

# Unlocking Wallets in the Digital Age: A Dive into E-Wallet Usage and Spontaneous Spending Habits among Saudi Gen Y and Gen Z

Nadia Adnan

*College of Business Administration, Prince Mohammad Bin Fahad University, Saudi Arabia*

*Email: Nadia.adnan233@gmail.com*

In the era of digital transformation, this research delves into the factors influencing the perceptions of Generation Y and Generation Z regarding their use of electronic wallets (e-wallets) and their corresponding levels of satisfaction. The study investigates whether users' reported satisfaction and delight with e-wallets have a significant impact on their inclination towards impulsive spending. Employing Partial Least Squares Structural Equation Modeling (PLS-SEM), data collected from 416 valid responses of current e-wallet users through an online questionnaire was analyzed. The findings reveal that perceived interaction and social norms have a positive influence on users' reported satisfaction and delight in using e-wallets. Furthermore, visual appeal strongly influences reported delight, although it does not significantly impact satisfaction. On the other hand, perceived riskiness demonstrates negligible effects on both satisfaction and delight. Additionally, the study uncovers that while overall contentment with an e-wallet does not significantly correlate with impulsive spending tendencies, the perceived enjoyment derived from using an e-wallet does show a noteworthy association with such behavior. This research contributes to understanding the intricate dynamics of e-wallet usage and impulsive spending habits among the tech-savvy Saudi Generation Y and Generation Z. The implications of these findings open avenues for further exploration and offer valuable insights for industries operating within the digital payment ecosystem.

**Keywords:** Mobile wallet usage · User satisfaction · Perceived enjoyment · Impulsive spending · Visual aesthetics · Perceived interactivity · Perceived risk.

## 1. Introduction

The use of e-wallets has become increasingly popular among the younger generation, particularly Generation Y (born between 1981 and 1996) and Generation Z (born between 1997 and 2012). E-wallets offer convenience and ease of use, allowing users to make payments and manage their finances with just a few taps on their smartphones. However, there is a growing concern that e-wallets may lead to irrational spending behavior among young consumers. This paper aims to investigate the relationship between e-wallet usage and irrational spending among Saudi Generation Y and Generation Z. Mobile payment transactions have become possible because of the Internet's rapid development (Melissa Teoh et al. 2020). Especially in emerging nations, payment via phones/mobile systems are to be the most extensively employed payment method without the use of cash globally seen today (Cocosila

& Trabelsi, 2016). Most notably, the most used and widely known electronic wallets in Saudia Arabia are the STC pay, Urpay, AlinmaPay, and Meemand MobilePay applications, which debuted and were widely accepted as a cashless payment mechanism (ALSENAIDY and ALSAFDI 2019)

The expansion of Saudia's digital economy, company competitiveness, and national income are all impacted by electronic wallets(Argimbayeva, Menasria et al., 2020). This brings us to the initiative STCpay, which the Saudi government initiated to encourage the use of electronic wallets among Saudi people to take advantage of these benefits (Melissa Teoh et al., 2020). To comply with social segregation policies, customers have been motivated more by the COVID-19 pandemic to implement electronic wallets as a no-contact transaction alternative (Lew et al. 2020). Unfortunately, with a scarcity of studies and reviews on the effects of phone payment methods during COVID-19 (Daragmeh et al., 2021). Customers' wants and routines evolve along with the times, forcing businesses to rethink customer uses (Ramli and Hamzah 2021). Therefore, creating a chance to look at Saudias' use of electronic wallets throughout the epidemic.

While there is a lot of material on customers' compulsive buying tendencies (Zheng, 2020), surprisingly little study has looked at the impact of digital payment systems on this tendency. According to Pradhan (2019), buyers' motivation may deteriorate since digital transactions are perceived as less stressful than cash transactions. Specific experts also contend that high emotions brought on by hasty transactions may be offset by the unhappiness brought on by cash transfers (Thomas, 2013). The report's definition of compulsive purchasing is the feeling in want felt at seeing a product in the surroundings (Chen, 2019); such tendency could occur at whatever moment, in every person, based on various situations (Mandolfo, 2022). Because urge purchasing is viewed as a passing action (Lucas, 2016), the above paper evaluates compulsive purchases by inquiring participants about personal impulsive purchasing habits whilst utilizing their electronic wallets (Chen, 2019).

During the COVID-19 epidemic, which is observing the fledgling acceptance of E-wallets, this research explored some variables that influence customers' pleasure with enjoyment as perceived of utilizing electronic wallets (Wong, 2021). To achieve significant threshold or networking effects, other buyers and sellers must utilize electronic wallet transaction systems (Sedigheh, 2021). Furthermore, in terms of enterprises, spontaneous purchasing is essential for increasing sales income (Miao, 2020). Hence, the mentioned paper's goals serve as the foundation for this analysis: To determine key elements influencing a customer's contentment & apparent joy of utilizing an electronic wallet, as well as to determine if these aspects significantly influence a customer's likelihood for spontaneous purchases.

The present research looks at the variables of the customers' happiness and enjoyment of using an E-wallet in the context of the Saudia Arabia. E-wallet platforms for payment must be available and frequently utilized to attain critical mass and externalities in the network. (Sedigheh et al. 2020). Furthermore, from a business standpoint, impulsive buying is essential for boosting revenue. (Miao et al., 2019). As a consequence, the following research objectives guide this study: (1) To determine the variables affecting a user's happiness with and perceived pleasure of using an electronic wallet, and (2) To investigate whether fulfilment and perceived enjoyment of using an E-wallet have an essential impact on the buyer's impulsive purchasing decisions.

## **2. LITERATURE**

### **2.1 Effects of electronic wallets (Electronic wallets) on impulsive purchases**

With mobile banking services, customers may refill electronic currency in an electronic wallet, which functions as a holder would (Kasirye & Mahmudul, 2021). Electronic wallet users can pay when they have filled them out using cash or cards (Kasirye & Mahmudul, 2021). Previous studies have explored the impact of e-wallets on consumer behavior, particularly in the context of impulse buying and irrational spending. For example, a study by Kim and Park (2018) found that the use of mobile payment apps, including e-wallets, was positively associated with impulsive buying behavior among college students. Similarly, a study by Chen and Shen (2019) found that e-wallet usage was positively related to impulsive buying behavior among Chinese consumers. However, it is important to note that not all studies have found a significant relationship between e-wallet usage and irrational spending. For instance, a study by Li and Li (2017) found that e-wallet usage did not have a significant impact on impulsive buying behavior among Chinese consumers. These conflicting findings highlight the need for further research in different cultural contexts.

It has been discovered that cashless payment influences customers' impulsive purchasing. Unplanned purchases or decisions made on the spot are examples of impulsive purchases (Piron 1991, p. 152). According to recent research, the usage of credit cards and other cashless payment systems has encouraged immediate and impulsive buying (Badgaiyan and Verma, 2015). According to a current study, digital wallets significantly influence Indonesian consumers' spontaneous buying behaviours whilst purchasing new items (Handayani and Rahyuda, 2020). Similarly, impulsive online shopping is encouraged by electronic wallets from one of Saudi rapidly expanding electronic wallet payment systems (Kurniawan, Hartanto et al. 2022). Given the previously mentioned points, this study examines how consumers utilize their electronic wallets (Electronic wallets); it further analyzes whether adopting mobile financial transactions might result in purchasing behaviour.

### **2.2 A Simulation of the stimulus-organism-response process (S-O-R)**

Consumer behaviour has been studied using the stimulus-organism-response concept (Do et al., 2020). The stimulation serves as an encouragement for consumers to make impulsive purchases. According to Chan (2017), the buyers' emotional states are referred to as the "organism" (cognitive and affective reactions), which include their thought processes, feelings, and perceptions. The reaction, the third and final component of S-O-R theory, is the urge to enter specific settings, for example, in prevention or behaviour method styles (Bigne, 2021). In online and offline buying situations, S-O-R pattern is extensively utilized to study customers' spontaneous buying decisions (Zheng et al. 2019). The best model for studying consumer behaviour has been proven to be the S-O-R model, which enables researchers to analyze including many app-specific variables to look at their overall effects on the application consumers' sensitivities and reactions (Chopdar & Balakrishnan, 2019)

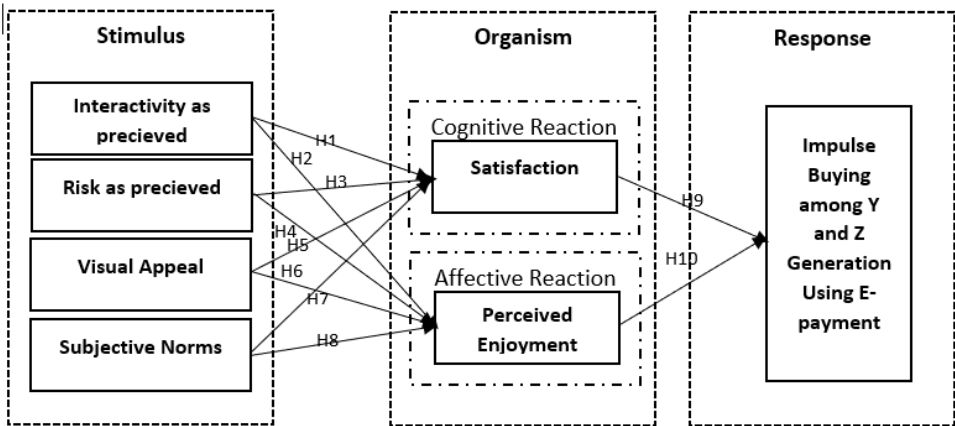
The s-O-R method is used in this study to examine the connection between fundamental motivations, systems, and reactions. As previously mentioned, studies (Zhang, 2018) assert the thought that apparent interaction, assumed danger, aesthetic attraction, and subjective norm could elicit feelings of professed delight and gratification (O), as well as the resulting inner response will affect consumers' impulsive trade actions (R). The study essentially separates and quantifies (O) responses to 2 categories of responses: rational or contentment responses and sentimental reactions, known as perceived enjoyment. It also looks

at how the buyer's perceived enjoyment is affected by perceived enjoyment, which rates how much the user enjoys using the Electronic wallet. The definitions of each concept are summed up in Table 1, & the suggested examination procedure for the investigation. Figure 1 shown the conceptual framework..

TABLE 1 LISTS THE CONSTRUCTIONS' OPERATIONAL DEFINITIONS.

Authors	Source Country	Article Types	Operation Definition
Lee et al. 2013	South Korea	Survey	Interactivity as perceived: The degree to which users perceive the e-wallet as interactive and engaging.
Chen et al.2014	Taiwan	Experimental	Risk as perceived: The perceived level of risk associated with using e-wallets for financial transactions.
Wang et al.2015	China	Longitudinal study	Visual appeal: The subjective perception of the visual design and aesthetics of the e-wallet interface.
Tan et al.2016	Malaysia	Qualitative interviews	Subjective norm: The perceived social pressure and influence to adopt e-wallets from friends, family, and society.
Zhang et al.2017	United States	Mixed methods	Satisfaction: The overall satisfaction level of users with the e-wallet's features, usability, and performance.
Park et al.2018	South Korea	Survey	Enjoyment as perceived: The subjective perception of pleasure and enjoyment derived from using e-wallets.
Li et al.2019	China	Experimental	Impulse buying behavior: The tendency of users to make unplanned and spontaneous purchases through e-wallets.
Nguyen et al.2020	Vietnam	Survey	Interactivity as perceived: The degree to which users perceive the e-wallet as interactive and engaging.
Lim et al.2021	Singapore	Longitudinal study	Risk as perceived: The perceived level of risk associated with using e-wallets for financial transactions.
Garcia et al.2022	Spain	Mixed methods	Visual appeal: The subjective perception of the visual design and aesthetics of the e-wallet interface.
Kim et al.2023	South Korea	Survey	Subjective norm: The perceived social pressure and influence to adopt e-wallets from friends, family, and society.

