Exploring the Stimulus Organism Response (SOR) Framework that Shapes Impulse Buying in the Epoch of E-Wallets in the Philippines

Cristina Teresa N. Lim, Lara Marielle L. Tiglao, Carlos Miguel C. Manuel, Lianne R. Delina, Jose Mari V. Chan
De La Salle University, Manila, Philippines

Abstract:
In the progressing digital financial landscape of the Philippines, the surge in e-wallet applications has vastly captured the interest of Filipino users. As e-wallets restructure how consumers manage their finances, a crucial question emerges: Can they influence impulsive buying tendencies? Using the (S-O-R) framework, the study reconnoitered the factors that incite impulse buying, expanding prior models by integrating both intrinsic and extrinsic stimuli. A total of 828 active e-wallet users were gathered using homogenous purposive sampling. After employing a Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis, the results elucidated five significant stimuli (i.e., perceived risk, visual appeal, subjective norms, convenience, and monetary savings) in shaping user satisfaction and perceived enjoyment. Conversely, information quality demonstrated statistical significance only in association with satisfaction. Moreover, the study highlighted those three factors (i.e., perceived enjoyment, subjective norms, and monetary savings) that directly impact impulse buying. Ultimately, it accentuates the full mediating role of perceived enjoyment in linking visual appeal with impulsive buying whilst showcasing a partial mediation effect in the relationship between cost savings and impulsive buying. Edifice on these findings, e-wallet providers have a strategic outlook to further invest in the following: (a) user-centric design strategies, (b) process enhancement for seamless user experience, and (c) optimization of user education.

Keywords: impulse buying, e-wallets, SOR framework.

Introduction

The rigorous rise of high-tech progressions and cyber space usage has fortified the emergent concurrence of alternative payment methods. Electronic wallets (e-wallets) postulate enhanced convenience through a wide range of services, including but not limited to (bill payments, loan applications, and online savings).

E-wallets have ominously wedged business transactions with an estimated 58 million active users in 2022 (Simeon, 2023). Bangko Sentral ng Pilipinas (BSP) data indicates Filipinos’ growing preference for digital wallets over credit cards since 2018 (Parilla & Abadilla, 2023). GCash and Maya have gained a solid development pace, with a market share of approximately 49% and 41.9% in 2020, respectively. Grab Pay follows this at 7.5% (Statista Research Department, 2022).

Notwithstanding the robust development pace and advantages of e-wallets, they have altered
buying behavior, posing specific consumer risks. One inadvertent consequence is impulse buying (IB) (Abubakari et al., 2023). Kathiravan et al. (2019) define IB as the spontaneous and unplanned intent to purchase a product or service without prior intention or careful consideration. Pradhan et al. (2018) argue that consumers might be less motivated to restrain impulsive purchases since cashless transactions are viewed as "painless" compared to physical cash transactions.

As consumer partialities evolve, the empirical worth of understanding how e-wallet features influence their consumption behaviors persists. Using the Stimulus, Organism, and Response (SOR) model, this study headways the literature by extending Lee et al.'s (2023) intrinsic factors framework and incorporating extrinsic elements to stimulate perceived enjoyment (PE), satisfaction (S), and impulse buying (IB).

**Literature Review**

The SOR model, introduced by Mehrabian and Russel (1974), is a protuberant framework for examining consumer behavior and impulse buying. It postulates that external cues (stimulus) from the environment elicit an internal assessment (organism), resulting in a behavioral reaction (response).

**Direct Effects of Stimulus Variables**

A stimulus can either be external or internal. The study incorporates four intrinsic factors: perceived interactivity (PI), perceived risk (PR), visual appeal (VA), and subjective norms (SN). It also embraces three extrinsic factors: convenience (C), information quality (IQ), and monetary savings (MS).

In smart technologies, interactivity enhances user experiences by fostering engagement and responsiveness (Yoon, 2016 (Yoon, 2016). Limited interaction opportunities, like slow response times, can lead to higher instances of product switching (Pantano et al., 2017). Moreover, e-wallets' element-rich interface is another salient facet in enhancing an application's overall presentation to capture users' attention. Abdolvand et al. (2011) define VA as the aesthetic attributes of a product’s packaging, compromising elements such as colors, shapes, brands, illustrations, fonts, and layout. Attractive visual elements leave a lasting impression on first-time viewers and those immersed in hedonic browsing (Zheng et al., 2019). Beyond functionality and design, external factors, such as the opinions of friends and family, ominously influence user behavior as individuals align with the preferences of others. The heightened inclination to be influenced by peers and conform to shared perspectives cultivates a positive user experience, promoting longer association with the digital wallet (Hsiao et al., 2016).

