and communication technologies than earlier generations, which has affected their behavior, way of thinking and learning process. They heavily use mobile devices, the internet, connection, interactive media and social networks, and technologies have been incorporated into their daily lives (Calvo-Porral and Pesqueira-Sanchez, 2020). They are more knowledgeable about technology than their parents, with the tendency to be lazier and the behavior of consumerism (Mavilinda *et al.*, 2022). They are not loyal customers while choosing products that match their personality and lifestyle; on the contrary, they are more likely to remain loyal to firms that share their social and civic ideals (Yan *et al.*, 2019). The community has adopted the usage of FDAs as a new way of life, especially among Generation Y, who are potential FDA users (Mavilinda *et al.*, 2022).

*2.4.3 Characteristics of Generation Z.* Generation Z is defined as the individuals who were born between 1995 and 2000 (Koksal, 2019). Technology and internet are essential for this generation that is growing with the sudden advancement of computers and technology. The "mobile generation" is another term for this generation (Kapi and Roy, 2014).

Marketers are highly interested in this segment because Generation Z purchasing power is five or six times higher than previous generations (Djafarova and Foots, 2022). They anticipate ongoing innovation from the carefully chosen products because they have a wide range of options for goods and services. The preferred product is expected to promote convenience in their lives. They conduct research on the product before making a purchase (Özkan and Solmaz, 2017). They are likely to use electronic devices to suggest and spread their experiences to others [electronic word-of-mouth (eWOM)]. They do not keep their opinions to themselves when they have a good or bad experience with a business; instead, they post their opinions or criticism online, on social media (Wahyuningsih *et al.*, 2022). Ordering food through a delivery service is viewed as sensible and practical by Generation Z. They prefer to place weekly as well as daily internet food orders. Worldwide, Generation Z consumers are increasingly using food delivery services (Banerjee *et al.*, 2019).

## *2.5 Research framework and formulation of hypotheses*

*2.5.1 Research between functional value and continued usage intention.* Talwar *et al.* (2020) discovered a link between functional value and purchase intent for online travel agents. According to earlier research, functional value and usage intention are positively correlated (Kim *et al.*, 2018). In addition, Yeo *et al.* (2017) hypothesized that customers' perceptions of FDAs' utility and their intention to continue using them are influenced by their ability to save money. Functional value is positively associated with FDAs' buying intention, according to a study by Tandon *et al.* (2021). The following hypothesis was put forth to test this assumption based on the facts mentioned above:

*H1.* Functional value has a significant positive impact on continued usage intention toward FDAs in the post-COVID-19 outbreak.

*2.5.2 Research between social value and continued usage intention.* Kaur *et al.* (2021) discovered that among Indian consumers, prestige or social value could influence purchase intention. According to Dhir *et al.* (2020), social value was positively correlated with the intention to consistently use mobile messaging apps and online travel services. Similar to this, Talwar *et al.*'s (2020) earlier research discovered a relationship between social value and the propensity to use internet travel agents. Furthermore, Kaur *et al.* (2018) discovered that social value had a limited impact on people's continued use of social media brand communities. In the context of FDAs, according to the study of Zhao and Bacao (2020), which explored the factor determining customers' continuous use of food delivery apps during the COVID-19 pandemic, it was found that social value has direct positive impacts on users' intention to continuously use FDAs. Therefore, the following hypothesis was proposed:

*H2.* Social value has a significant positive impact on continued usage intention toward FDAs in the post-COVID-19 outbreak.

*2.5.3 Research between emotional value and continued usage intention.* Accordingly, earlier research discovered a significant positive association between emotional value and purchase intention for online travel companies (Talwar *et al.*, 2020). In a similar vein, Kaur *et al.*'s (2018) study discovered that emotional value had a role in the ongoing use of social media brand communities. Mäntymäki and Salo (2015) found that the primary variable impacting teens' online spending was emotional value. In addition, Yeo *et al.* (2017) developed their model to identifying the key predictors of customers' desire to consistently

use online food purchase systems. Customers were observed to think that using such online food ordering platforms was fun. As a result, the hypothesis was created as follows:

*H3*. Emotional value has a significant positive impact on continued usage intention toward FDAs in the post-COVID-19 outbreak.

*2.5.4 Research between conditional value and continued usage intention.* Prior research found a significant positive association between conditional value and purchase intention for online travel firms (Talwar *et al.*, 2020). In a similar vein, Hu and Yang (2019) discovered that promotional discounts have an impact on consumers' purchasing decisions throughout the booking phase. Affordances were described as conditional value in the context of FDAs by Kaur *et al.* (2021), and it was discovered that affordances had a considerable impact on Indian consumers' intent to purchase via FDAs. Finally, Tandon *et al.* (2021) found a favorable correlation between conditional value and FDAs purchase intention. Based on the aforementioned data, the following hypothesis was proposed to test this premise.

*H4*. Conditional value has a significant positive impact on continued usage intention toward FDAs in the post-COVID-19 outbreak.

*2.5.5 Research between epistemic value and continued usage intention.* Previous research suggests a favorable association between epistemic value and consumption behavior in relation to teenagers' online shopping (Mäntymäki and Salo, 2015) Accordingly, research has shown a link between epistemic value and the consumption of healthy foods (Thomé *et al.*, 2019). The relationship between customer value, satisfaction and behavioral intention was also examined by Williams *et al.* (2017) across two culturally distinct groups of Japanese and Western adventure travelers. According to the report, Japanese tourists value novelty and curiosity more than Western tourists. The same study (Talwar *et al.*, 2020) discovered that epistemic value significantly has a positive link with purchase intention toward online travel companies. Thus, the hypothesis was proposed to test this assumption:

*H5*. Epistemic value has a significant positive impact on continued usage intention toward FDAs in the post-COVID-19 outbreak

*2.5.6 Generation cohort as a moderating role in the multigroup analysis.* The importance of moderating variables in elucidating individual differences in consumer behavior has been studied by academics. For instance, Tan and Ooi (2018) found that gender and age only slightly affect consumers' choices when making purchases through mobile applications for travel-related goods. The moderating effect of age on the relationship between premium price payment, social network and intention toward online travel agents was also discussed by Ye *et al.* (2017). However, it is possible that each customer group will perceive distinct values (Bhatnagar and Ghose, 2004). The difference in intentions to use FDAs between Generations X, Y and Z found that Generation Z is particularly interested in emotional value and functional value, which includes enjoyment, ease of ordering payment, not having to prepare the food, not having to get dressed up and transaction security more than Generations X and Y (Wahyuningsih *et al.*, 2022). Moreover, due to their sensitivity to societal issues on social media, Generation Z prioritizes values while making purchases. They are more likely to support essential ideas with brands or products and avoid those with ideas or behaviors at odds with their own values (Smaliukiene *et al.*, 2020). The rationale behind the cohorts online socializing is the necessity to be involved and informed with other people (Yadave and Rai, 2017). From the above literature, it is probable that social value is quite important for this generation. Moreover, in comparison to Generations X, Y and Z, Generation Y particularly exhibits concern for epistemic value more than generation X and Z (Wahyuningsih *et al.*, 2022). For the functional value, the Generations Y and Z perceive service quality and value differently (Yarimoglu, 2017). Furthermore, conditional value in terms of safety value is different across three generations X, Y and Z. Particularly, Generation X shows the highest concern over conditional value more than Generations Y and Z. From the discussion as mentioned above, we anticipate that the association between

consumption value and intention toward FDAs will be moderated by the generation cohort of the consumers. As a result, the following hypotheses were put out to test this assumption (Wahyuningsih *et al.*, 2022):

*H6*. There are significant differences in relationship between functional value and continued usage intention toward FDAs in the post-COVID-19 outbreak among Generations X, Y and Z.