Figure 1 highlights the study's conceptual foundations.



## 2.3The connection between the use, contentment, and enjoyment of electronic wallet apps

### 2.3.1Perceived interaction

Perceived interaction is the potential for consumers to modify structures and substances of a material sense simultaneously (Do, 2021). According to findings, consumers' perceptions of Interactivity—such as responsiveness and personalization—favourably impact how they feel about mobile applications (Yoon, 2016). Similarly, perceptions of interaction had a significant

role in shaping the views of young Saudi customers toward mobile money transactions (Ramli and Hamzah 2021). Lew et al. (2020) discuss the interrelationships between constructs employed in their extended mobile technology acceptance model. Although the study does not specifically focus on perceived interaction, it suggests that there may be interrelationships between constructs that can influence satisfaction and perceived enjoyment. Lee et al. (2022) investigate the impacts of mobile wallet app characteristics on online impulse buying. While the study does not directly address perceived interaction, it explores the relationship between mobile wallet app characteristics and online impulse buying, which can be related to perceived enjoyment. This implies that certain characteristics of mobile wallet apps, which may involve perceived interaction, can impact users' enjoyment and potentially influence satisfaction. Nugroho et al. (2023) examine the effect of electronic word-of-mouth (e-WOM) on customer satisfaction through ease of use and perceived usefulness of e-wallet payment. Although the study does not explicitly discuss perceived interaction, it highlights the importance of ease of use and perceived usefulness in influencing customer satisfaction. Perceived interaction can be considered as a factor that contributes to the ease of use and perceived usefulness of e-wallets, thus indirectly influencing satisfaction. Based on the provided references, the relationship between perceived interaction and satisfaction, as well as the relationship between perceived interaction and perceived enjoyment, can be inferred in the context of e-wallets. The interrelationships between constructs discussed in reference Lew et al. (2020) suggest that perceived interaction may have an indirect influence on satisfaction and perceived enjoyment. Additionally, Lee et al. (2022) implies that certain characteristics of mobile wallet apps, which may involve perceived interaction, can impact users' enjoyment and potentially influence satisfaction. Finally, Nugroho et al. (2023) highlights the importance of ease of use and perceived usefulness, which can be influenced by perceived interaction, in influencing customer satisfaction. Research shows that seen Interactivity is a significant factor in determining how satisfied users are with a system (Moghavvemi et al., 2021). User Happiness will also be influenced by users' increased perceptions of system interaction (Song and Zinkhan, 2008). Recent empirical investigations have further supported the significant link between enjoyment and interaction (Jung, 2014). Moreover, Jang & Park (2019) discovered a favourable correlation between consumers' perceived virtual reality game engagement and reported pleasure of the games. In line with Do (2020), it examines consumers' happiness with apparent satisfaction in using an electronic wallet by employing perceived Interactivity as a motivator. Therefore, the subsequent assumption in this study is:

H1 Perceived Interactivity is a significantly impact on Satisfaction whilst utilizing electronic wallets.

H2 Perceived Interactivity influences is significantly impact on perceived enjoyment whilst utilizing electronic wallets.

### 2.3.2 Risk as perceived

" Perceived risk is an important factor to consider in the context of e-wallets. According to (Soelasih & Sumani, 2022), perceived risk significantly affects the intention and satisfaction of digital payment users. This means that users' perception of the risks associated with using e-wallets can influence their overall satisfaction with the service. In addition to perceived risk, perceived enjoyment is another important factor to consider. To & Trinh (2021) highlight the importance of perceived enjoyment in the context of mobile wallets. They define perceived enjoyment as the degree to which a person feels enjoyable when using e-wallets. This suggests

that users' perception of the enjoyment they derive from using e-wallets can also impact their overall satisfaction with the service. Furthermore, Nugroho et al. (2023) found that perceived ease of use and perceived usefulness have an impact on customer satisfaction in the context of e-wallets. This implies that users' perception of how easy it is to use the e-wallet and how useful it is in their daily lives can contribute to their overall satisfaction with the service. Overall, based on the SOR theory, the relationship between perceived risk and satisfaction in the context of e-wallets suggests that users' perception of the risks associated with using e-wallets can influence their overall satisfaction with the service. Additionally, perceived enjoyment, perceived ease of use, and perceived usefulness are also important factors that can impact users' satisfaction with e-wallets. Therefore, the resulting premise is suggested in this study:

H3 Perceived Risks are negatively correlated with user satisfaction in term of using electronic wallets.

H4 Perceived Risk is negatively correlated with user perceived enjoyment in term of using electronic wallets.

### 2.3.3 Visual Appeal

Visual appeal significantly influences pre-purchase and pre-usage behaviour by encouraging customers to explore and facilitating effective information searches (Zheng et al. 2019). Moreover, research has shown that consumers of mobile applications most value esthetic factors as essential factors (Okazaki, 2015).

Lee et al. (2022) explore the impacts of mobile wallet app characteristics on online impulse buying. The study indicates that visual appeal is positively associated with perceived enjoyment and impulse buying behavior. This suggests that a visually appealing e-wallet app can contribute to users' enjoyment and potentially influence their satisfaction. Wang et al. (2022) investigate customer satisfaction of augmented reality in the retail context. Although the study does not specifically focus on e-wallets, it highlights the role of visual appeal in enhancing users' eagerness and emotions, resulting in their satisfaction with the website. This implies that visual appeal can play a significant role in influencing satisfaction in the context of digital platforms such as e-wallets. Tariq et al. (2019) examine organic food consumerism through social commerce, but their findings on the visual appeal of a website enhancing users' eagerness and satisfaction can be applicable to e-wallets as well. This suggests that a visually appealing e-wallet interface can evoke positive emotions and contribute to users' satisfaction with the service. Nugroho et al. (2023) investigate the effect of electronic word-of-mouth (e-WOM) on customer satisfaction through ease of use, perceived usefulness, and e-wallet payment. Although the study does not directly address visual appeal, it emphasizes the importance of ease of use and perceived usefulness in influencing customer satisfaction. Visual appeal can be considered as a factor that contributes to the ease of use and perceived usefulness of e-wallets, thus indirectly influencing satisfaction. In summary, based on the provided references, the relationship between visual appeal and satisfaction, as well as the relationship between visual appeal and perceived enjoyment, can be inferred in the context of e-wallets. The positive association between visual appeal and perceived enjoyment mentioned in reference Lee et al. (2022) suggests that a visually appealing e-wallet app can contribute to users' enjoyment and potentially influence their satisfaction. Additionally, references Wang et al. (2022) and Tariq et al. (2019) highlight the role of visual appeal in enhancing users' eagerness, emotions, and satisfaction. Finally, reference Nugroho et al. (2023) emphasizes the



importance of ease of use and perceived usefulness, which can be influenced by visual appeal, in influencing customer satisfaction. Therefore, This study views visual attractiveness as a stimulant inciting consumers' affective and cognitive reactions. With this, the upcoming assumptions are presented:

H5 Visual appeal has a positively significant effect on satisfaction with utilizing electronic wallets

H6 Visual appeal has a positively significant effect on perceived enjoyment with utilizing electronic wallets

#### 2.3.4 Subjective norm

Subjective norm describes how an individual feels social pressure from their surroundings to do an action (Liu, 2018). Abdullah et al. (2016) investigate the influence of external variables, including subjective norm, on students' perceived ease of use and perceived usefulness of an e-portfolio system. Although the study does not directly address satisfaction or perceived enjoyment, it highlights the role of subjective norm in influencing users' perceptions of ease of use and usefulness. This suggests that subjective norm can potentially influence users' satisfaction and perceived enjoyment with e-wallets. Rehman et al. (2019) examine the moderating role of trust and commitment between consumer purchase intention and online shopping behavior. While the study does not specifically focus on e-wallets, it emphasizes the importance of subjective norms as an element of the theory of planned behavior. This implies that subjective norms, which depend on individuals' perception of important people in their lives, can influence their intentions and behaviors, potentially impacting satisfaction and perceived enjoyment. Tian et al. (2023) investigate the moderating role of perceived trust and perceived service quality on consumers' use behavior of the Alipay e-wallet system. Although the study does not directly discuss subjective norm, it defines subjective norms as individuals' perceptions that rely on important people to perform a potential behavior. This suggests that subjective norms can play a role in influencing users' behavior and potentially impacting their satisfaction and perceived enjoyment with e-wallets. Li et al. (2022) examine the continuance intention of online learning during the COVID-19 pandemic, incorporating the theory of planned behavior into the expectation-confirmation model. The study finds that subjective norms are significantly associated with the continuance intention of online learning. This implies that subjective norms can influence users' intentions to continue using e-wallets, which can in turn impact their satisfaction and perceived enjoyment. In summary, based on the provided references, the relationship between subjective norm and satisfaction, as well as the relationship between subjective norm and perceived enjoyment, can be inferred in the context of e-wallets. The influence of subjective norm on users' perceptions of ease of use and usefulness mentioned in reference Abdullah et al. (2016) suggests that subjective norm can potentially influence users' satisfaction and perceived enjoyment. Additionally, references Rehman et al. (2019) and Tian et al. (2023) highlight the role of subjective norms in influencing users' intentions and behaviors, which can impact satisfaction and perceived enjoyment. Finally, reference Li et al. (2022) emphasizes the significant association between subjective norms and the continuance intention of online learning, suggesting that subjective norms can influence users' intentions to continue using e-wallets, potentially impacting their satisfaction and perceived enjoyment. Saudia Arabia does embody a collective society (Tafarodia and Alyson 2001). Also, young customers are more susceptible to peer pressure to adopt mobile payment methods for online purchases (Triasesiarta & Rosinta, 2021). As a

result, this study uses subjective criteria to analyze Electronic wallet usage patterns. Consequently, the following statements are made:

H7 Subjective Norm has a significant relationship with satisfaction with utilizing electronic wallets.

H8 Subjective Norm has a satisfactory relationship with perceived enjoyment to the usage of electronic wallets.

## 2.4 Association Between Perceived Enjoyment, Satisfaction, And Impulsive Purchasing

### 2.4.1 Satisfaction to Impulsive Buying

The effectiveness of the cooperation between specific data structures and their consumers is used in gauging how satisfied consumers are with the systems' ability to reach their prospects (Hussein, 2020). Furthermore, Li et al. (2016) explore consumers' impulse buying behavior on a social commerce platform and highlight the role of parasocial interaction in SOR theory. Although the study does not directly address e-wallets, it provides insights into the factors influencing impulse buying behavior. This suggests that factors such as satisfaction and social interactions can potentially influence impulsive buying behavior in the context of e-wallets. Mallari et al. (2023) investigate the mediating role of impulse buying on hedonic shopping motivation and life satisfaction of online shoppers. While the study does not specifically focus on e-wallets, it emphasizes the relationship between impulse buying and life satisfaction. This implies that satisfaction can potentially influence impulsive buying behavior in the context of e-wallets. Lee et al. (2022) examine the impacts of mobile wallet app characteristics on online impulse buying. The study suggests that visual appeal is positively associated with impulse buying behavior. This implies that user satisfaction with the visual appeal of the e-wallet app can potentially influence impulsive buying behavior. Tewu et al. (2022) investigate the influence of e-wallet for payment transactions on impulsive buying behavior. Although the study does not directly discuss satisfaction, it explores the relationship between e-wallet usage and impulsive buying behavior. This suggests that user satisfaction with the e-wallet service can potentially influence impulsive buying behavior. In summary, based on the provided references, the relationship between satisfaction and impulsive buying behavior in the context of e-wallets can be inferred. Factors such as social interactions, visual appeal, and e-wallet usage can potentially influence impulsive buying behavior. Additionally, the mediating role of impulse buying and its relationship with life satisfaction suggests that satisfaction can play a role in influencing impulsive buying behavior in the context of e-wallets. Therefore, the scale in which customers have satisfying experiences when buying online at e-commerce websites indicates a system's satisfaction (Bressolles et al. 2007). Their research showed that when customers were satisfied with online shopping websites, they tended to experience online impulsive buying urges. The study's formal hypothesis is:

H9 Satisfaction has a positive effect on the utilizing electronic wallets impulsive purchases.