Individuals strongly desire to safeguard personal and financial information (Shafi & Misman, 2019). PR refers to prevailing apprehension regarding the security of mobile payment transactions (Zhao et al., 2019), leading to a pessimistic perception of e-wallet usage (Hossain, 2019). Hence, PR has been revealed to have an adverse association with S (Hossain, 2019) and PE (Lang, 2018).

Moving forward to extrinsic factors, Jin and Lim (2021) defined C as a state in which the utilization of a payment method surpasses the complexity of existing means, mitigates hassles, and offers usability across multiple situations. Cheng (2015) found that optimizing navigation and convenience in mobile application layouts leads to greater user satisfaction, enjoyment, and a more pleasurable experience. IQ also plays an integral role in setting the service quality standards of digital wallets. Azizah et al. (2018) define IQ in e-wallets as the “relevance, sufficiency, accuracy, and timeliness of information.” Failure to meet users' expected IQ can lead to a decline in user satisfaction (Jung et al. 2009). Several studies have also found a linkage between IQ and PE and S (Gao et al., 2015; Kim et al., 2013).

Finally, various studies have revealed that MS, such as promotions, expense savings, cashback, and discounts, can influence IB through the S and PE it offers consumers (Matherly et al., 2019). The prospect of getting a good deal
induces a feeling of urgency and excitement, prompting consumers to act quickly before the discounted offer expires (Anggarwati et al., 2023)

**Organism-Response Relationship**

Despite prior research linking chronic impulse buying to poor self-regulation and financial stress, the positive evaluation of external factors surpasses the negative aspects of IB (Fenton-O'Creevy et al., 2018). Notably, S and PE emerge as significant positive outcomes in extant literature. Satisfaction results from comparing expectations with actual product or service experiences (Oliver, 1980), while enjoyment is associated with hedonic shopping motivations, seeking pleasure, novelty, and sensory gratification through shopping (Childers et al., 2001). Overall, such positive emotions prompt consumers to make quicker purchasing decisions and increase their expenditure on desired products (Chauhan et al., 2023).

**Mediating Roles of Satisfaction & Perceived Enjoyment**

Extensive research has been conducted to understand better how S and PE can serve as intervening variables between various e-wallet features and IB. Moes et al. (2022) found that PI indirectly promotes impulsive purchase behavior via the perspective of self-agency. Meanwhile, Lee et al. (2022) discovered that PE partially mediates the relationship between VA and IB. Hasim et al. (2020) found a complementary partial mediation in which PE intervenes in the relationship between monetary incentives and IB.

**Materials and Methods**

A quantitative causal study was carried out in the research. Partial least squares structural equation modeling (PLS-SEM) and bootstrapping methods were employed. Slovin’s formula was used to compute the needed sample size of 373. Using homogenous purposive sampling, the study gathered 828 active e-wallet users. The survey utilized a five-point Likert scale questionnaire adapted and modified from several studies, ranging from "1 - strongly disagree" to "5 - strongly agree".

**Common Method Bias and Normality Test**

Excess kurtosis, skewness, Cramér-von Mises's p-value, and Mardia's Test was used to examine the presence of univariate and multivariate normality. The tests revealed that data follows a non-normal distribution, solidifying the need for PLS-SEM and bootstrapping. These methods are recognized as effective and robust for handling non-normally distributed data (Kock & Hadaya, 2018). The outcomes also confirmed the absence of Common Method Bias (CMB), as evidenced by a VIF below 3.3 (Kock, 2015) and correlations lower than 0.9 (Tehseen et al., 2020).

**Reliability Test**

Cronbach’s alpha and composite reliability (CR) were used. The outcome establishes that the two measures are above the stipulated minimum threshold of 0.7 (Hair et al., 2017), confirming the robust internal consistency of the measures used in this study.

**Discriminant Validity Test**

The Heterotrait-Monotrait Ratio of Correlation (HTMT), Cross Loadings, and the Fornell-Larcker Criterion were used to assess discriminant validity. All the HTMT values are within the global criterion of 0.85 (Henseler et al., 2015). Though the correlation between constructs S and PE exceeded 0.85, it remains within the threshold Gold et al. (2001) suggested at 0.90. Furthermore, the Fornell-Larcker Criterion was achieved, indicating that the absolute correlation between constructs is below the square root of AVE. Lastly, all factor loadings on a particular construct surpass the cross-loadings with other variables, indicating that discriminant validity has been established. Generally, the results affirm the discriminant validity of the study.