*H7*. There are significant differences in relationship between social value and continued usage intention toward FDAs in the post-COVID-19 outbreak among Generations X, Y and Z.

*H8*. There are significant differences in relationship between emotional value and continued usage intention toward FDAs in the post-COVID-19 outbreak among Generations X, Y and Z.

*H9*. There are significant differences in relationship between conditional value and continued usage intention toward FDAs in the post-COVID-19 outbreak among Generations X, Y and Z.

*H10*. There are significant differences in relationship between epistemic value and continued usage intention toward FDAs in the post-COVID-19 outbreak among Generations X, Y and Z.

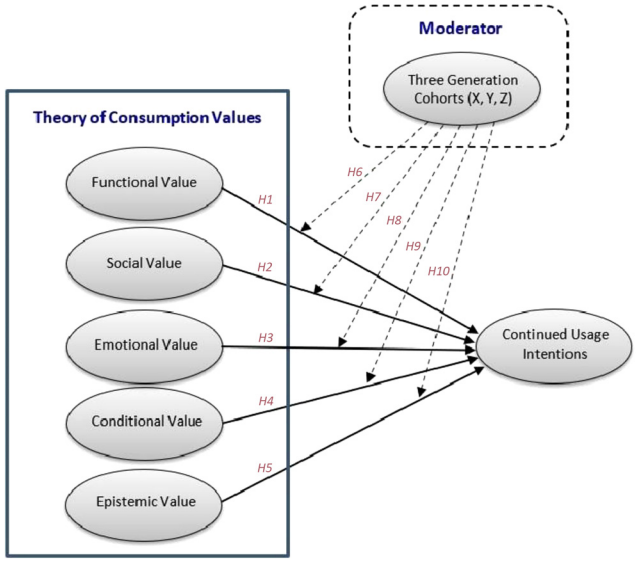
According to the literature review and theoretical background, the conceptual framework of this study was established as shown in Figure 1.

## 3. Methodology

### *3.1 Sample characteristics*

Three categories of Thai smartphone users make up the study's target demographic. The first group consists of Generation X, who were born between 1965 and 1979 and range in

**Figure 1** Conceptual framework




**Source:** Adapted from theory of consumption values (Sheth *et al.*, 1991)

age from 44 to 58. Generation Y, those born between 1980 and 1994 (aged 29–43), makes up the second group, followed by Generation Z, those born between 1995 and 2000 (aged 23–28) (Koksal, 2019). Three generation cohorts are considered as prospective consumers of FDAs in Thailand market with strong purchasing power (Statista, 2022c), and these three target groups have experienced in purchasing food from the popular food delivery applications, including GrabFood, Food Panda or LINE MAN (Statista, 2022b), at least once a week for three months (Kaur *et al.*, 2021). Using these sample representatives, we expect to be able to confidently extrapolate the findings to the complete group of FDA users.

### *3.2 Sample size*

Prior to doing the MGA, researchers must ensure that the total number of observations in each group meets the minimum sample size requirement. Large sample sizes are the best method to ensure statistical power for both groups. To determine if the lack of any moderating impact is due to low statistical power or the absence of a real moderating effect, a statistical power should be established at 80% (Hair *et al.*, 2022). With the following settings: the effect size $f^2 = 0.15$ (medium), $\alpha = 0.05$, number of predictors $= 5$ and power set at 95%, the minimum acceptable power was calculated using the G*power 3.1.9.7 program, whereas the lowest acceptable power is 80% (Gefen *et al.*, 2011). For each group, the test recommended a minimum sample size of 138 cases. In this study, the sample size of each generation meets the requirement as follows: Generation X is 242, Generation Y is 215 and Generation Z is 288.

### *3.3 Data collection procedure*

The survey was distributed via Facebook and Instagram using Google's online survey by disseminating the tool through Instagram and Facebook, where that the best creator performance on social media in the food and dining category, namely, Mawinfinferr, TidReview, Stavingtime, BanKii and KP.Eat.Travel (Thailand Social Awards, 2023), to target respondents all over Thailand during the first week of September to November 2022. To make sure that every response met the requirements for inclusion, the following three screening questions were used:

*Q1*. Are you in the Generation X range of 44–58 years old, the Generation Y range of 29–43 years old or the Generation Z range of 23–28 years old?

*Q2*. Have you ever purchased food from food delivery applications, namely, GrabFood, Food Panda or LINE MAN?

*Q3*. Did you order food via food delivery applications at least once a week for three months?

An online survey may be distributed to participants extremely easily and at a very low administrative cost, which makes data entry and analysis much simpler (Evans and Mathur, 2005). The research goals and the survey's inquiry's strictly academic aspects were initially explained to the participants. Clarification of the voluntary nature of participation allowed participants to withdraw at any moment during the process, and the same internet protocol address was only allowed to submit data once to prevent repetitive responses. In total, 978 people completed the survey, but only 745 of the 878 observations (76.17%) passed the requirements for inclusion.

## 4. Data analysis and results

### *4.1 Descriptive analysis*

There were 454 participants in this study who completed the questionnaire. The majority of respondents ($n = 356$, 47.79%) were females, followed by men ($n = 245$, 32.89%) and people of other genders ($n = 144$, 19.33%). The majority of them were Generation Z, at the

age of 23–28 years old ($n$ = 288, 38.66%), followed by Generation X, at the age of 44–58 years old ($n$ = 242, 32.48%) and Generation Y, aged between 29 and 43 years old ($n$ = 215, 28.86%). Regarding the education level, 336 respondents (45.10%) held a master's degree. A total of 425 respondents were private company employees (57.05%) and 324 respondents earned 30,001–50,000 baht per month (43.49%). Table 1 provides a summary of the respondents' demographic information.

### 4.2 Data analysis

The measurement and structural model were assessed in the current investigation using the partial least squares structural equation modeling (PLS-SEM) method, version 4.0. MGA inside a PLS path modeling framework is one of the most efficient ways to assess moderation in many interactions, claimed by Hair *et al.* (2022). Standard moderation investigates a single structural relationship at the point of interaction between exogenous and endogenous variables and significantly improves researchers' capacity to recognize significant variations in a variety of relationships across particular groups (Schlägel and Sarstedt, 2016). The aforementioned information explains why PLS-SEM was used in this study's analysis.