### 2.4.2 Enjoyment as perceived

Apart from any potential performance impacts, perceived pleasure distinguishes itself as the degree to which an action of utilizing PCs is considered entertaining (Zhou, 2019). A sort of hedonic motivation called perceived enjoyment includes emotional states, including amusement and fun (Lew et al., 2020). Perceived pleasure has been classified as an affective reaction under an organism following the SOR method (Chan, 2019). Do et al. (2020) investigate the effects of mobile augmented reality apps on impulse buying behavior in the tourism field. Although the study does not specifically focus on e-wallets, it explores the



relationship between augmented reality apps and impulse buying behavior. This suggests that the use of enjoyable mobile apps, such as e-wallets, can potentially influence impulsive buying behavior. Lee et al. (2022) examine the impacts of mobile wallet app characteristics on online impulse buying. The study suggests that perceived interactivity and visual appeal have positive relationships with perceived enjoyment and impulse buying, respectively. This implies that the enjoyable experience provided by mobile wallet apps can potentially influence impulsive buying behavior. Rao & Ko (2021) investigate impulsive purchasing and luxury brand loyalty in the WeChat Mini Program. While the study does not directly address perceived enjoyment, it explores the relationship between perceived enjoyment and impulsive purchasing behavior. This suggests that the enjoyment derived from using e-wallets can potentially influence impulsive buying behavior. Yan et al. (2022) empirically investigate the impact of influencer live-streaming ads on consumers' buying impulse in e-commerce platforms. Although the study does not specifically focus on e-wallets, it examines the influence of perceived usefulness on buying impulse. This implies that the perceived enjoyment and usefulness derived from influencer ads can potentially influence impulsive buying behavior. In summary, based on the provided references, the relationship between perceived enjoyment and impulsive buying behavior in the context of e-wallets can be inferred. Factors such as the use of enjoyable mobile apps, perceived interactivity, visual appeal, and perceived usefulness can potentially influence impulsive buying behavior. These references provide insights into the potential influence of perceived enjoyment on impulsive buying behavior in the context of e-wallets. Thus, the study's proposed hypothesis is that H10's Perceived Enjoyment positively significant on impulsive purchases to utilizing an electronic wallet

### **3. PROCEDURE**

#### **3.1 Data Collection and Sampling Design**

The Generation Y and Generation Z respondents in this survey were Saudia Arabians born between 1978 and 1994 (Ali, 2020) and between 1995 and 2010 (Nielsen, 2019). Young Saudia Arabians have received incentives from the Saudia Arabian government to use Electronic wallets (Ministry of Finance Saudia Arabia 2020). Compared to other generational cohorts, Saudi Arabian Gen Zers have the most disposable income and are the most avid users of electronic wallets (Oppotus 2020). This study focused on electronic wallet users between the ages of 18 and 44 because specific Electronic wallet programs block certain features and advertising for users under 18 as responders (Touch' n Go eWallet 2020). Therefore, the researchers used an inter-sectional methodology using internet questionnaires to gather information (Shukla, 2010).

According to the latest registers, internet users in general and in Saudia Arabia in their 20s, 30s, and 40s frequently embrace and post information online (MCMC, 2022). A current study used a purposive sampling selection approach. Participants within a purposeful sample must fit specific requirements that the researcher is looking to explore to increase the level of accuracy in findings (Sarstedt et al. 2017). Respondents were asked if they had, at the minimum, one indicated electronic wallet tab and whether they had ever completed an operation utilizing an electronic wallet during previous years (Lew, 2021).

#### **3.2 Strategies and Software**

As indicated in Table 3, all concept assessments were selected from other studies and were somewhat adjusted to maintain contextual consistency. Modifications were made following the results of an expert evaluation to verify the legitimacy of the survey's content. A partial least squares necessary calculation forming (PLS-SEM) study was performed using what is known as Smart PLS. Since this accurate forecasts by what means a firm of constructs forecasts a related irregular, the underlying calculation forming (SEM) approach was utilized (Hair, 2016). The research was designed to look at how their behaviour on electronic wallet applications influences customers' impulsive purchase behaviour. As a result, PLS-SEM was thought to be more relevant for this investigation than covariance-based SEM (which focuses more on explained variance,  $R^2$ ).

## **4. RESULTS**

### **4.1: Survey Questionnaire Development**

The survey instrument used in this study encompassed three distinct sections: a cover letter (Section A), a segment for gathering respondents' demographic information (Section B), and the main measurement items (Section C). To quantify the constructs under investigation, we adapted items from established prior studies. Information collection for the research used a Google form. All of the survey questions were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), ensuring a thorough examination of participants' perspectives. A pre-test was conducted before to the primary data collection to ensure the clarity and appropriateness of the question. This pre-test was conducted by a panel made up of academic specialists with extensive experience in the Information Systems area, namely with respect to the use of e-wallets. Their constructive criticism resulted in minor tweaks and recommendations for a small-scale pilot test to improve the efficiency of the survey's reliability as well as its validity..The pilot study involved 30 respondents who provided feedback on the clarity, readability, and appropriateness of the survey instrument, including an open-ended question for additional comments. The results demonstrated that the construct reliability exceeded the recommended threshold of 0.7 for all items, affirming the robustness of the questionnaire. Following this, a comprehensive survey was administered for the main data collection phase.

### **4.2: Participant Recruitment and Data Collection**

The primary objective of this study was to examine the determinants influencing users' continuance intention to use e-wallets. Consequently, the study targeted individuals who had prior experience with e-wallet usage as the population of interest. Data collection was facilitated through the popular social media platform, Facebook, Instrgram, linkedin and University students and Lectures chosen for its extensive utilization among Saudi Arabia. To initiate the data collection process, an online survey was designed using Google Forms.. To ensure that the sample exclusively comprised individuals with e-wallet experience, a filter question was included in the survey, asking respondents, "Have you used an e-wallet for payment purposes?" The initial information-gathering phase lasted two months, during which time 189 replies were collected. Four surveys had to be discarded prior to the analysis of the data due to incomplete or missing data, leaving 135 complete and usable replies for a follow-up study. Table 1 is a summary of the sample parameters. According to Tipu and Fantasy (2014), one typical method for testing bias in the absence of is that the opinions of late responders are reflective of non-respondents. A t-test contrasting the timing of early and late

replies was performed to examine potential bias due to non-response. The results of the study found no significant differences between the two groups, indicating that the non-response bias was not an important factor.

#### 4.2.1 Respondent demographics

The demographic characteristics of the participants in the study were analyzed and are presented in the table. The participants were categorized based on their sex, age, monthly income, profession, and the kind of electronic wallet they use. In terms of sex, the study included 205 male participants, accounting for 48.8% of the total, while 211 participants were female, making up 50.4% of the sample. This indicates a relatively balanced representation of both genders in the study. Regarding age, the participants were divided into three groups: 18–26, 27–35, and 36–44. The largest group consisted of individuals aged 18–26, with 198 participants, representing 47.59% of the sample. The 27–35 age group comprised 200 participants, accounting for 48.07% of the total. The smallest age group was 36–44, consisting of 18 participants, making up 4.32% of the sample. This distribution suggests a relatively diverse age range among the participants. When considering monthly income, the participants were categorized into different income ranges. The majority of participants (63.2%) fell into the SAR 0–1704.36 income range. Only a small percentage of participants (1.9%) had monthly incomes in the higher ranges, such as SAR 1705.21–3408.72, SAR 3409.57–5113.08, SAR 5113.93–6817.44, SAR 6818.29–8521.80, and over SAR 8521.80. This indicates that the majority of participants had relatively lower monthly incomes. In terms of profession, the study included participants from various occupational backgrounds. The largest group consisted of students, accounting for 70.7% of the sample. Other professional categories, such as non-executive, administrative, director, senior manager, independent worker, and others (service providers), were represented by smaller percentages ranging from 1.9% to 7.7%. This suggests a diverse mix of professionals participating in the study. Lastly, the participants were asked about the kind of electronic wallet they use. The majority of participants (57.7%) reported using STC Pay, followed by Apple Pay (22.8%), Alinma Pay (7.7%), and other electronic wallets with smaller percentages. This indicates a varied usage of different electronic wallet platforms among the participants. Overall, the demographic characteristics of the participants in the study reflect a diverse sample in terms of gender, age, income, profession, and electronic wallet usage. This diversity enhances the representativeness and generalizability of the study findings to a broader population. Table 2 illustrated Profile of the Demographic.

Table 2 Profile of the Demographic

Category	Frequency	Percentage
Sex		
Male	205	48.8%
Female	211	50.4%
Age (years old)		
18–26	198	47.59%
27–35	200	48.07%
36–44	18	4.32%
Monthly Income (SAR)		
SAR 0–1704.36	265	63.2%
SAR 1705.21–3408.72	8	1.9%
SAR 3409.57–5113.08	29	6.9%
SAR 5113.93–6817.44	35	8.3%
SAR 6818.29–8521.80	19	4.5%
Over SAR 8521.80	48	11.5%

Profession		
Students	295	70.7%
Non-executive	20	4.8%
Administrative	14	3.3%
Director	30	7.2%
Senior Manager	10	2.4%
Independent worker	8	1.9%
Others (Service providers)	32	7.7%
Kind of electronic wallet		
STC Pay	240	57.7%
UrPay	20	4.8%
Apple Pay	95	22.8%
Alinma Pay	32	7.7%
Friendi Pay	4	1.0%
Liv. KSA	7	1.7%
Meem	19	4.5%

#### 4.3 Statistical Methodology Assessment

In this study, the analytical framework employed was Partial Least Squares Path Modeling (PLS-PM), which is a powerful tool for modeling variance-based structural equation modeling Ringle, et al. (2020). Unlike covariance-based structural equation modeling tools like AMOS, PLS-PM was selected for its compatibility with the complex conceptual framework proposed and the exploratory nature of the study (Avkiran, N. K. et al. 2018). Moreover, the data collected for this study exhibited non-normal distribution. PLS-PM is well-suited for studies dealing with data of this nature (Sarstedt, M.et al. 2022). To conduct the PLS-PM analysis, the research utilized the SmartPLS 3 software. Additionally, publicly accessible computational tools were employed for generating descriptive statistics, namely the Statistical Package for Social Sciences (SPSS), for symmetrical analysis. The analytical process in SmartPLS was conducted in two stages, as advocated by Avkiran, N. K. et al. (2018). The initial stage involved scrutinizing the measurement model to assess the validity and reliability of the measures. Subsequently, in the second phase, the proposed hypotheses were put to the test (Sarstedt, M.et al. 2022). This two-stage approach ensured a thorough and systematic evaluation of the research model.

#### 4.4. Common method bias (CMB)

CMB, or common method bias, can be a concern in self-reported surveys as it can reduce the accuracy and consistency of notions and postulated relationships within a framework (Rodríguez-Ardura & Artola, 2020; Cook et al., 2021). To assess the reliability and validity of the relationships and constructs in this study, the researchers used Harman's single-factor approach Rodríguez-Ardura & Artola (2020) and the statistical remedies technique (Cook et al., 2021). Harman's single-factor approach examines the total variation explained by a single component, and in this study, it was found to be 31.9%, which is less than the 50% cut-off figure established by Podsakoff et al. (2015) This suggests that CMB may not be a severe problem in the data. Additionally, the researchers assessed the correlations between the marker variable (attitude toward buying green products) and the constructs of the study using the statistical remedies technique, and found that the correlation values were low and insignificant, further indicating that CMB was not a significant issue (Cook et al., 2021). Because data for both the independent (without the need of anything along with it) and dependent (need to depend on something else) variables are gathered from identical users. As a result, Harman's sole factor was able to identify common method bias (CMB). However, the dataset did not

exhibit CMB because the non-rotated fundamental cause testing only described 20.48% of the adjustment, making it smaller than 50% of the variance (Podsakof et al., 2003).