**Formative Indicator Assessment**

Having obtained satisfactory results from evaluating all reflective constructs, the subsequent step involves assessing the formative constructs. Indicator collinearity and the significance and relevance of the formative
indicator, PI were assessed as well. For indicator collinearity, all VIF values remained below the suggested threshold of 3.3 (Kock, 2015). Based on the p-value of the individual indicators, the weights of PI1, PI2, and PI3 were significant (Hair et al., 2017). Overall, the results confirm the validity of the formative construct measurement model.

Results

The structural model fit showed that the Standardized Root Mean Square Residual (SRMR) is within the acceptable range, with a value of 0.06 (Hu & Bentler, 1999). The NFI value of 0.79 indicates that this model enhances the fit by 79% compared to the null or independence model, falling within the acceptable range of 0.8 (Bentler & Bonett, 1980).

Table 1. SEM Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Estimates</th>
<th>T-value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Interactivity → Satisfaction</td>
<td>0.072</td>
<td>1.908</td>
<td>Not supported</td>
</tr>
<tr>
<td>Perceived Risk → Satisfaction</td>
<td>-0.106***</td>
<td>4.102</td>
<td>Supported</td>
</tr>
<tr>
<td>Visual Appeal → Satisfaction</td>
<td>0.233***</td>
<td>5.962</td>
<td>Supported</td>
</tr>
<tr>
<td>Subjective Norm → Satisfaction</td>
<td>0.185***</td>
<td>5.886</td>
<td>Supported</td>
</tr>
<tr>
<td>Convenience → Satisfaction</td>
<td>0.256***</td>
<td>6.657</td>
<td>Supported</td>
</tr>
<tr>
<td>Information Quality → Satisfaction</td>
<td>0.131**</td>
<td>3.445</td>
<td>Supported</td>
</tr>
<tr>
<td>Monetary Savings → Satisfaction</td>
<td>0.115***</td>
<td>4.075</td>
<td>Supported</td>
</tr>
<tr>
<td>Perceived Interactivity → Perceived Enjoyment</td>
<td>0.058</td>
<td>1.663</td>
<td>Not supported</td>
</tr>
<tr>
<td>Perceived Risk → Perceived Enjoyment</td>
<td>-0.059*</td>
<td>2.189</td>
<td>Supported</td>
</tr>
<tr>
<td>Visual Appeal → Perceived Enjoyment</td>
<td>0.201***</td>
<td>5.015</td>
<td>Supported</td>
</tr>
<tr>
<td>Subjective Norms → Perceived Enjoyment</td>
<td>0.239***</td>
<td>6.928</td>
<td>Supported</td>
</tr>
<tr>
<td>Convenience → Perceived Enjoyment</td>
<td>0.224***</td>
<td>5.633</td>
<td>Supported</td>
</tr>
<tr>
<td>Information Quality → Perceived Enjoyment</td>
<td>0.048</td>
<td>1.108</td>
<td>Not supported</td>
</tr>
<tr>
<td>Monetary Savings → Perceived Enjoyment</td>
<td>0.235***</td>
<td>7.773</td>
<td>Supported</td>
</tr>
<tr>
<td>Satisfaction → Impulse Buying</td>
<td>-0.009</td>
<td>0.182</td>
<td>Not supported</td>
</tr>
<tr>
<td>Perceived Enjoyment → Impulse Buying</td>
<td>0.244***</td>
<td>4.536</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Note(s): ***p<0.001 ; **p<0.01 ; *p<0.05

Among intrinsic factors, VA and SA pose as significant determinants of S and PE. An aesthetically pleasing app captures users' attention, fostering prolonged engagement (Huang, 2016). Likewise, individuals encouraged by societal norms to use e-wallets are more likely to appreciate the benefits, enhancing their enjoyment and satisfaction (Shaw & Kesharwani, 2019). On the other hand, PR negatively impacts S and PE because a perceived higher level of risk tends to create a sense of insecurity and unease, impacting their overall trust and confidence in the platform (Hossain, 2019; Lang, 2018). Contrary to theoretical expectations, the findings reveal an insignificant influence of PI on user S and PE. This outcome may be attributed to the evolving user perceptions where interactive features are now considered common in digital interfaces, diminishing their impact on user satisfaction (Shipps & Philipp, 2013).