### 4.3 Common method variance and nonresponse bias test

To examine common method variance, the single-factor test by Harman (Podsakoff and Organ, 1986) was used in this study. Principal component analysis, as recommended by Tehseen *et al.* (2017), is made to carry out the test. According to Kock (2021), all indicators passed the test based on the single-factor findings of the unrotated principal axis factoring analysis, which showed a variance of 37.770%, which is less than 50%. Therefore, there is no indication of common technique bias in this study. In other words, there are no significant worries that might influence how variables relate to one another. In addition, an ANOVA test was performed on a set of randomly chosen measurement items that were answered by both sets of respondents to make sure that there was no issue with nonresponse bias in this study (Armstrong and Overton, 1977). The findings indicate that there was no response bias in the data collection because there was no significant difference between early and late responders at $p > 0.05$.

**Table 1** Characteristic of the respondents ($N = 745$)

| *Characteristic* | *Categories* | *Frequency* | *%* |
|---|---|---|---|
| Gender | Female | 356 | 47.79 |
| | Male | 245 | 32.89 |
| | Other genders | 144 | 19.33 |
| Age | 44–58 years old (Generation X) | 242 | 32.48 |
| | 29–43 years old (Generation Y) | 215 | 28.86 |
| | 23–28 years old (Generation Z) | 288 | 38.66 |
| Education | Below bachelor's degree | 104 | 13.96 |
| | Bachelor's degree | 263 | 35.30 |
| | Master's degree | 336 | 45.10 |
| | Doctoral degree | 42 | 5.64 |
| Occupation | Government officers/employees | 165 | 22.15 |
| | Students | 38 | 5.10 |
| | Private company employees | 425 | 57.05 |
| | Business owners | 117 | 15.70 |
| Monthly income | Under 10,000 baht | 33 | 4.43 |
| | 10,000–30,000 baht | 246 | 33.02 |
| | 30,001–50,000 baht | 324 | 43.49 |
| | Above 50,000 baht | 142 | 19.06 |

**Source:** Created by authors

### 4.4 Measurement model analysis

To verify the instruments' reliability and content validity, a pretest of 30 copies was conducted. Following the completion of the surveys by 745 respondents; the construct reliability was examined, the constructs' internal consistency is measured by Cronbach's alpha and composite reliability and scales currently in use are regarded satisfactory if these values have a minimum value of 0.7 (Nunnally, 1978), which every item exceeded the recommended threshold; and regarding the convergent validity, all values exceeded the criteria for the average variance extracted, which is generally advised to be at least 0.50 (Fornell and Larcher, 1981), and the constructs' items have outer loadings over 0.6, as suggested by Hair *et al.* (2010). Tables 2 and 3 include the results.

The heterotrait–monotrait (HTMT) ratio of correlations technique was used to assess the discriminant validity in this case. As shown in Table 4, each construct's HTMT correlation ratio is less than 0.9, which is in accordance with the HTMT threshold value (Henseler *et al.*, 2015). As a result, the measurement model's discriminant validity was guaranteed.

### 4.5 Structural model analysis and hypothesis testing

According to Diamantopoulos and Siguaw (2006), if the variance inflation factor (VIF) value is less than or equal to 3.3, multicollinearity has no impact on the validity of the results. It is confirmed that multicollinearity was not a significant problem in the investigation because all of the VIF values for each hypothesis were less than or equal to 3.3. The results of the VIF are shown in Table 5.

The study hypothesis test was carried out using a bootstrapping technique using a 5,000-resampling process. A statistical metric in a model that indicates the effectiveness of the independent variables in expressing variance in the dependent variable is the coefficient of determination, abbreviated $R^2$. For the overall model, Generation X, Generation Y and Generation Z model, the $R^2$ value of continued usage intentions is 0.454, 0.580, 0.452 and 0.489, respectively. According to Cohen (1988), the $R^2$ value met the threshold requirement of 0.20. Figures 2–5 display the $R^2$ value's findings. The results of hypothesis testing for overall model are shown in Figure 2 and Table 4, and Table 6 presents the results of MGA, using the Henseler's MGA method.

### 4.6 Measurement invariance of composites

Prior to doing a MGA comparing two or more groups, Henseler *et al.* (2016) recommended the measurement invariance of composites (MICOM) test when conducting PLS-SEM studies. Because the MICOM test also helps ensure that the measurement models specify measures of the same attribute under diverse situations and safeguards the validity of results. This study illustrates the permutation-based invariance measurement testing for each generation. Comparing and interpreting the group-specific differences of PLS-SEM results requires invariance measurement testing.

The MICOM protocols have three steps, which are as follows: the invariance evaluation described in Step 1 ensures the same indications, data processing and algorithm setting/criteria; Step 2 involves evaluating compositional invariance to confirm that the initial correlation was over 5% and the permutation *p*-value was over 0.05, then this invariance is established; Step 3 involves determining whether the mean and variance of the groups were identical. Full invariance is indicated by both mean and variance falling between the 2.5% and 97.5% borders, whereas partial invariance is indicated by none or just one mean or variance lying between these bounds. The hypothesis testing is feasible if the study successfully completes the three necessary steps (Henseler *et al.*, 2016; Dewi *et al.*, 2019). In Table 6, the MICOM results are shown.

**Table 2** Results of measurement model (overall model)

| *Constructs* | *Items* | *Loading* | *CA* | *CR* | *AVE* |
|---|---|---|---|---|---|
| Functional value (FNV) (Talwar *et al.*, 2020) | | | 0.854 | 0.856 | 0.774 |
| | FNV1: FDA charges an affordable price | 0.883 | | | |
| | FNV2: FDA is valuable for my money | 0.896 | | | |
| | FNV3: FDA consistently offers various benefits, such as convenience or variety of menus | 0.860 | | | |
| Social value (SCV) (Choe and Kim, 2019; Talwar *et al.*, 2020) | | | 0.930 | 0.931 | 0.744 |
| | SCV1: Using FDA enhances my self-concept to others | 0.824 | | | |
| | SCV2: Using FDA helps me gain social acceptance | 0.907 | | | |
| | SCV3: Using FDA helps create a positive impression on other people | 0.907 | | | |
| | SCV4: Using FDA helps you stand out of your peers | 0.905 | | | |
| | SCV5: Using FDA enables me to demonstrate my online food ordering experiences to others | 0.756 | | | |
| | SCV6: I have a feeling of having social status when consuming food purchased from well-known FDAs | 0.867 | | | |
| Emotional value (EMV) (Huang *et al.*, 2017; Xu *et al.*, 2020) | | | 0.894 | 0.898 | 0.614 |
| | EMV1: I feel happy while using the FDA | 0.816 | | | |
| | EMV2: I feel pleased with using the FDA | 0.817 | | | |
| | EMV3: I feel satisfied with using the FDA | 0.749 | | | |
| | EMV4: I feel excited when I indulge in using the FDA | 0.662 | | | |
| | EMV5: I feel energetic when using the FDA | 0.837 | | | |
| | EMV6: I feel free when using the FDA. | 0.831 | | | |
| | EMV7: I seem to have control over the FDA | 0.758 | | | |
| Conditional value (CDV) (Talwar *et al.*, 2020; Kaur *et al.*, 2021; Tandon *et al.*, 2021) | | | 0.852 | 0.854 | 0.630 |
| | CDV1: I would use FDA more frequently if FDA providers reduce the delivery fees | 0.818 | | | |
| | CDV2: I would use FDA more frequently if FDA providers offer free-of-charge delivery | 0.812 | | | |
| | CDV3: I would use FDA more frequently if better promotional incentives were given | 0.799 | | | |
| | CDV4: I would use FDA more frequently if FDA providers shortened the delivery time | 0.716 | | | |
| | CDV5: I would use FDA more frequently if more of my favorite restaurants joined these platforms | 0.817 | | | |
| Epistemic value (EPV) (Candan *et al.*, 2013; Johnson *et al.*, 2018; Rungruangjit, 2020) | | | 0.815 | 0.818 | 0.645 |
| | EPV1: I use FDA for ordering food to provide me with novelty | 0.797 | | | |
| | EPV2: I use FDA for ordering food to have a unique experience totally different from eating at a restaurant | 0.859 | | | |
| | EPV3: All my friends are making use of FDAs | 0.833 | | | |
| | EPV4: I have seen advertisement about FDAs | 0.718 | | | |
| Continued usage intentions (CUI) (Venkatesh *et al.*, 2012; Zhao and Bacao, 2020) | | | 0.879 | 0.880 | 0.734 |
| | CUI1: I intend to return to my favorite FDA again | 0.811 | | | |
| | CU2I: I plan to continue using my favorite FDA frequently | 0.902 | | | |
| | CUI3: I will always try to use FDA in my daily routine | 0.836 | | | |
| | CUI4: I intend to continue using my favorite FDA in the future | 0.875 | | | |