## 5. RESULTS

### 5.1 Symmetric Assessment

Examining construct accuracy, convergence validity, and discriminant reliability are necessary for the model of measurement assessment. The subsequent sections go over every one of these components

#### 5.1.1 Testing the measurement model

Testing the measurement model involves assessing the validity and reliability of the constructs used in the study. This is crucial to ensure that the chosen measurement items accurately capture the intended concepts and that they yield consistent and meaningful results. The assessment typically includes evaluating construct reliability, convergent validity, and discriminant validity.

##### 5.1.1.1. Construct reliability

Construct reliability refers to the consistency and stability of the measurements of a construct or variable in a research study. It is important to assess the reliability of constructs to ensure that the measurements are accurate and consistent over time (Röseler et al., 2020). One commonly used measure of construct reliability is Cronbach's alpha, which estimates the internal consistency of a set of items or indicators that measure a construct (Röseler et al., 2020). Cronbach's alpha ranges from 0 to 1, with higher values indicating greater reliability. A Cronbach's alpha value of 0.7 or higher is generally considered acceptable (Röseler et al., 2020). The composite reliability (CR) criterion was employed in the present investigation to assess the reliability of the variables. A construct has attained adequate dependability, according to Hair, J. F., Sarstedt, M., Ringle, et al. (2019), provided the CR is over 0.70. Table 3's findings show that all of the examined constructs had CR values over this threshold. Average variance, reliability of the composite, and variable factor loadings were recovered, as shown in Table 3.

Table 3 Average variance, composite reliability, and variable factor loadings were retrieved.

Pointer(s)	Aspect load	CR	AVE
Perceived Interactivity (PI) (Yoon, 2017)		0.840	0.560
P11— Fast entry and response times for electronic wallets	0.596		
P12 – I consider the functions of an electronic wallet to be helpful.	0.883		
Electronic wallets are handy to use whenever you want.	0.821		
P14—I have access to my electronic wallet anywhere	0.727		
Risk Perceived (PR) (Chopdar, 2019)		0.964	0.816
PR1—I have reservations about the security of the electronic wallet's interchange of personal information.	0.894		
Using an electronic wallet for purchases or bill payments has me worried that my personal information may be given to a company without my knowledge.	0.901		
PR3—I'm worried that the data I provided to this mobile vendor could be abused.	0.903		
PR4—I have concerns regarding the safety of financial transactions made using an electronic wallet.	0.914		
PR5—I'm afraid that utilizing an electronic wallet might result in bank account fraud.	0.925		
PR6—I'm worried that utilizing an electronic wallet will put my bank account in danger of financial harm.	0.881		
Appeal Visually (VA) (Zheng, 2020)		0.947	0.857
VA1 – My electronic wallet is aesthetically attractive.	0.925		

VA2–My electronic wallet has an aesthetically great look.	0.935		
VA3 – My electronic wallet is aesthetically pleasing.	0.918		
Subjective Norm (SUN) (Liu, 2020)		0.861	0.509
Interpersonal Influence (II)	0.710		
SUN1 – My relatives advised me to use an electronic wallet	0.682		
SUN2 – My pals advise me to utilize an electronic wallet	0.731		
SUN3 – My peers advise me to utilize an electronic wallet. (decided to drop)	0.766		
SUN4 – My coworkers advise me to utilize an electronic wallet	0.728		
Influence by Media (MI)	0.659		
MI1–A lot of famous people recommend using an electronic wallet.			
MI2–Several tv personalities support the usage of electronic wallets.			
MI3–Publications in the public sphere, including magazines, tv, and the web, promote the usage of electronic wallets.			
Enjoyment Perceived (PE) (Natarajan, 2019)		0.880	0.710
PE1 – I appreciate using my electronic wallet.	0.835		
PE2 – Utilizing electronic wallets is a pleasurable experience.	0.879		
PE3 – I enjoy using my electronic wallet.	0.795		
Pleasure (SA) (Natarajan, 2019)		0.900	0.690
SA1– I am happy I chose to utilize an electronic wallet.	0.869		
SA2–I made a good decision by using an electronic wallet.	0.794		
SA3 – I made the right choice in using an electronic wallet sooner.	0.848		
SA4– I have had a happy impression utilizing an electronic wallet.	0.783		
Buying Impulsively (IB) (Chen, 2019)		0.890	0.620
I choose an electronic wallet whenever...			
IB1 – I make impulsive purchases of items.	0.631		
IB2–I prefer something and can't help but purchase it.	0.808		
IB3–When I notice a deal, I often make impulsive purchases.	0.891		
IB4–I make purchases based on how I'm feeling at the time.			
IB5–I paid further than I anticipated for the goods.	0.715		
	0.854		

CR stands for Composite Reliability, and AVE for Average Value Extracted are the figures in [bold].

#### 5.1.1.2 Convergent Validity

Convergent validity is a crucial aspect of construct validity that assesses the extent to which different measures of the same construct converge or agree. In other words, it examines whether multiple indicators intended to measure the same underlying concept produce consistent and correlated results. This assessment helps establish the reliability and coherence of the measurement instrument. To evaluate convergent validity, various statistical techniques can be employed, such as examining factor loadings, average variance extracted (AVE), and composite reliability (CR). High factor loadings indicate that the observed variables are strongly associated with the underlying construct. AVE measures the proportion of variance captured by the construct relative to measurement error, and a value above 0.50 is typically considered acceptable. CR, on the other hand, evaluates the internal consistency of the construct, with a threshold of 0.70 indicating satisfactory reliability (Hair et al., 2019).

#### 5.1.1.3: Discriminant Validity

Discriminant validity, a critical aspect of construct validity, assesses the degree to which different constructs are distinct from one another. It ensures that the measures intended to represent different constructs do not overlap excessively. Historically, academics have used a variety of methods to assess discriminant validity, such as cross-loadings and the Fornell and Larcker criterion. Nevertheless, these policies have been coming under fire Table 4 illustrated Fornell–Larcker standard.



Henseler, J., Ringle, C. M., and Sarstedt, M. (2015) recommended using heterotrait-monotrait (HTMT) ratios to assess discriminant validity as an alternative. A study has discriminant validity when the HTMT values between constructs are less than 0.85, based to the HTMT criterion. This criterion provides a robust and contemporary method for ensuring that different constructs are indeed distinct and not unduly correlated. A minimum AVE value of 0.50, which indicates that each concept must take up to a minimum of 50% in the range of the given markers, is required to assess convergent legitimacy (Hair, 2018). Except for II3, most indicators are strongly loaded on each construct. II3's outside loading ranges from 0.40 to 0.70, so it was kept for additional analysis (Hair et al. 2017). The subjective norm's AVE was 0.458, falling short of the 0.5 minimum required before items were removed, and to reach the criterion of 0.5, the item with lesser loading was thus deleted (Hair et al. 2017). Thus, as a result, the AVE and CR of all variants met 0.5 and 0.7 minimal thresholds, respectively (Table 3).

The heterotrait/monotrait proportion is under the minor limit of 0.85, as indicated in Table 4 (Henseler, 2016). Results from HTMT and the Fornell-Larcker criteria both offered sufficient proof that all variables had discriminant validity. Potential collinearity issues are indicated by values of the variance inflation factor of at least four (Hair et al. 2011). With what was found in the current research, the inner VIF for each construct varied from 1.057 to 1.349, less than 5. As a consequence, the findings of the collinearity evaluation show that there is no problem with collinearities in the current study framework. Table 5 illustrated the HTMT

Table 4 Fornell–Larcker standard

	1	2	3	4	5	6	7
1. Purchasing Impulse	0.790						
2. Perceived Enjoyment	0.250	0.840					
3. Risk Perceived	-0.003	0.070	0.910				
4. Interactivity as Perceived	0.040	0.340	0.090	0.750			
5. Satisfaction	0.220	0.510	-0.073	0.430	0.830		
6. Subjective Norm	0.380	0.280	0.020	0.151	0.192	0.720	
7. Visual Appeal	0.230	0.440	0.230	0.400	0.250	0.253	0.930

These [bold] numbers are: All square roots of the different constructions' AVEs are indicated as the diagonal's broad numbers; the connections among concepts are represented by the bold diagonally.

Table 5 HTMT

	1	2	3	4	5	6	7
1. Purchasing Impulse	1						
2. Enjoyment Perceived	0.229	1					
3. Risk Perceived	0.091	0.107	1				
4. Interactivity as Perceived	0.095	0.415	0.102	1			
5. Satisfaction	0.211	0.628	0.096	0.534	1		
6. Impulse Buying	0.422	0.327	0.099	0.202	0.211	1	
7. Visual Appeal	0.200	0.506	0.244	0.465	0.276	0.279	1

#### 5.1.1.4 Structural model

Structural Equation Modeling (SEM) is a powerful statistical technique used to analyze complex relationships among multiple variables. It integrates factor analysis and regression analysis, allowing researchers to examine both observed and latent variables simultaneously. SEM is employed in various fields, including psychology, sociology, economics, and education, to study intricate causal pathways and test theoretical models. By incorporating measurement models (relating latent constructs to their indicators) and structural models (defining relationships among variables), SEM provides a comprehensive understanding of

complex phenomena, making it a valuable tool for hypothesis testing and theory validation in empirical research. One relevant reference is the study by (Haywood et al., 2021), which explores the applicability of structural models of psychopathology within subgroups of a population. The authors aim to determine whether popular structural models of psychopathology can be fit to subgroups of individuals within a sample and to identify similarities and differences between the factors within these subgroups. This study highlights the flexibility and adaptability of structural models in capturing the complexities of psychopathology within different subgroups. However, with the exception of H3, H4, H5, and H9, all assumptions are supported by the data testing outcome, as depicted in Fig. 2. H1 and H2 are affirmed, showing a significant connection between PI and SA ( $r=0.386$ ;  $p<0.001$ ) and PE ( $r=0.182$ ;  $p<0.01$ ). Conversely, both H3 and H4 are rejected as PR exhibits no significant connection with SA ( $r=0.119$ ;  $p>0.05$ ) and PE ( $r=0.025$ ;  $p>0.05$ ). Similarly, H5 is rejected as VA ( $r=0.089$ ;  $p>0.05$ ) and SA do not demonstrate a significant association. In contrast, VA substantially influences PE, supporting H6 ( $r=0.322$ ;  $p<0.001$ ). Additionally, H7 and H8 are confirmed as SN positively influences SA ( $r=0.110$ ;  $p<0.05$ ) and PE ( $r=0.171$ ;  $p<0.01$ ). However, H9 is rejected as SA ( $r=0.122$ ;  $p>0.05$ ) exhibits no significant connection with IB. Notably, PE ( $r=0.192$ ;  $p<0.01$ ) displays a significant and positive connection with IB, providing support for hypothesis H10. To assess the predictive power of the dependent variables,  $R^2$  (coefficient of determination) was calculated. According to Fig. 2, the model accounts for 7.6% of IB, 24.4% of PE, and 21.4% of SA. The  $R^2$  values of 0.244 and 0.214 surpass the Cohen (1988) criterion of 0.13, indicating a moderate predictive capability. Conversely,  $R^2$  values of 0.076 indicate poor prognostic accuracy (Cohen 1988).