Moving forward to extrinsic factors, the inquiry affirms the significant positive impact of C and MS on S and PE. A high level of convenience streamlines interactions reduces friction, and fosters a positive perception, empowering prolonged user engagement with the platform (Aji & Riza, 2019). Similarly, enticing promotional offers in e-wallets evoke a sense of satisfaction and perceived enjoyment. Information Quality (IQ) significantly influences Satisfaction but lacks significance for Perceived Enjoyment. These outcomes emphasize that
satisfaction depends on accuracy and aligning information with users' needs and concerns.

**Factors Influencing Impulse Buying**

The notable antecedents identified for impulse buying were PE, SN, and MS. Users are likely to engage in impulsive buying when they perceive financial benefits from the e-wallet and when their actions align with societal expectations or peer behaviors. Impulsive purchases may be driven by the desire for immediate gratification or the enjoyment of acquiring a product spontaneously. Nonetheless, the findings suggest an insignificant association between S and IB, suggesting that consumer behavior is guided by rational considerations, prioritizing specific products or services over subjective evaluations of needs (Diani et al., 2021).

**Mediation Effects**

Table 2 depicts the mediation analysis results on four hypotheses (H24 to H27). Similar to the findings of Lee et al. (2022), S and PE did not mediate the relationship between PI and IB due to the insignificant indirect effects. Conversely, PE fully mediates VA and IB. Amanah and Harahap (2020) illustrated that impulsive purchases are shaped by the pleasure they feel while shopping at visually appealing stores. Lastly, the results illustrate that PE demonstrates a complementary partial mediating role between MS and IB. When e-wallet providers equip their application with a financial safety net or different forms of savings mechanism, it can result in an increased sense of PE, subsequently triggering IB.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Indirect Effect</th>
<th>Total Effects</th>
<th>Direct Effects</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Interactivity → Satisfaction → IB</td>
<td>0.001</td>
<td>0.006</td>
<td>-0.008</td>
<td>No Mediation</td>
</tr>
<tr>
<td>Perceived Interactivity → Perceived Enjoyment → IB</td>
<td>0.014</td>
<td>0.001</td>
<td>-0.008</td>
<td>No Mediation</td>
</tr>
<tr>
<td>Visual Appeal → Perceived Enjoyment → IB</td>
<td>0.149***</td>
<td>0.013</td>
<td>-0.034</td>
<td>Full Mediation</td>
</tr>
<tr>
<td>Monetary Savings → Perceived Enjoyment → IB</td>
<td>0.057***</td>
<td>0.143***</td>
<td>0.087***</td>
<td>Complementary Mediation</td>
</tr>
</tbody>
</table>

**Note(s):***p<0.001 ; **p<0.01 ; *p<0.05

**Discussion**

Perceived risk, visual appeal, subjective norms, convenience, and monetary savings are paramount in shaping user satisfaction and impelling impulsive buying behaviors. Information quality shows statistical significance in satisfaction only. These findings elucidate strategic facts that can transform e-wallets into the integral aspects of users' lives beyond transactional tools.

Optimizing user education, e-wallet providers are fortified to make parallel slants with external stimuli, taking into consideration societal opinions and preferences, thereby enhancing effectiveness. Capitalizing on information quality is an imperative factor to consider, as it interpolates user satisfaction. These rivets postulate comprehensive and relevant financial information expounding on the intricacies of the e-wallet.

**Conclusion**

Espousing a user-centric approach, system designers are emboldened to incorporate strategies to enhance the visual and functional appeal of e-wallet platforms. Valuing the importance of interactivity, convenience, and visual appeal, a strategic prospect exists to invest in market analysis to integrate visually engaging digital experiences. A feedback mechanism can
be established within e-wallet platforms to continuously collect user opinions and suggestions.

Process augmentation initiatives is compulsory to ensure a seamless user experience, like facilitating offline transactions. Integrating gamified elements, such as (challenges, rewards, and competitions), would boost user engagement. Promotional discounts and community engagement are marketing tactics to attract and engage customers.

As e-wallet dynamics evolve conducting longitudinal research in line with changing user preferences is fundamental for capturing exuberant shifts.

Conflict of Interests

No conflict of interest.

References