**Source:** Created by authors

### *4.7 Multigroup analysis*

The Generations X, Y and Z data files were tested for differences using PLS MGA. Henseler's MGA approach served as the foundation for the results. This method states that a 5% level of significant differences between particular path coefficients across the three groups is indicated by a *p*-value of differences between path coefficients below 0.05 or

**Table 3** Results of measurement model (Generations X, Y and Z)

| Constructs | Generation X (242) Loading | CA | CR | AVE | Generation Y (215) Loading | CA | CR | AVE | Generation Z (288) Loading | CA | CR | AVE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Functional value (FNV) | | 0.862 | 0.885 | 0.783 | | 0.875 | 0.876 | 0.800 | | 0.827 | 0.829 | 0.743 |
| FNV1 | 0.914 | | | | 0.887 | | | | 0.854 | | | |
| FNV2 | 0.886 | | | | 0.917 | | | | 0.882 | | | |
| FNV3 | 0.854 | | | | 0.878 | | | | 0.851 | | | |
| Social value (SCV) | | 0.944 | 0.948 | 0.783 | | 0.928 | 0.928 | 0.741 | | 0.926 | 0.927 | 0.731 |
| SCV1 | 0.853 | | | | 0.819 | | | | 0.817 | | | |
| SCV2 | 0.915 | | | | 0.914 | | | | 0.900 | | | |
| SCV3 | 0.929 | | | | 0.903 | | | | 0.900 | | | |
| SCV4 | 0.934 | | | | 0.929 | | | | 0.880 | | | |
| SCV5 | 0.803 | | | | 0.704 | | | | 0.765 | | | |
| SCV6 | 0.867 | | | | 0.877 | | | | 0.860 | | | |
| Emotional value (EMV) | | 0.919 | 0.932 | 0.674 | | 0.875 | 0.900 | 0.575 | | 0.889 | 0.889 | 0.601 |
| EMV1 | 0.857 | | | | 0.816 | | | | 0.801 | | | |
| EMV2 | 0.841 | | | | 0.824 | | | | 0.799 | | | |
| EMV3 | 0.780 | | | | 0.661 | | | | 0.770 | | | |
| EMV4 | 0.680 | | | | 0.638 | | | | 0.705 | | | |
| EMV5 | 0.876 | | | | 0.822 | | | | 0.830 | | | |
| EMV6 | 0.884 | | | | 0.852 | | | | 0.785 | | | |
| EMV7 | 0.811 | | | | 0.743 | | | | 0.729 | | | |
| Conditional value (CDV) | | 0.885 | 0.896 | 0.682 | | 0.810 | 0.832 | 0.566 | | 0.854 | 0.865 | 0.632 |
| CDV1 | 0.839 | | | | 0.757 | | | | 0.839 | | | |
| CDV2: | 0.802 | | | | 0.757 | | | | 0.840 | | | |
| CDV3 | 0.825 | | | | 0.767 | | | | 0.796 | | | |
| CDV4 | 0.808 | | | | 0.659 | | | | 0.684 | | | |
| CDV5 | 0.855 | | | | 0.813 | | | | 0.807 | | | |
| Epistemic value (EPV) | | 0.837 | 0.845 | 0.676 | | 0.764 | 0.812 | 0.584 | | 0.826 | 0.832 | 0.660 |
| EPV1 | 0.865 | | | | 0.758 | | | | 0.782 | | | |
| EPV2 | 0.883 | | | | 0.787 | | | | 0.874 | | | |
| EPV3 | 0.829 | | | | 0.794 | | | | 0.854 | | | |
| EPV4 | 0.699 | | | | 0.716 | | | | 0.730 | | | |
| Continued usage intentions (CUI) | | 0.885 | 0.888 | 0.743 | | 0.848 | 0.851 | 0.689 | | 0.888 | 0.892 | 0.749 |
| CUI1 | 0.822 | | | | 0.766 | | | | 0.822 | | | |
| CU2I | 0.882 | | | | 0.890 | | | | 0.913 | | | |
| CUI3 | 0.852 | | | | 0.818 | | | | 0.840 | | | |
| CUI4 | 0.891 | | | | 0.841 | | | | 0.883 | | | |

**Source:** Created by authors

over 0.95 (Henseler *et al.*, 2009). Table 7 shows the MGA, which found that four hypotheses were supported while one was not.

## 5. Discussion and conclusions

### *5.1 Discussions*

This study provides evidence that functional value has a positive influence on continued usage intentions toward FDAs in the post-COVID-19 outbreak (*H1*). This result further supports prior studies of Rizkalla and Setiadi (2020) and Tandon *et al.* (2021). This shows the significance of factors, such as offered benefits, convenience or various menus, reasonable price and consumers' evaluation of whether the purchase is valuable for money in respect of cost–quality.