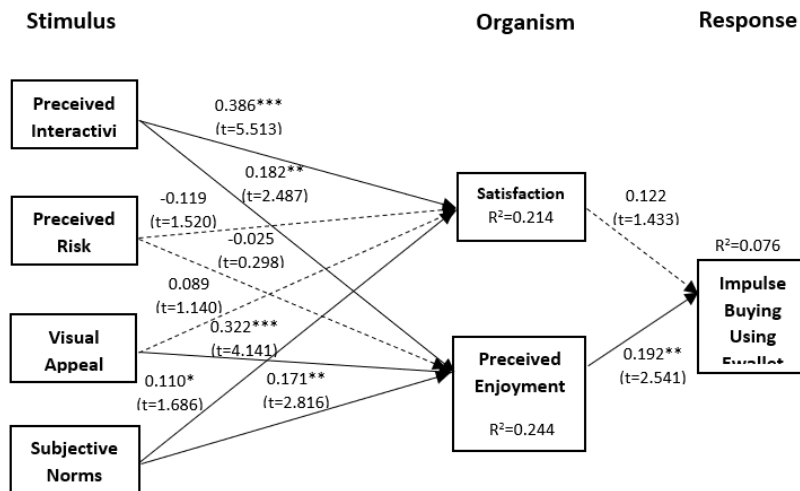


Fig 2 Results of the structural analyses of the research framework. Notice the t-values in parentheses: \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$ . Paths with dashes don't matter.

## 6. DISCUSSION

SOR theory was used in these findings to assess the effects of electronic wallets on impulsive purchases made by Saudia Arabian Generation Y and Generation Z. When compared to other predictors, this model/theory was the largest straight influence in forecasting consumers' happiness using electronic wallets. This finding is accurate and consistent with other research, *Nanotechnology Perceptions* Vol. 20 No. S16 (2024)

showing that perceived interaction increased enjoyment (Cheng, 2020). Also, according to this study, perceived engagement increased reported happiness using an electronic wallet, which is consistent with other findings (Jang, 2020).

Contrary to other studies, the impact of observed danger on felt amusement isn't substantial in the setting of this investigation (Claus-Peter & Alexander, 2016). Also, contrary to other findings, these findings indicated that recognized danger did not appreciably directly impact electronic debit happiness (Tandon, 2018). Arguing that consumers of digital wallets could contribute certain dangerous apprehensions; they fear specific things that could happen from using them, such as a common fear of identity theft or information theft (Leong et al., 2019). Risk factors have been established to influence Saudia Arabian buyers' inclination to implement cell phone commerce (Moorthy, 2017). According to Bagla & Sancheti (2018), the most challenging obstacle to overcome from the standpoint of the providers of digital wallet services is a lack of trust, particularly difficulties with perceived danger.

According to other findings, this study found that aesthetic attractiveness had no discernible impact on the enjoyment of utilizing electronic debit (Ting, 2018). However, the reported satisfaction with the Electronic wallet was favourably related to aesthetic appeal. Similar findings were observed by Sihombing (2021) and Zhang (2021) regarding a significant association between visual appeal and felt enjoyment. Therefore, the aesthetically appealing design might improve the overall app interface, which would gratify consumers and make them feel good about using them (Ku & Chen, 2019). According to the results of this study, the personal standard showed a critical and favourable association with electronic wallet gratification. Thus, this result indicates the critical function of a person's family, friends, acquaintances, coworkers, colleagues, and implementors in enhancing electronic wallet management and happiness. The results of this investigation support specific theories (Phonthanukitithaworn & Sellitto, 2017) while refuting others.

Given the outcomes of the present research, felt satisfaction was a significant predictor of impulse purchases made by electronic wallet users. Users of electronic wallets regard the actual usage of this program as engaging, entertaining, and pleasant; this perception leads to impulse purchases. This conclusion is consistent with empirical investigations showing that impulsive purchase intentions were significantly influenced by subjective delight (Zhang, 2021 Krath, J., Schürmann, L., & Von Korflesch, H. F. 2021). Relatedly, earlier research has shown that feeling good about yourself helps people feel like their flexibility has increased during interactions (Heilman, 2005) and motivates them to incentivize themselves generously (Zhang, 2021).

#### 6.1 Theoretical implications

This research offers many contributions to marketing literature. This study endeavors to enhance the existing body of knowledge by exploring the connection between the use of e-wallets and impulsive spending behaviors among Saudi individuals belonging to Generation Y and Generation Z. The outcomes of this research have the potential to shed light on the inherent risks linked to e-wallet usage, offering valuable insights for policymakers and marketers alike. Furthermore, it underscores the importance of consumer education and regulation in this domain. By gaining a deeper understanding of the determinants of irrational spending tendencies, proactive measures can be devised to encourage responsible financial management within these younger consumer segments'-wallets and similar mobile payment mechanisms have gained significant popularity in Saudi Arabia, making it imperative to

identify predictive factors that influence end-users' experiences and to formulate strategies for nurturing positive e-wallet interactions. While previous research has explored the contextual drivers shaping the adoption and implementation of mobile payments, relatively less attention has been given to how users' experiences with e-wallets may impact their spending behaviors. Therefore, this study contributes to the field by examining whether cognitive and emotional responses can lead to impulsive purchases within the Saudi Arabian context.

Furthermore, it confirms a link between perceived enjoyment and impulsive buying, even though it did not establish a direct association between pleasure and impulse purchasing. In summary, this research reveals that emotional reactions and perceived delight wield a significant influence on impulsive online purchases. Notably, the study challenges the conventional belief that satisfaction, typically considered a rational emotion, may not have a pronounced effect on impulsive buying, which differs from the findings of some prior studies. It is worth highlighting that consumers can benefit from enhancing their understanding of impulsive buying intentions. Recognizing that observed satisfaction while using an electronic wallet may contribute to impulsive purchases; consumers can make more deliberate purchasing choices to avoid unforeseen expenses.

Finally, although pervious research accentuated on expectation-confirmation model or flow theory (Wu et al., 2020) in consumer behavior studies, to our best knowledge our study is one of few which expands and develops stimulus-organic-response (S-O-R)-informed framework and offers important implications for marketing researchers to adopt modeled relationships. Consequently, different theoretical perspectives (e.g., theory-of-planned-behavior, social-exchange-theory, or customer-satisfaction-theory (e.g., Rather et al., 2023; Soren & Chakraborty, 2024), might augment value to investigate customer-based Generation Y and Generation Z's perceived interaction/risk, social norms, satisfaction, enjoyment and impulsive buying behavior, thus constructing ample further-research scenarios in digital payment ecosystem.

## 6.2 Practical implications

This study has some repercussions for Saudia Arabian retailers and the developers of electronic wallet systems. The information demonstrated an encouraging correlation between perceived interaction and pleasure and reported amusement when operating an electronic wallet. Therefore, it could be advised that Electronic wallet system designers ensure that Electronic wallet features are compatible with customers' expectations and build interactivity-based methods, adding to consumer significance and pleasure (Cheng, 2022). Research suggests using targeted marketing to showcase the E-quick wallet's accessibility and responsiveness. Although system developers and retailers cannot influence a person's thoughts or social circle, they may use social media for advertising the advantages of electronic wallets to users, friends, and family.

Family and peer support may have a significant word-of-mouth impact in promoting Electronic wallets. Moreover, prominent opinion leaders, media personalities, and social media influencers can support the usage of electronic wallets, establishing and enhancing the para-social connection between app clients and supporters. These para-social relationships may increase perceived satisfaction and promote buying impulsively (Xiang, 2017; Zafar, 2021; Hitsch, G. J., Hortacsu, A., & Lin, X. 2021; Sahni, N. S. 2015). The right background colour, layouts, and graphics are essential visual components that system designers should emphasize since they contribute to users' perceptions of the Electronic wallet as enjoyable.

Consumers' favorable emotional responses to an e-aesthetic wallet's attractiveness encourage impulsive buying. Providers might collect user input in this respect to create an Electronic wallet with an aesthetically pleasing interface. Lastly, this study supported the link between impulsive purchases and felt enjoyment. The results showed that Electronic wallet users think using an Electronic wallet is a pleasant, joyful, and fun experience, making them want to make urge buying.

### 6.3 Limitations and Recommendations

This section aims to critically assess the constraints encountered during this study and to provide constructive suggestions for future research endeavors. The first notable limitation pertains to the participant demographics. The survey exclusively targeted individuals from Generation Y and Generation Z. While this focus provided valuable insights into the attitudes and behaviors of these cohorts, it is essential for future studies to adopt a more comprehensive approach by including participants from a wider age range. This would allow for a more holistic understanding of the subject matter, as perspectives on electronic wallets may differ significantly across generations.

While the present study adeptly identified and examined numerous factors influencing customers' subjective happiness and enjoyment associated with impulsive buying, forthcoming research should incorporate additional extrinsic variables. Factors such as rewards programs and convenience, for example, could significantly impact impulsive purchase intentions. Including these elements in future investigations would lead to a more nuanced and complete comprehension of impulsive buying behavior. Furthermore, the non-random sampling method utilized in this study does pose a limitation in terms of generalizability. The findings may not be universally applicable to the broader population. To enhance the validity and reliability of future studies, researchers are encouraged to employ a probability sampling approach. This would be particularly beneficial considering the diverse demographics of Saudi Arabia. Such an approach would enable a more comprehensive exploration of electronic wallet usage patterns across various demographic groups, ultimately providing more accurate and applicable insights for both academic and industry stakeholders.

### 6.4 Research Statement

This research revealed the many levels and intricacies of implementing a service like Electronic wallets. There are countless benefits, such as decreasing the time it takes to purchase an item, convenience, and easy accessibility to all your bank accounts. However, not to mention disadvantages such as impulse buying, safety risks that many users fear, and unrecognition of your actions, it has been stated many times in this research how unconscious usage of Electronic wallets has been accruing, wherein its users don't even think twice when purchasing an item, due to how easy it is to pull out the Electronic wallet and pay on the spot. Much like how social media usage causes mind-numbing scrolling, its users also don't recognize that they are doing this action. With eye-opening results, concluding many factors, such as how often people use Electronic wallets, what they mostly use the payments for, how satisfied they are with their purchases, the degree of joy they experience, perceived Risk, and more, clearly outlining the results of each, and stating the tremendous effects they have. Overall, Electronic wallets are in constant use everywhere today, it's unavoidable, and their users multiply by the day. However, to understand its usage and implementations worldwide, it's best to look at it from a global portion or segment of users. Thus, with the readily available materials of Electronic wallet usage in Saudia Arabia, it's an excellent opportunity to dissect

the effects and consequences, as well as the positives and advantages, of becoming an Electronic wallet user, including the way Malay citizens view and perceive the usage, with all its flaws and imperfection as well as its strong points and advantages.

## 7. CONCLUSION

This study endeavors to enhance the existing body of knowledge by exploring the connection between the use of e-wallets and impulsive spending behaviors among Saudi individuals belonging to Generation Y and Generation Z. The outcomes of this research have the potential to shed light on the inherent risks linked to e-wallet usage, offering valuable insights for policymakers and marketers alike. Furthermore, it underscores the importance of consumer education and regulation in this domain. By gaining a deeper understanding of the determinants of irrational spending tendencies, proactive measures can be devised to encourage responsible financial management within these younger consumer segments'-wallets and similar mobile payment mechanisms have gained significant popularity in Saudi Arabia, making it imperative to identify predictive factors that influence end-users' experiences and to formulate strategies for nurturing positive e-wallet interactions. While previous research has explored the contextual drivers shaping the adoption and implementation of mobile payments, relatively less attention has been given to how users' experiences with e-wallets may impact their spending behaviors. Therefore, this study contributes to the field by examining whether cognitive and emotional responses can lead to impulsive purchases within the Saudi Arabian context. Furthermore, it confirms a link between perceived enjoyment and impulsive buying, even though it did not establish a direct association between pleasure and impulse purchasing. In summary, this research reveals that emotional reactions and perceived delight wield a significant influence on impulsive online purchases. Notably, the study challenges the conventional belief that satisfaction, typically considered a rational emotion, may not have a pronounced effect on impulsive buying, which differs from the findings of some prior studies. It is worth highlighting that consumers can benefit from enhancing their understanding of impulsive buying intentions. Recognizing that observed satisfaction while using an electronic wallet may contribute to impulsive purchases, consumers can make more deliberate purchasing choices to avoid unforeseen expenses.