The second finding revealed that social value has a positive influence on continued usage intentions (*H2*). This result contradicts Tandon *et al.*'s (2021) conclusion that there is a negative correlation between social value and FDA purchase intention, but it is in line with

**Table 4** Discriminant validity using heterotrait–monotrait (HTMT) ratio

| *Variable* | *CDV* | *CUI* | *EMV* | *EPV* | *FNV* | *SCV* |
|---|---|---|---|---|---|---|
| *Discriminant validity (overall model)* | | | | | | |
| CDV | | | | | | |
| CUI | 0.500 | | | | | |
| EMV | 0.555 | 0.561 | | | | |
| EPV | 0.640 | 0.693 | 0.594 | | | |
| FNV | 0.515 | 0.588 | 0.664 | 0.538 | | |
| SCV | 0.344 | 0.523 | 0.685 | 0.484 | 0.554 | |
| *Discriminant validity (Generation X)* | | | | | | |
| CDV | | | | | | |
| CUI | 0.656 | | | | | |
| EMV | 0.616 | 0.647 | | | | |
| EPV | 0.632 | 0.645 | 0.585 | | | |
| FNV | 0.647 | 0.761 | 0.694 | 0.564 | | |
| SCV | 0.429 | 0.457 | 0.794 | 0.468 | 0.642 | |
| *Discriminant validity (Generation Y)* | | | | | | |
| CDV | | | | | | |
| CUI | 0.445 | | | | | |
| EMV | 0.464 | 0.531 | | | | |
| EPV | 0.598 | 0.747 | 0.565 | | | |
| FNV | 0.443 | 0.503 | 0.646 | 0.562 | | |
| SCV | 0.398 | 0.571 | 0.693 | 0.531 | 0.555 | |
| *Discriminant validity (Generation Z)* | | | | | | |
| CDV | | | | | | |
| CUI | 0.464 | | | | | |
| EMV | 0.565 | 0.565 | | | | |
| EPV | 0.667 | 0.707 | 0.620 | | | |
| FNV | 0.501 | 0.611 | 0.652 | 0.533 | | |
| SCV | 0.283 | 0.541 | 0.626 | 0.476 | 0.514 | |

**Source:** Created by authors

**Table 5** The results of hypothesis testing for overall model

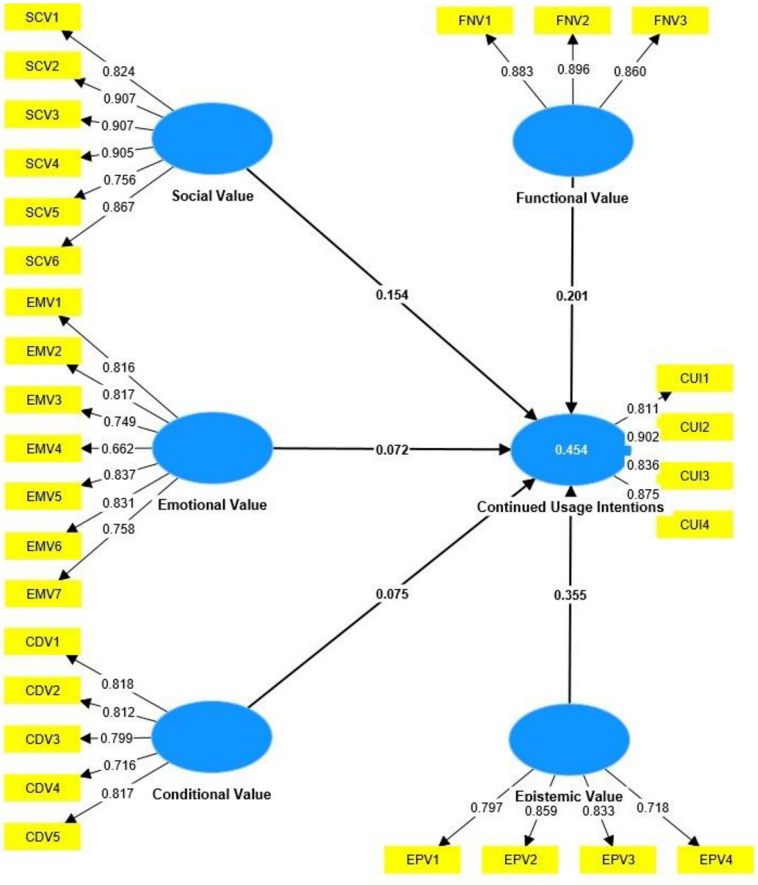
| *Hypotheses* | *Path* | *Path coefficients (β)* | t-*statistic* | p-*value* | *VIF* | *Results* |
|---|---|---|---|---|---|---|
| *H1* | FNV → CUI | 0.201*** | 3.670 | 0.000 | 1.680 | Supported |
| *H2* | SCV → CUI | 0.154** | 2.973 | 0.003 | 1.749 | Supported |
| *H3* | EMV → CUI | 0.072 ns. | 1.130 | 0.259 | 2.184 | Not supported |
| *H4* | CDV → CUI | 0.075*** | 1.963 | 0.050 | 1.583 | Supported |
| *H5* | EPV → CUI | 0.355*** | 6.611 | 0.000 | 1.649 | Supported |

**Notes:** ***$p$-value ≤ 0.001, **$p$-value ≤ 0.01 and *$p$-value ≤ 0.05; ns. = not-significant
**Source:** Created by authors

Talwar *et al.* (2020) and Kaur *et al.* (2021). Customers who purchase food using FDAs see their personal status and improved self-image, and they associate their dining location with their personal status (Kim and Lee, 2017). By using cutting-edge technology to order meals, FDAs are seen as a source of enhancing social perception and building favorable impressions, increasing their consumption value thought to be a measure of personal status. Such value will consequently boost their desire to use FDAs.

As for the third finding, emotional value does not influence continued usage intentions (*H3*). This result is in line with earlier research by Kaur *et al.* (2020) and Tandon *et al.* (2021). FDA users are likely stimulated by the design and aesthetics, but the excitement may come from starvation rather than from the app's design. Given the lack of significance in the association between emotional value and continued usage intentions, it is possible that

**Figure 2** Results of structural model (overall model)

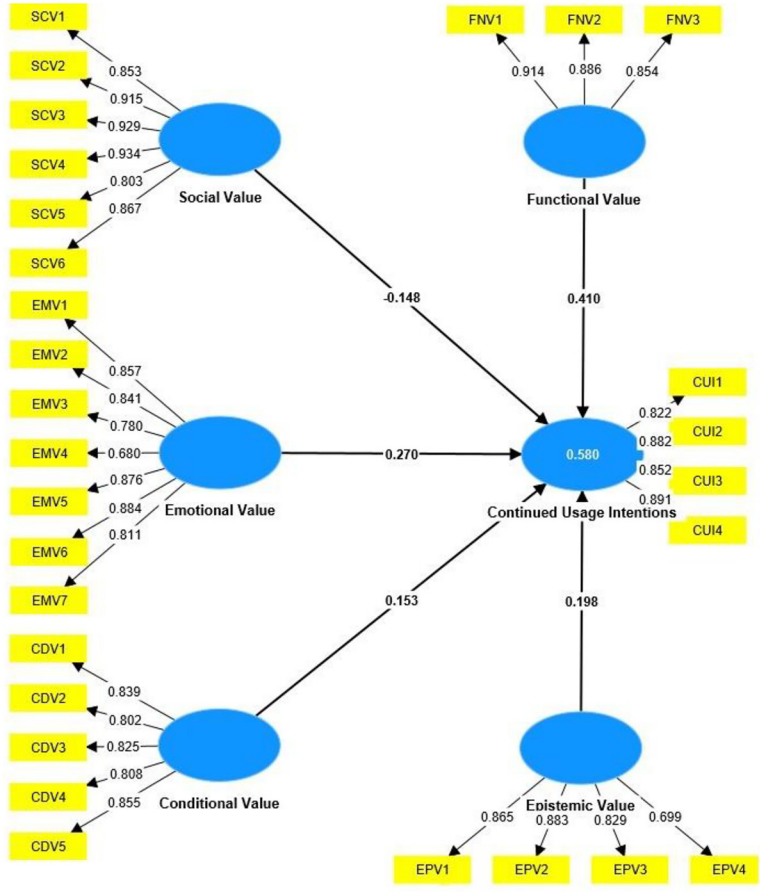



**Source:** Created by authors

customers are unaware of the FDAs' original arousing feeling (Kumar and Shah, 2021). Moreover, food ordering via the FDAs focuses more on the benefits of convenience and travel time saving rather than amusement from using the application for shopping, watching movies or listening to music.