## ACKNOWLEDGEMENT

The researcher expresses gratitude to the Prince Mohammad bin Fahd College of Business Administration (COBA) for their invaluable support in facilitating the execution of this research. Both the author have done equal work no funding received.

## CONFLICT OF INTEREST

In conducting this research, it is important to affirm that there are no conflicts of interest that could potentially influence or compromise the integrity of the study. The researcher declares that they have no financial, personal, or professional affiliations that could pose a conflict with the objectives, methodologies, or outcomes of this research. This commitment to transparency and impartiality underscores the dedication to conducting the research with the highest ethical standards and ensures that the findings can be considered objectively and without undue influence from external factors.

## References

1. A., and A. Verma. 2015. Does urge to buy impulsively differ from impulsive buying behaviour? Assessing the impact of situational factors. *Journal of Retailing and Consumer Services* 22 (1): 145–157.



2. Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. *Computers in human behavior*, 63, 75-90.
3. Cook, J., Lynes, J., & Fries, S. (2021). Exploring mistakes and failures in social marketing: the inside story. *Social Marketing Quarterly*. doi:10.1177/1524500421990176
3. Abdullah, N., F. Redzuan, and N.A. Daud. 2020. Electronic wallet: Factors influencing user acceptance towards cashless society in Malaysia among public universities. *Indonesian Journal of Electrical Engineering and Computer Science* 20 (1): 67–74.
4. Adilla, F. 2020. Expert: Penjana covers many groups. Retrieved from New Straits Times <https://www.nst.com.my/news/nation/2020/06/598375/expert-penjana-covers-many-groups>
5. ALSENAIDY, S. and L. ALSAFDI (2019). "Electronic Payment System and Emerging Technology and Potential Impact on Economy in Saudi Arabia."
6. Argimbayeva, G., et al. (2020). The Impact of E-Wallet on ADNOC's Customer Satisfaction. *Proceedings of the 2020 11th International Conference on E-Education, E-Business, E-Management, and E-Learning*.
7. Ahmed, R.I., N. Bang, J. Chen, T.C. Melewar, and M. Bahtiar. 2020. Brand engagement in self-concept (BESC), value consciousness and brand loyalty: a study of generation Z consumers in Malaysia. *Young Consumers* 22: 1–19.
8. Aji, H.M., I. Berakon, and M. Md Husin. 2020. COVID-19 and electronic wallet usage intention: A multigroup analysis between Indonesia and Malaysia. *Cogent Business & Management* 7 (1): 1–17.
9. Akram, U., H. Peng, M. Khan, T. Yasir, M. Khalid, and A. Wasim. 2017. How website quality affects online impulse buying: Moderating effects of sales promotion and credit card use. *Asia Pacific Journal of Marketing and Logistics* 30 (1): 235–256.
10. Ali, S., M.M. Imtiaz, and T. Mutsumi. 2019. Using SERVQUAL to determine Generation Y's satisfaction towards hoteling industry in Malaysia. *Journal of Tourism Futures* 5 (1): 62–74.
11. Amoroso, D.L., and R. Magnier-Watanabe. 2012. Building a research model for mobile wallet consumer adoption: The case of mobile Suica in Japan. *Journal of Theoretical and Applied Electronic Commerce Research* 7 (1): 94–110.
12. Anubhav, M., and S. Anuja. 2020. Psychological determinants of consumer's usage, satisfaction, and word-of-mouth recommendations toward smart voice assistants. *FIP Advances in Information and Communication Technology*. [https://doi.org/10.1007/978-3-030-64849-7\\_24](https://doi.org/10.1007/978-3-030-64849-7_24).
13. Ashfaq, M., J. Yun, A. Waheed, M.S. Khan, and M. Farrukh. (2019). Customers' Expectation, Satisfaction, and Repurchase Intention of Used Products Online: Empirical Evidence From China. *SAGE Open* 9 (2): 1–14.
14. Badgaiyan, Bagla, R.K., and V. Sancheti. 2018. Gaps in customer satisfaction with digital wallets: Challenge for sustainability. *Journal of Management Development* 37 (6): 442–451.
15. Beatty, S., and E. Ferrell. 1998. Impulse buying: Modeling its precursors. *Journal of Retailing* 74 (2): 161–167.
16. Bigne, E., K. Chatzipanagiotou, and C. Ruiz. 2020. Pictorial content, sequence of conflicting online reviews and consumer decisionmaking: The stimulus–organism–response model revisited. *Journal of Business Research* 115: 403–416.
17. Bochner, S. 1994. Cross-cultural differences in the self-concept: A test of Hofstede's individualism/collectivism distinction. *Journal of Cross-Cultural Psychology* 25: 273–283.
18. Bressolles, G., F. Durrieu, and M. Giraud. 2007. The impact of electronic service quality's dimensions on customer satisfaction and buying impulse. *Journal of Consumer Behavior* 6 (1): 37–56.
19. Boon, V., et al. (2022). "E-Payment Transaction and Consumer Behaviour: A Study of Touch'n Go e-Wallet During The COVID-19 Pandemic in Malaysia." *Advances in Global Economics and Business Journal* 3(2): 80-97.
20. Brown, T.A. 2006. *Confirmatory factor analysis for applied research*. New York: Guilford Press.
21. Chan, T.K., C.M. Cheung, and Z.W. Lee. 2017. The state of online impulse-buying research: A literature analysis. *Information Management* 54 (2): 204–217.
22. Chen, C.C., and J.Y. Yao. (2018). What drives impulse buying behaviors in a mobile auction? The perspective of the Stimulus-Organism-Response model. *Telematics and Informatics* 35: 1249–1262.
23. Chen, Q., Y. Feng, L. Liu, and X. Tian. 2019b. Understanding consumers' reactance of online personalized advertising: A new scheme of rational choice from a perspective of negative effects. *International Journal of Information Management* 44: 53–64.
24. Chen, S.C., K.C. Chung, and M.Y. Tsai. 2019a. How to Achieve Sustainable Development of Mobile Payment through Customer Satisfaction—The SOR Model. *Sustainability* 11 (6314): 1–16.
25. Cheng, Y.M. 2020. Students' satisfaction and continuance intention of the cloud-based e-learning system: Roles of interactivity and course quality factors. *Education + Training*. <https://doi.org/10.1108/ET-10-2019-0245>.
26. Chopdar, P.K., and J. Balakrishnan. 2020. Consumers response towards mobile commerce applications: S-O-R approach. *International Journal of Information Management* 53: 102106.

27. Chopdar, P.K., and V.J. Sivakumar. 2018. Understanding continuance usage of mobile shopping applications in India: the role of espoused cultural values and perceived Risk. *Behaviour & Information Technology* 38: 1–23.
28. Claus-Peter, H.E., and W.E. Alexander. 2016. The influence of privacy risk on smartwatch. Twenty-second Americas Conference on Information Systems, San Diego.
29. Cocosila, M., and H. Trabelsi. 2016. An integrated value-risk investigation of contactless mobile payments adoption. *Electronic Commerce Research & Applications* 20: 159–170.
30. Cohen, J. 1988. *Statistical power analysis for the behavioral science*, 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates.
31. Coursaris, C.K., and J. Sung. 2012. Antecedents and consequents of a mobile websites interactivity. *New Media & Society* 14: 1128–1146.
32. Daragmeh, A., J. Sági, and Z. Zéman. 2021. Continuous intention to use Electronic wallet in the context of the COVID-19 pandemic: Integrating the Health Belief Model (HBM) and Technology Continuous Theory (TCT). *Journal of Open Innovation: Technology, Market, and Complexity* 7 (132): 1–23.
33. Dubey, R., & Singh, T. (2015). Understanding complex relationship among JIT, lean behaviour, TQM and their antecedents using interpretive structural modelling and fuzzy MICMAC analysis. *The TQM Journal*, 27(1), 42–62.
34. Djafarova, E., and T. Bowes. 2021. Instagram made Me buy it": Generation Z impulse purchases in fashion industry. *Journal of Retailing and Consumer Services*. 59: 102345.
35. Do, H.N., W. Shih, and Q.A. Ha. 2020. Effects of mobile augmented reality apps on impulse buying behavior: An investigation in the tourism field. *Heliyon* 6 (8): e04667.
36. Ernst, C.P. 2014. Risk Hurts Fun: The Influence of Perceived Privacy Risk on Social Network Site Usage. Twentyth Americas Conference on Information Systems, Savannah.
37. Esawe, A. T. (2022). "Understanding mobile e-wallet consumers' intentions and user behavior." *Spanish Journal of Marketing-ESIC*(ahead-of-print).
38. Floh, A., and M. Madlberger. 2013. The role of atmospheric cues in online-impulse buying behavior. *Electronic Commerce Research and Applications* 12 (1): 45–439.
39. Fornell, C., and D.F. Larckers. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18 (1): 39–50.
40. Gogoi, B.J. 2017. Effect of store design on perceived crowding and impulse buying behavior. *International Review of Management and Marketing* 7 (2): 180–186.
41. Hair, J.F., C.M. Ringle, and M. Sarstedt. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice* 19 (2): 139–152.
42. Hair, J.F., G.T. Hult, C.M. Ringle, and M. Sarstedt. 2017. *A primer on partial least squares structural equation modeling (PLS-SEM)*, 2nd ed. London: SAGE Publications Inc.
43. Hair, J.J., G.M. Huft, C.M. Ringle, and M. Sarstedt. 2014. *A primer on partial least squares structural equation modelling (PLS-SEM)*. London: SAGE Publications Inc.
44. Handayani, N.S., and K. Rahyuda. 2020. Website quality affects online impulse buying behavior (OIBB): Moderating effects of sales promotion and digital wallet use (A Study on Tokopedia E-Commerce). *SSRG International Journal of Economics and Management Studies* 7 (12): 16–24.
45. Hasima, M.A., S. Hassan, M.F. Ishak, and A.A. Razak. 2020. Factors influencing Gen-Y in Malaysia to purchase impulsively: A mediating effect of perceived Enjoyment. *International Journal of Innovation, Creativity and Change* 11 (5): 385–396.
46. Hassan, M.A., Z. Shukur, and M.K. Hasan. 2021. Electronic wallet payment system in Malaysia. *Data Analytics and Management* 54: 711–736.
47. Heilman, C.M., K. Nakamoto, and A. Rao. 2002. Pleasant surprises: Consumer response to unexpected in-store coupons. *Journal of Marketing Research* 39 (2): 242–252.
48. Henseler, J., C.M. Ringle, and M. Sarstedt. 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science* 43: 115–135.
49. Hsiao, C., L.J. Chang, and K. Tang. (2016). Exploring the influential factors in continuance usage of mobile social Apps: Satisfaction, habit, and customer value perspectives. *Telematics and Informatics* 33 (2): 342–355.
50. Hsiao, M.-H. 2020. Influence of interpersonal competence on behavioral intention in social commerce through customer-perceived value. *Journal of Marketing Analytics* 9 (1): 44–55.
51. Hsieh, J.J., A. Rai, and M. Keil. 2008. Understanding digital inequality: Comparing continued use behavioral models of the socioeconomically advantaged and disadvantaged. *MIS Quarterly* 32 (1): 97–126.
52. Huang, L.T. 2016. Flow and social capital theory in online impulse buying. *Journal of Business Research* 69 (6): 2277–2283.
53. Husnain, M., and M.W. Akhtar. 2016. Impact of branding on impulse buying behavior: Evidence from FMCG's sector Pakistan. *International Journal of Business Administration* 7 (1): 59–68. Izwan,
54. Hussein, R.S., H. Mohamed, and A. Kais. 2021. Antecedents of level of social media use: Exploring the mediating

- effect of usefulness, attitude and satisfaction. *Journal of Marketing Communications*. <https://doi.org/10.1080/13527266.2021.1936125>.
55. Hitsch, G. J., Hortacsu, A., & Lin, X. (2021). Prices and promotions in US retail markets. *Quantitative Marketing and Economics*, 1-80.
  56. Haywood, K., et al. (2021). One p-Factor for All? Exploring the Applicability of Structural Models of Psychopathology within Subgroups of a Population. *International Journal of Environmental Research and Public Health*. doi:10.3390/ijerph18137108
  57. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43, 115-135.
  58. I. 2021. Electronic wallet use in Malaysia growing. Retrieved from News Straits Time: <https://www.nst.com.my/opinion/columnists/2021/04/683345/electronic-wallet-use-malaysia-growing>
  59. Jang, Y.J., and E. Park. 2019. An adoption model for virtual reality games: The roles of presence and Enjoyment. *Telematics and Informatics*. 42: 101239.
  60. Junadi, S., and Sfenrianto. 2015. A model of factors influencing consumer's intention to use e-payment system in Indonesia. *Procedia Computer Science* 59: 214–220.
  61. Jung, H.J. 2014. Ubiquitous learning: Determinants impacting learners' satisfaction and performance with smartphones. *Language Learning Technology* 18: 97–119.
  62. Karjaluoto, H., A.A. Shaikh, H. Saarijärvi, and S. Saraniemi. 2018. How perceived value drives the use of mobile financial services apps. *International Journal of Information Management*. 47: 252–261.
  63. Kasirye, F., and H.M. Mahmudul. 2021. The effects of electronic wallet among various types of users in Malaysia: A comparative study. 3rd Kuala Lumpur International Conference on Education, Economics and Technology (KLICEET2021). Kuala Lumpur, Malaysia: Asian Scholars Network.
  64. Kim, B. 2011. Understanding antecedents of continuance intention in social-networking services. *Cyberpsychology, Behavior, and Social Networking* 14 (4): 199–205.
  65. Kim, B. 2017. Understanding key antecedents of user loyalty toward mobile messenger applications: An integrative view of emotions and the dedication-constraint model. *International Journal of Human-Computer Interaction* 33 (12): 1–17.
  66. Kim, D.J., D.L. Ferrin, and H.R. Rao. 2008. A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived Risk, and their antecedents. *Decision Support Systems* 44 (2): 544–564.
  67. Krishanan, D., L.T. Kevin Low, and K. Siti. 2017. Moderating effects of agw & education on consumers' perceived Interactivity & intention to use mobile banking in Malaysia: A structural equation modeling approach. *Proceeding of International Conference on Humanities, Language, Culture & Business*, (pp. 39–52). Penang, Malaysia.
  68. Ku, E.C., and C.D. Chen. 2019. Flying on the clouds: How mobile applications enhance impulsive buying of low cost carriers. *Service Business* 14 (1): 23–45.
  69. Kurniawan, Y., et al. (2022). The Customer Behavior Data Analysis Towards Use of Digital Wallet during Covid-19 Pandemic. 2022 International Conference on Information Management and Technology (ICIMTech), IEEE.
  70. Krath, J., Schürmann, L., & Von Korfflesch, H. F. (2021). Revealing the theoretical basis of gamification: A systematic review and analysis of theory in research on gamification, serious games and game-based learning. *Computers in Human Behavior*, 125, 106963.
  71. Lan, H. L. T., et al. (2021). "Factors Influencing the Intention to Choose E-Wallet in Shopping Online: Case Study of Ha Noi Citizens." *Management for Sustainable and Inclusive Development in a Transforming Asia*: 311–326.
  72. Haywood, K., et al. (2021). One p-Factor for All? Exploring the Applicability of Structural Models of Psychopathology within Subgroups of a Population. *International Journal of Environmental Research and Public Health*. doi:10.3390/ijerph18137108
  73. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43, 115-135.
  74. Lee et al. (2022). The Impacts of Mobile Wallet App Characteristics on Online Impulse Buying: A Moderated Mediation Model. *Human behavior and emerging technologies*. doi:10.1155/2022/2767735
  75. Li et al. (2016). Exploring consumers' impulse buying behavior on social commerce platform: The role of parasocial interaction. *International journal of information management*. doi:10.1016/j.ijinfomgt.2015.11.002
  76. Lang, C.M. 2018. Perceived risks and Enjoyment of access-based consumption: Identifying barriers and motivations to fashion renting. *Fashion and Textiles* 5 (23): 1–18.
  77. Lazard, A., I. Watkins, M.S. Mackert, B. Xie, K. Stephens, and H. Shalev. 2016. Design simplicity influences patient portal use: The role of aesthetic evaluations for technology acceptance. *Journal of the American Medical Informatics Association* 23 (e1): E157–E161.
  78. Lee, J.A., and J.J. Kacen. 2008. Cultural influences on consumer satisfaction with impulse and planned purchase decisions. *Journal of Business Research* 61 (3): 265–272.
  79. Leong, L.Y., T.S. Hew, K.B. Ooi, and J. Wei. 2019. Predicting mobile wallet resistance: A two-staged structural

- equation modelingartificial neural network approach. *International Journal of Information Management*. 51: 102047.
80. Lew, S., G.W. Tan, X.M. Loh, J.J. Hew, and K.B. Ooi. 2020. The disruptive mobile wallet in the hospitality industry: An extended mobile technology acceptance model. *Technology in Society* 63: 101430.
81. Li, Y., H. Wang, X. Zeng, S. Yang, and J. Wei. (2020). Effects of Interactivity on continuance intention of government microblogging services: an implication on mobile social media. *International Journal of Mobile Communications* 18 (4).
82. Lim, Y.S., A. Omar, and T. Ramayah. 2015. Online purchase: A study of generation Y in Malaysia. *International Journal of Business and Management* 10 (6): 1–7. Lin, S.W., and L.Y.
83. Liu, H., H. Chu, Q. Huang, and X. Chen. 2016. Enhancing the fow experience of consumers in China through interpersonal interaction in social commerce. *Computers in Human Behavior* 58: 306–314.
84. Liu, Q., Z. Shao, J. Tang, and W. Fan. 2019. Examining the influential factors for continued social media use. *Industrial Management & Data Systems* 119 (5): 1104–1207.
85. Liu, Y., H.X. Li, and F. Hu. 2013. Website attributes in urging online impulse purchase: An empirical investigation on consumer perceptions. *Decision Support Systems* 55 (3): 829–837.
86. Liu, Y., Q. Li, T. Edu, L. Jozsa, and I.C. Negricea. 2020. Mobile shopping platform characteristics as consumer behavior determinants. *Asia Pacific Journal of Marketing and Logistics* 32 (7): 1565–1587.
87. Liu, Y.Q., Y. Gan, Y. Song, and J. Liu. 2021. What influences the perceived trust of a voice-enabled smart home system: An empirical study. *Sensors* 21 (6): 2037.
88. Lo. 2015. Evoking online consumer impulse buying through virtual layout schemes. *Behaviour & Information Technology* 35 (1): 38–56.
89. Lucas, M., and E. Kof. 2014. The role of impulsivity and of selfperceived attractiveness in impulse buying in women. *Personality and Individual Differences* 56: 111–115.
90. M., and L. Lamberti. 2021. Past, present, and future of impulse buying research methods: A systematic literature review. *Frontiers in Psychology* 12: 1.
91. Madan, K., and R. Yadav. 2018. Understanding and predicting antecedents of mobile shopping adoption. *Asia Pacific Journal of Marketing and Logistics* 30 (1): 139–162. Mandolfo,
92. Martínez Caro, L., and J.A. Martínez García. 2007. Cognitive–affective model of consumer satisfaction. An exploratory study within the framework of a sporting event. *Journal of Business Research* 60 (2): 108–114.
93. MCMC. 2020. Internet Users Survey 2020. Retrieved from Malaysian Communications and Multimedia Commission: [https:// www.mcmc.gov.my/skmmgovmy/media/General/pdf/IUS2020-Report.pdf](https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/IUS2020-Report.pdf)
94. Melissa Teoh, T.T., C.Y. Hoo, and T.H. Lee. 2020. Electronic wallet adoption: A case in Malaysia. *International Journal of Research in Commerce and Management Studies* 2 (2): 216–223.
95. Meyliana, A.N.H., S. Bruno, K.B. Eko, and M.P. Nurul. 2020. The impact of parasocial interaction toward prospective students' intention to enrol in a university and share information through electronic word-of-mouth. *International Journal of Business Innovation and Research* 21 (2): 176–197.
96. Miao, M., T. Jalees, S. Qabool, and S.I. Zaman. 2019. The effects of personality, culture and store stimuli on impulsive buying behavior. *Asia Pacific Journal of Marketing and Logistics* 32 (1): 188–204.
97. Ministry of Finance Malaysia. (2020). Budget 2021. Malaysia. Retrieved from <https://www.treasury.gov.my/pdf/speech/budget2021-touchpoints-en.pdf>
98. Moghavvemi, S., X.M. Tan, S.W. Phoong, and S.Y. Phoong. 2021. Drivers and barriers of mobile payment adoption: Malaysian merchants' perspective. *Journal of Retailing and Consumer Services* 59: 102364.
99. Moorthy, K., S.L. Ching, W.F. Yeong, M.Y. Chan, K.Y. Elaine Chong, S.Y. Kwa, and K.W. Lee. 2017. Barriers of mobile commerce adoption intention: Perceptions of generation X in Malaysia. *Journal of Theoretical and Applied Electronic Commerce Research* 12 (2): 37–53.
100. Mallari et al. (2023). The mediating role of impulse buying on hedonic shopping motivation and life satisfaction of online shoppers in the Philippines. *International social science journal*. doi:10.1111/issj.12430
101. Nugroho et al. (2023). The effect of e-WOM on customer satisfaction through ease of use, perceived usefulness and e-wallet payment. *International journal of data and network science*. doi:10.5267/j.ijdns.2022.11.007
102. Natarajan, T., S.A. Balasubramanian, and D.L. Kasilingam. 2018. The moderating role of device type and age of users on the intention to use mobile shopping applications. *Technology in Society* 53: 79–90.
103. Nielsen. 2019. Understanding Malaysia's Gen Z... and How to reach them. Nielsen Insights. <https://www.nielsen.com/my/en/insights/article/2019/understanding-malysias-gen-z/>
104. Nizam, F., H.J. Hwang, N. Valaei. 2019. Measuring the effectiveness of Electronic wallet in Malaysia. *Big Data, Cloud Computing, Data Science & Engineering, Studies in Computational Intelligence*, Yonago, Japan, pp. 59–69.
105. Ofori, K.S., O. Larbi-Siaw, E. Fianu, R.E. Gladjah, and E.O. Boateng. 2016. Factors influencing the continuance use of mobile social media: The effect of privacy concerns. *Journal of Cyber Security* 4: 105–124.
106. Okazaki, S., and F. Mendez. 2013. Exploring convenience in mobile commerce: Moderating effects of gender.