Regarding the fourth finding, conditional value was found to have a positive impact on continued usage intentions (*H4*). The findings of Talwar *et al.* (2020) are supported by this finding. The consumers want to take use of FDAs in more ways. Our research suggests that consumers' perceptions of favorable outcomes, such as free delivery, availability to favorite restaurants, reasonable pricing, promotional offers and discounts, can be used to increase FDA's continued usage intention. The fifth finding (*H5*) proposed that epistemic value was a powerful motivating factor toward continued usage intention. This finding contrasts with the prior study by Tandon *et al.* (2021), which conducted the qualitative study to explicate FDAs' specific values. They eliminated epistemic value of the TCV in the context of FDAs. However, Thomé *et al.* (2019) confirmed an association between epistemic value and consumption behavior. Advertisements and a sense of curiosity brought on by seeing other people use FDAs can influence consumers' continued usage intentions on FDAs favorably. If the consumers see their friends and other familiar people buying food from FDAs, they are more inclined to follow suit (Johnson *et al.*, 2018). In addition, buying food through FDAs offers them novelty and an experience that is distinct from dining in a restaurant.

**Figure 3** Results of structural model (Generation X)

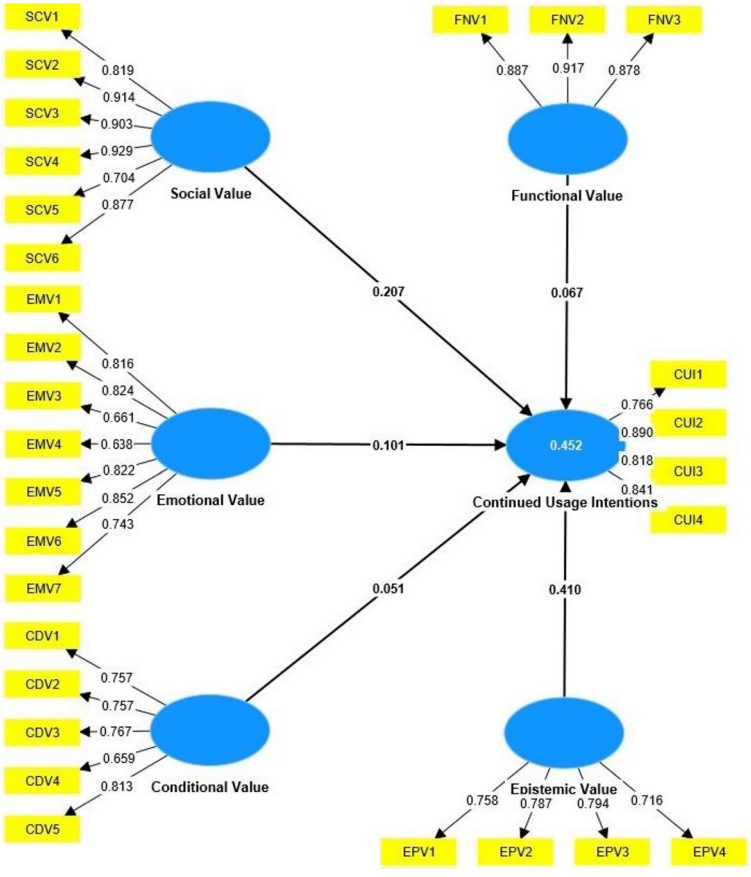



**Source:** Created by authors

The findings of MGA compare the difference in consumption values theory among Generations X, Y and Z, which extends the current body of knowledge because the previous studies have not examined the consumption value theory among generation cohorts. The findings indicate significant difference in relationships among functional, social, conditional and epistemic values and continued usage intention toward FDAs between Generations X, Y and Z; thus, *H6*, *H7*, *H9* and *H10* were supported. On the contrary, *H8* was not supported; emotional value has no significant.

Generation Y consumers did not give importance to the factors of functional value, while it has an impact on continued usage intentions among Generations X and Z consumers, with a higher level for Generation X than Generation Z consumers. Generation X have family responsibilities in providing care for their children and elderly family members. Thus, they were a group of people who spent their money cautiously while looking for products or services that offer multiple benefits, with reasonable price and value for money. This is consistent with Generation Z, who prefer to lower spending because they have been through economic downturns more frequently than other generations (Özkan and Solmaz, 2017). They saw their parents struggling to survive the financial crisis, so they were aware of spending money cautiously more than Generation Y. The values sought by Generation Z consumers are convenience in placing order,

**Figure 4** Results of structural model (Generation Y)



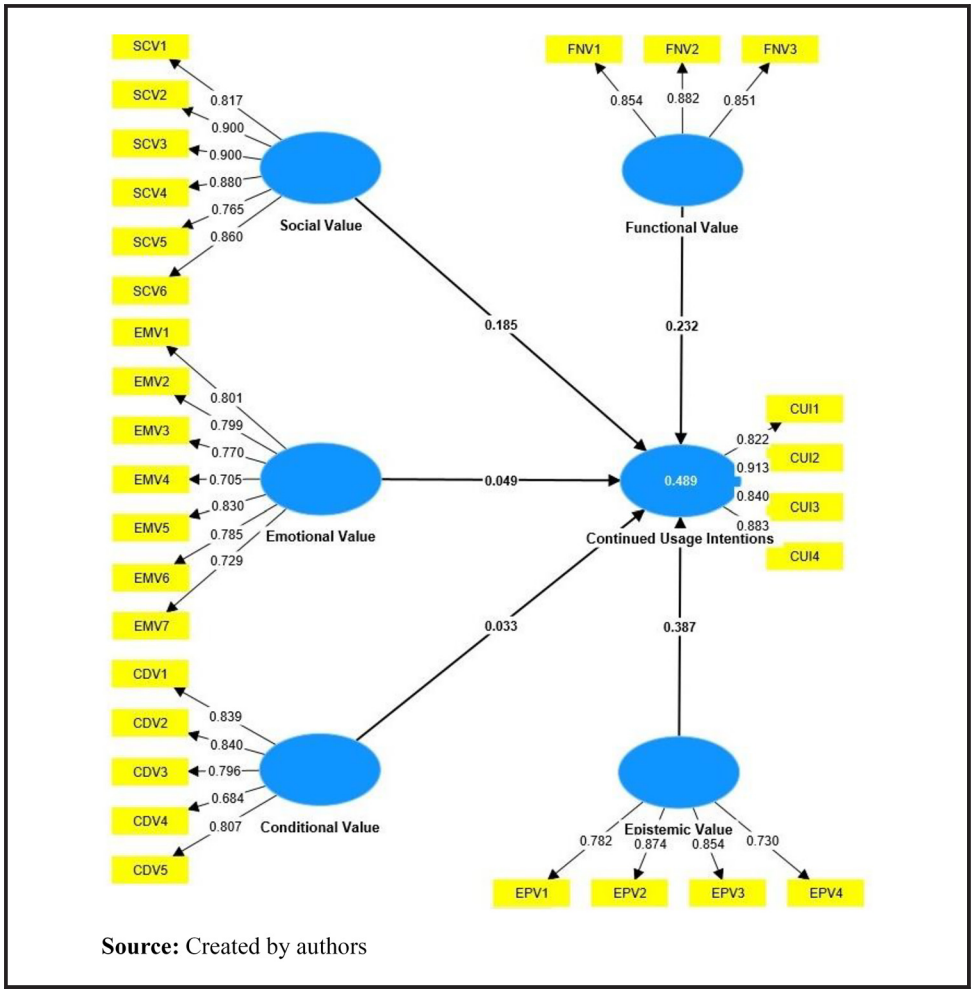

**Source:** Created by authors

payment, not necessary to cook, not necessary to dress and preferred products or services for convenience in their lives.

For social value, Generation X consumers do not pay attention to this factor, while social value has an influence on continued usage intentions among both Generations Y and Z consumers, with a higher level for Generation Y than Generation Z consumers. Generation Y habitually like to compare themselves to their friends. They would like to gain recognition from their peers or society (Kotler *et al.*, 2021). They participate in an online community to share their values. They seek to portray their own image, impress their friends with their product or service knowledge and are particularly interested in how other group members will react (Rungruangjit *et al.*, 2023). They do not have a strong brand loyalty and just shop for things that fit with their personalities and way of life. They are more likely to remain loyal to firms that share their social and civic ideals.

On the contrary, emotional value has not affected significant difference in continued usage intentions toward FDAs among three generations. The excitement of Generations X and Y on the online platform or from using applications mostly arises from shopping because it makes them feel relaxed from hard work (Dabija *et al.*, 2018). In addition, Generation Y consumers like using social networks, blogging and other forms of social media to create and share information (Noble *et al.*, 2009). Meanwhile, Generation Z enjoy participating in

**Figure 5** Results of structural model (Generation Z)




**Source:** Created by authors

brand activities on social media and expect brands to offer something exciting and new interactive experiences (Kotler *et al.*, 2021). The use of FDAs is focused more on benefits, convenience, time-saving and value for money, rather than fulfilling the feeling of fun and excitement.

Furthermore, the result provides interesting new finding about the conditional value, that the Generation X consumers focus on this factor, while it has no influence among consumers in both Generations Y and Z. Conditional value, comprising fast delivery, promotional incentives, free delivery and listings of excellent restaurants are expected to boost Generation X consumers' consumption value and their intention to continue using FDAs for food ordering. They are more inclined to purchase meals from FDAs that provide better bargains in terms of delivery costs, restaurant quality and the types of restaurants advertised.

Finally, Generation X consumers do not pay attention to the factor of epistemic value. This is probably because Generation X consumers exposure to online advertising does not exert a major effect on their buying decisions, because they have not much interest in such advertising and often ignore them. Family, friends or school are their predominant values, leading to more pragmatic and flexible behavior, as well as more cautious and skeptical of new things (Dabija *et al.*, 2018). Meanwhile, epistemic value has influence on continued

**Table 6** The results of invariance measurements testing using permutation

| Constructs | Configurational invariance (Step 1) | Compositional (Step 2) | | Partial measurement invariance | Equal mean assessment (Step 3) | | Equal variance assessment (Step 3) | | Full measurement invariance |
|---|---|---|---|---|---|---|---|---|---|
| | | Original correlation | 5.0% | | Original differences | Confidence interval | Original differences | Confidence interval | |
| *Generation X vs Y* | | | | | | | | | |
| CDV | Yes | 0.998 | 0.990 | Yes | −0.112 | [−0.214; 0.215] | 0.531 | [−0.537; 0.535] | Yes/yes |
| CUI | Yes | 1.000 | 0.998 | Yes | −0.040 | [−0.218; 0.224] | 0.276 | [−0.369; 0.365] | Yes/yes |
| EMV | Yes | 0.997 | 0.991 | Yes | 0.126 | [−0.198; 0.207] | 0.308 | [−0.291; 0.280] | Yes/no |
| EPV | Yes | 0.997 | 0.992 | Yes | −0.024 | [−0.204; 0.221] | 0.450 | [−0.352; 0.453] | Yes/yes |
| FNV | Yes | 0.999 | 0.997 | Yes | 0.245 | [−0.207; 0.208] | −0.150 | [−0.155; 0.339] | Yes/yes |
| SCV | Yes | 1.000 | 0.997 | Yes | 0.107 | [−0.229; 0.215] | −0.020 | [−0.281; 0.285] | Yes/yes |
| *Generation X vs Z* | | | | | | | | | |
| CDV | Yes | 0.995 | 0.993 | Yes | −0.150 | [−0.195; 0.200] | 0.355 | [−0.434; 0.432] | Yes/yes |
| CUI | Yes | 0.999 | 0.998 | Yes | 0.096 | [−0.206; 0.200] | −0.359 | [−0.330; 0.336] | Yes/no |
| EMV | Yes | 0.998 | 0.995 | Yes | −0.116 | [−0.211; 0.203] | 0.227 | [−0.321; 0.267] | Yes/yes |
| EPV | Yes | 0.998 | 0.994 | Yes | −0.100 | [−0.203; 0.187] | −0.006 | [−0.339; 0.324] | Yes/yes |
| FNV | Yes | 0.999 | 0.997 | Yes | −0.074 | [−0.206; 0.196] | 0.050 | [−0.307; 0.300] | Yes/yes |
| SCV | Yes | 1.000 | 0.998 | Yes | 0.014 | [−0.199; 0.202] | −0.093 | [−0.296; 0.253] | Yes/yes |
| *Generation Y vs Z* | | | | | | | | | |
| CDV | Yes | 0.993 | 0.989 | Yes | −0.055 | [−0.200; 0.190] | −0.151 | [−0.292; 0.289] | Yes/yes |
| CUI | Yes | 1.000 | 0.998 | Yes | 0.135 | [−0.172; 0.187] | −0.635 | [−0.336; 0.334] | Yes/no |
| EMV | Yes | 0.994 | 0.991 | Yes | −0.265 | [−0.185; 0.188] | −0.065 | [−0.269; 0.246] | No/yes |
| EPV | Yes | 0.999 | 0.994 | Yes | −0.084 | [−0.194; 0.172] | −0.461 | [−0.318; 0.324] | Yes/no |
| FNV | Yes | 1.000 | 0.996 | Yes | −0.322 | [−0.379; 0.205] | 0.195 | [−0.317; 0.297] | Yes/yes |
| SCV | Yes | 1.000 | 0.998 | Yes | −0.088 | [−0.178; 0.178] | −0.078 | [−0.262; 0.234] | Yes/yes |