- Computers in Human Behavior 29 (3): 1234–1242.
107. Özek, Y., et al. (2022). A Model Proposal for Movie Theater Service Performance Index (MTSPI) Calculation with Structural Equation Modeling and Application. Journal of Polytechnic. <https://doi.org/10.2339/politeknik.1154751>
108. Oppotus. 2020. Electronic wallet usage in Malaysia 2020: Thriving in lockdown. Retrieved from Oppotus: <https://www.oppotus.com/ewallet-usage-in-malaysia-2020/>
109. Parboteeah, D., J. Valacich, and J. Wells. 2009. The influence of website characteristics on a consumer's urge to buy impulsively. Information Systems Research 20 (1): 60–78.
110. Patanasiri, A., and D. Krairit. 2018. A comparative study of consumers' purchase intention on different internet platforms. Mobile Networks and Applications 24: 1–15.
111. Phonthanakitithaworn, C., and C. Sellitto. 2017. Facebook as a second screen: An influence on sport consumer satisfaction and behavioral intention. Telematics and Informatics 34 (8): 1477–1487.
112. Phuong, N.N., L.T. Luan, V.V. Dong, and N.L. Khanh. 2020. Examining customers' continuance intentions towards Electronic wallet usage: The emergence of mobile payment acceptance in Vietnam. Journal of Asian Finance, Economics and Business 7 (9): 505–516.
113. Piron, F. 1991. Defining impulse purchasing. Advances in Consumer Research 18 (1): 509–514. Podsakof, P.M., S.B. MacKenzie, and J.Y. Lee. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology 88 (5): 879–903.
114. Pradhan, D., D. Israel, and A.K. Jena. 2018. Materialism and compulsive buying behaviour: The role of consumer credit card use and impulse buying. Asia Pacific Journal of Marketing and Logistics. 30: 1239–1258.
115. Pino-Ortega, et al. (2018). Validity and reliability of the WIMU inertial device for the assessment of the vertical jump. PeerJ. <https://doi.org/10.7717/peerj.4709>
116. Rao & Ko (2021). Impulsive purchasing and luxury brand loyalty in WeChat Mini Program. Asia Pacific Journal of Marketing and Logistics. doi:10.1108/apjml-08-2020-0621
117. Rodriguez-Ardura, I. and Artola, A. (2020). Editorial: how to prevent, detect and control common method variance in electronic commerce research. Journal of Theoretical and Applied Electronic Commerce Research. doi:10.4067/s0718-18762020000200101
118. Röseler, et al. (2020). Test-Retest Reliability is not a Measure of Reliability or Stability: A Friendly Reminder. [Preprint]. <https://doi.org/10.31234/osf.io/mt49r>
119. Ramírez-Correa, P.E., F.J. Rondán-Cataluña, and J. Arenas-Gaitán. 2018. Student information system satisfaction in higher education: the role of visual aesthetics. Kybernetes. <https://doi.org/10.1108/K-08-2017-0297>.
120. Rohiman, H. 2020. Electronic wallet gaining traction in Malaysia. Retrieved from News Straits Times: <https://www.nst.com.my/opinion/columnists/2020/07/605958/electronic-wallet-gaining-traction-malaysia>
121. Rouibah, K., N. Al-Qirim, and Y.J. Hwang. 2021. The determinants of eWoM in social commerce: The role of perceived value, perceived Enjoyment, trust, risks, and satisfaction. Journal of Global Information Management 29 (3): 75–102.
122. Ramli, F. A. A. and M. I. Hamzah (2021). "Mobile payment and e-wallet adoption in emerging economies: A systematic literature review." Journal of Emerging Economies and Islamic Research 9(2): 1-39.
123. Senali, M. G., et al. (2022). "Determinants of intention to use e-Wallet: Personal innovativeness and propensity to trust as moderators." International Journal of Human-Computer Interaction: 1-13.
124. Sahni, N. S. (2015). Effect of temporal spacing between advertising exposures: Evidence from online field experiments. Quantitative Marketing and Economics, 13, 203-247.
125. Sarkar, S., and A. Khare. 2017. Moderating effect of price perception on factors affecting attitude towards online shopping. Journal of Marketing Analytics 5: 68–80.
126. Sarstedt, M., P. Bengart, A.M. Shaltoni, and S. Lehmann. 2017. The use of sampling methods in advertising research: A gap between theory and practice. International Journal of Advertising the Review of Marketing Communications 37 (4): 650–663.
127. Sedigheh, M., X.M. Tan, S.W. Phoong, and S.Y. Phoong. 2020. Drivers and barriers of mobile payment adoption: Malaysian merchants' perspective. Journal of Retailing and Consumer Services 59: 1–12.
128. Shukla, P. 2008. Essentials of marketing research. Paurav Shukla & Ventus Publishing Aps. Retrieved from <http://web.ftvs.cuni.cz/hendl/metodologie/marketing-research-an-introduction.pdf>
129. Sihombing, E.S., I. Budi, and Q. Munajat. 2020. Factors affecting the urge of impulsive buying on social commerce Instagram. International Journal of Internet Marketing and Advertising 14 (3): 236–257.
130. Singh, Y.K. 2006. Fundamental of research methodology and statistics. New Delhi: New Age International (P) Ltd.
131. Song, J.H., and G.M. Zinkhan. 2008. Determinants of perceived web site interactivity. Journal of Marketing 72 (2): 99–113.
132. Song, P.J., W.B. Chen, C. Zhang, and L.H. Huang. 2011. Understanding the role of intrinsic motivations in information technology usage habit: Evidence from instant messenger and search engine. International Journal of

- Organisational Design and Engineering 1 (3): 163–183. Statista, R.I. 2020. Major e-payment services used among respondents in Malaysia in 2020. Retrieved from Statista: <https://www.statista.com/statistics/1106239/malaysia-leading-e-paymentservices/>
133. Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology & Marketing*. doi:10.1002/mar.21603
134. Simpson, A., & Simpson, B. (2015). Structural Modeling Framework. In *Proceedings of Incose International Symposium*. <https://doi.org/10.1002/j.2334-5837.2015.00115.x>
135. Tariq, M., et al. (2019). Organic food consumerism through social commerce in China. *Asia Pacific Journal of Marketing and Logistics*. <https://doi.org/10.1108/apjml-04-2018-0150>
136. Tipu, S. A. A. and Fantazy, K. (2014). Supply chain strategy, flexibility, and performance. *The International Journal of Logistics Management*. doi:10.1108/ijlm-01-2013-0001
137. To, A. and Trinh, T. (2021). Understanding behavioral intention to use mobile wallets in Vietnam: extending the TAM model with trust and Enjoyment. *Cogent Business & Management*. doi:10.1080/23311975.2021.1891661
138. Tabachnick, B.G., and L.S. Fidell. 2013. Using multivariate statistics, 6th ed. Pearson: Pearson Education Inc.
139. Tafarodia, R.W., and J.S. Alyson. 2001. Individualism–collectivism and depressive sensitivity to life events: The case of Malaysian sojourners. *International Journal of Intercultural Relations* 25: 73–88.
140. Taiwan. Verhagen, T., and W.V. Dolen. 2011. The influence of online store beliefs on consumer online impulse buying. *Information & Management* 48: 320–327.
141. Tandon, U., R. Kiran, and A.N. Sah. 2017. The influence of website functionality, drivers and perceived Risk on customer satisfaction in online shopping: An emerging economy case. *Information Systems and e-Business Management* 16 (1): 57–91.
142. Thomas, M., K.K. Desai, and S. Seenivasan. 2011. How credit card payments increase unhealthy food purchases: Visceral regulation of vices. *Journal of Consumer Research* 38 (1): 126–139.
143. Teng, S., & Khong, K. W. (2021). Examining actual consumer usage of E-wallet: A case study of big data analytics. *Computers in Human Behavior*, 121, 106778.
144. Ting, C. 2018. Mobile commerce website success: Antecedents of consumer satisfaction and purchase intention. *Journal of Internet Commerce* 17 (3): 1–27.
145. Touch' n Go eWallet. 2020. Touch' n Go eWallet Official Facebook Account. Retrieved from Facebook: <https://www.facebook.com/touchngoewallet/posts/is-there-a-minimum-age-for-opening-atouchngo-ewallet-account/883846852106686/>
146. Triasesiarta, N., and R.P. Rosinta. 2021. Factors influencing the adoption of mobile payment method among generation Z: The extended UTAUT approach. *Journal of Accounting, and Economics* 4 (1): 14–28.
147. Tseng, S.Y., and A.M. Kuo. 2014. Investigating the effects of information quality and perceived risk on information adoption on travel websites. 2014 IEEE International Conference on Management of Innovation and Technology, (pp. 205–210).
148. Vorderer, P., T.Hartmann, and C. Klimmt. 2003. Explaining the Enjoyment of playing video games: the role of competition. *Proceedings of the second international conference on Entertainment computing* (pp. 1–9). Carnegie Mellon University.
149. Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in human behavior*, 72, 577-588.
150. Wong, C.Y., I.K. Mohamed, and M. Pakir. 2020. Understanding the factors influences users continuous intention towards Electronic wallet in Malaysia: Identifying the gap. *Research in Management of Technology and Business* 1 (1): 312–325.
151. Wu, I.L., M.L. Chiu, and K.W. Chen. 2020. Defining the determinants of online impulse buying through a shopping process of integrating perceived Risk, expectation-confirmation model, and flow theory issues. *International Journal of Information Management* 52: 102099.
152. Xiang, L., X. Zheng, M.K. Lee, and D. Zhao. 2016. Exploring consumers' impulse buying behavior on social commerce platform: The role of parasocial interaction. *International Journal of Information Management* 36: 333–347.
153. Xu, H., K.Z. Zhang, and S.J. Zhao. 2020. A dual systems model of online impulse buying. *Industrial Management & Data System*. <https://doi.org/10.1108/IMDS-04-2019-0214>.
154. Yan, L.Y., G.W. Tan, X.M. Loh, J.J. Hew, and K.B. Ooi. 2021. QR code and mobile payment: The disruptive forces in retail. *Journal of Retailing and Consumer Services* 58: 102300.
155. Yoon, H.Y. 2016. User acceptance of mobile library applications in academic libraries: An application of the technology acceptance model. *The Journal of Academic Librarianship* 42 (6): 687–693.
156. Youn, S., and R.J. Faber. 2000. Impulse buying: Its relation to personality traits and cues. *Advances in Consumer Research* 27 (1): 179–185.
157. Yan et al. (2022). An empirical investigation of the impact of influencer live-streaming ads in e-commerce



- platforms on consumers' buying impulse. *Internet Research*. doi:10.1108/intr-11-2020-0625
158. Yuan, S.B., L. Liu, B.D. Su, and H. Zhang. 2020. Determining the antecedents of mobile payment loyalty: Cognitive and affective perspectives. *Electronic Commerce Research and Applications* 41: 100971.
159. Yuda, B.I., M. Gede, T. Rakhmawati, S. Sumaedi, T. Widiyanti, M. Yarmen, and N.J. Astrini. 2020. Public transport users' WOM: An integration model of the theory of planned behavior, customer satisfaction theory, and personal norm theory. *World Conference on Transport Research - WCTR 2019*, 48, pp. 3365–3379. Mumbai.
160. Zafar, A.U., J. Qiu, and M. Shahzad. 2020. Do digital celebrities' relationships and social climate matter? Impulse buying in f-commerce. *Internet Research*. <https://doi.org/10.1108/INTR-04-2019-0142>.
161. Zhang, L., Z. Shao, X.T. Li, and Y.Q. Feng. 2021. Gamification and online impulse buying: The moderating effect of gender and age. *International Journal of Information Management*. <https://doi.org/10.1016/j.ijinfomgt.2020.102267>.
162. Zhang, W., X.M. Leng, and S.Y. Liu. 2020. Research on mobile impulse purchase intention in the perspective of system users during COVID-19. *Personal and Ubiquitous Computing*. <https://doi.org/10.1007/s00779-020-01460-w>.
163. Zheng, X.B., J.Q. Men, F. Yang, and X.Y. Gong. 2019. Understanding impulse buying in mobile commerce: An investigation into hedonic and utilitarian browsing. *International Journal of Information Management* 48: 151–160.
164. Zhou, R., and C. Feng. 2017. Difference between leisure and work contexts: The roles of perceived Enjoyment and perceived usefulness in predicting mobile video calling use acceptance. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2017.00350>.
165. Zikmund, W., and B. Babin. 2010. *Essentials of marketing research*. Boston: South-Western Cengage Learning
166. Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. Cengage learning.