**Source:** Created by authors

**Table 7** The results of hypothesis testing for multigroup analysis

| Hypotheses | Path | Path coefficients (β) | | | Path coefficients differences | | | p-value differences Henseler's MGA | | | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gen X | Gen Y | Gen Z | Gen X vs Gen Y | Gen X vs Gen Z | Gen Y vs Gen Z | Gen X vs Gen Y | Gen X vs Gen Z | Gen Y vsGen Z | |
| H6 | FNV → CUI | 0.410*** | 0.067 | 0.232** | 0.344 | 0.178 | −0.165 | 0.008** | 0.167 | 0.025* | Supported |
| H7 | SCV → CUI | −0.148 | 0.207** | 0.185** | −0.355 | −0.334 | 0.022 | 0.008** | 0.012** | 0.835 | Supported |
| H8 | EMV → CUI | 0.270** | 0.101 | 0.049 | 0.170 | 0.222 | 0.052 | 0.154 | 0.122 | 0.690 | Not supported |
| H9 | CDV → CUI | 0.153* | 0.051 | 0.033 | 0.102 | 0.120 | 0.018 | 0.049* | 0.042* | 0.826 | Supported |
| H10 | EPV → CUI | 0.198 | 0.410*** | 0.387*** | −0.212 | −0.189 | 0.024 | 0.017* | 0.038* | 0.815 | Supported |

**Notes:** ***$p$-value ≤ 0.001; **$p$-value ≤ 0.01 and *$p$-value ≤ 0.05
**Source:** Created by authors

usage intention among consumers in Generations Y and Z, with a higher level for Generation Y than Generation Z consumers. Generation Y consumers often like to compare themselves to friends. What their friends speak or buy has a big influence on them. They trust their friends more than brands that have been popular in the market (Kotler *et al.*, 2021). Their decision to buy products or services has been influenced by online comments and suggestions, which is considered more reliable than the data publicized by brands (Dabija *et al.*, 2017). They will also take into account whether the eateries use FDAs to present fresh, innovative and substantial information on their menu items (Wahyuningsih *et al.*, 2022).

### 5.2 Theoretical contributions

The study also expands the TCV theory so that it can be used in the context of FDAs. The proposed inclusive approach substantially advances the growing body of research on FDAs. Therefore, by investigating digital platforms such as FDAs, the TCV's application is expanded to include the study of the food retail industry, and the empirical study revealed that the key elements of TCV influencing continued usage intentions toward FDAs consisted of only four dimensions as follows: functional, social, conditional and epistemic values, whereas emotional value has no influence in the context of FDAs. Thus, we recommend focusing on four dimensions of TCV and eliminating the emotional value in the context of FDAs.

Moreover, the finding contributes to the FDAs literature and TCV involving customer segmentation, while there are significant differences in relationships among four dimensions of TCV and intention to continue using FDAs in the post-COVID-19 outbreak between Generations X, Y and Z. The segmentation of the market is the key contribution of this study. Marketing literature about the various values felt by Generations X, Y and Z is improved by online purchasing behavior and diverse value perceptions among three generation groups in FDAs. Researchers might use our findings to examine how technology-oriented services, such as FDAs, are seen differently by each generational cohort and how that affects customers' intentions to use such goods and services over time. The structural model's many generational perspectives were scientifically evaluated and useful for marketing information, particularly in terms of market segmentation literature and consumer patterns. Marketers are urged to segment the market not just based on demographic information, such as age or income, but also based on generational cohorts. As a result, this study adds a number of new chapters to the literature on generational cohorts that are pertinent to FDA's operations.

Finally, this study contributes to explore the data regarding continued usage intention after the COVID-19 outbreak, which is hardly examined in the FDAs' context. Most studies emphasized user's likelihood to use, intention to adopt or satisfaction of consumers with FDAs, during the COVID-19 outbreak. This study establishes the validity of exploring

continuous usage of FDAs instead of adoption during a crisis situation. Thailand's online food delivery sector is among those with the quickest growth rates in Southeast Asia. The study's findings add to our understanding of customer attitudes on the usage of FDAs from the standpoint of a developing nation.

### *5.3 Managerial implications*

To compete for greater market share, managers of FDA-regulated enterprises can benefit from this study's practical advice. It also urges marketers to gain a full understanding of the particular aspects that affect how much Generations X, Y and Z customers perceive derived value. First, as for Generation X consumers, emphasis should be placed on delivering functional and conditional values so as to make these consumers perceive the value for money, offer good value for money, offer various benefits, offer discounts or coupons on each visit, reduce the delivery charges or offer free delivery, provide better promotional incentives, along with limited-time free subscriptions, free meals after a specific number of deliveries and freebies in collaboration with other businesses. Moreover, they are concerned about conditional value, which comes in the form of free and quick delivery. FDA service providers should look on ways to reduce delivery-related expenses and speed up food delivery. For instance, FDAs can avoid traffic jams by using drones to transport food, which has been tested in Korea (Hwang *et al.*, 2019). Even though it is costly to acquire drones, the long-term benefits are expected to offset the cost, including the decrease in number of delivery personnel.

Second, Generation Y consumers should emphasize epistemic and social value. Through smart marketing that targets current users, such as eWOM, significant referrals (family, friends or coworkers), online reviews and advocacy, FDA companies can increase their Generation Y client base, which is considered more reliable than the data provided by companies. For the social value, they habitually require acceptance from friends or society. They would like to impress their friends with their knowledge on products or services, describe their own image, as well as being quite curious about reactions from other members. They are likely to connect prestige value to the use of these apps. Companies can formulate strategies, such as recognizing the most frequent user in a specific area within a certain period on their Facebook page or TikTok, and should create campaign to provide a space to express opinions, knowledge or talent, such as providing a space to review food delivery services, review menus, recommend great restaurants, hold a contest for the best local dishes or organize a user-generated content contest about creative food.

Finally, factors influencing Generation Z consumers are epistemic, functional and social values. They habitually like to do fun activities to engage with brands. They expect brands to offer excitement, new offerings all the time and new interactive experiences. Thus, companies should create interactive activities with experience, which is totally different from eating at a restaurant, especially via social media, such as TikTok challenging campaign. Moreover, the marketers should place emphasis on advertisements showing the use of the FDAs to order food quickly and conveniently, with contactless deliveries and other security measures to raise confidence amid the pandemic or PM2.5 pollution. In addition, they are aware of spending money reasonably. Therefore, marketers should communicate to this group of consumers the value for money of the products or services, time value and more benefits to receive, compared to going out for a meal. In addition, it is necessary to ensure the apps be up-to-date with high-resolution pictures of food and provide information of newcoming restaurants or food catering services.

### *5.4 Limitations and future research*

The findings may not apply to FDAs in other nations or to other mobile apps used for making reservations for or purchasing products and services because the focus of this

study is FDAs in the Thai market alone. This limited generalizability can be addressed, and researchers working to validate the findings of this study in diverse cultural contexts, particularly in countries where FDAs are often used, can help shed further light on this problem. We advise academics to expand this research area and provide a more complete comprehension of FDA consuming behavior by using additional fundamental theories from a variety of domains. For instance, one explanation for why customers reject the usage of FDAs is the innovation resistance argument. Customer experience frameworks can also be used to understand the sensory aspects of FDA purchases, as well as the influence of user reviews and app design elements (such as background color) on purchasing choices.

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