

Impulsive Buying Behavior Analysis of E-Commerce Application: A Perspective of The Stimulus-Organism-Response Model

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Abstract. The increasing numbers of internet users, the rapid technology development, and the strict restriction in activities due to pandemic situations have caused the increase of online shopping trends. Past study has shown that 64% respondents in Indonesia prefer to do online shopping rather than in-store shopping during the pandemic. To date, only few researchers have studied the impulsive buying behavior analysis of e-commerce applications. The study integrates the S-O-R model, emotional responses, and other external variables to develop the research model and hypotheses. Data samples were collected from a questionnaire that has been distributed to more than 300 respondents based in Indonesia who have used e-commerce applications. The study results show that the individual traits factors of an impulsive buying tendency, normative evaluation, and positive affect are key determinants of impulse buying, while the platform architecture and marketing stimulus are important preconditions. Both researchers and e-commerce companies can benefit from the findings regarding impulse buying in an e-commerce application.

Keywords: Impulsive Buying Behavior, Consumer Behavior, E-Commerce, Stimulus Organism Response Model

1 Introduction

With the acceleration of technology development in recent years, the sales trend also shifted from a conventional distribution channel to an online sales behavior [1]. This situation makes many sellers adjust their sales strategy, by going online. Besides working to form their own digital distribution channel, many of them were distributing their products through an e-commerce channel. Commercially, digital platforms can help sellers expand their market segment to increase their potential sales opportunity [2]. On the other hand, COVID-19 pandemic made people restrict their outdoor activities, live with a new normal life pattern. During this situation, online shopping is one of the solutions for every person to fulfill their needs. According to Facebook's 2020 survey, e-commerce platforms were one of five applications that increased in terms of user numbers [3]. In Indonesia, Jakpat's [4] study showed that 64% of Indonesian respondents prefer to do an online shopping activity [4].

On a consumer behavior study, decision-making process starts from the problem experienced, then continues with information seeking, evaluating existing alternatives until finally deciding whether to make a purchase based on the information obtained, and the post-purchase behavior [2]. On the process to make a decision, there are three factors that can

influence consumer, according to Burnett [5]; (a) situational influences; (b) external influences; and (c) internal influences. Marketer had two choices to match consumer decision process, either adjusting the products matched with consumer needs or change consumer behavior to match marketer products. The second alternative is hard to do but if it can be done, the consumer will be conducting an immediate behavioral process called impulsive buying. As the e-commerce shopping trend increase, it is important, especially for marketer, to study what factor that can affect consumer impulsive buying process which can lead their brand more successful.

The research will use Stimulus-Organism-Response (S-O-R) model to study factors that affected consumer impulsive buying behavior. By using this model, researchers can study the factors that can stimulate consumers, the processes they go through and the responses that occur. According to previous research, impulsive buying behavior is influenced by external environmental factors [6][7]. There are also various types of external environmental in the form of marketing stimuli that can affected impulsive buying behavior, such as discount and incentives [8]. Lo et al. [9] also mention if architectural quality of online store platform was another stimulus that can lead consumer impulsive buying behavior.

This research was designed to study Indonesia's consumers' impulsive buying behavior in the context of Indonesia's e-commerce shopping activity. This research will try to study the relation of environmental factors of e-commerce platforms and promotional campaigns factor as a stimulus construct with emotional responses, and if these constructs also influencing impulsive buying behavior.

2 Literature Review and Hypotheses

2.1 E-Commerce

E-Commerce can be defined as the process of using computer networks and the internet to perform a process, such as buying, selling, shipping, or exchanging goods, services, or information [10]. E-Commerce is growing very fast. It is predicted that in 2050, all trading processes will turn into digital or e-commerce processes [11].

Beside its trends, e-commerce also has many advantages. One of the biggest benefits of this digitization process includes the opportunity to start and develop a business in an unusual process. Turban et al. [12] state that this unconventional method allows entrepreneurs to get large profits with only a little capital. Solomon [2] also mentions that digital platforms, give a potential opportunity to develop a broad market segment since it is not limited by distance, although on the other hand, it also creates greater business competition since the competition is borderless

2.2 Stimulus-Organism-Response (S-O-R) Model

Stimulus-Organism-Response (S-O-R) model was originally proposed by Mehrabian and Russel [13] in their psychology study. The S-O-R model consists of the environmental factors, usually mentioned as stimulus (S) and the process in the individual traits of consumers that following the stimulus, under organism (O) dimension, and the actual response (R). This model objective is to integrate consumer responses that can explain people emotions from external stimuli and the behavior created.

2.3 Platform architectural quality

This research will study the theory regarding website architectural quality and its effect on impulse buying behavior. But since in recent days, websites are less popular than mobile platforms, this study applied this theory for mobile application, while others who used website platforms are still applicable too.

Kim et al. [14] mention standards for online stores provider to keep their consumers satisfied in terms of online shopping experience: (a) structural firmness, (b) Functional convenience is the usability and ease of navigation and (c) representational delight explained how the platform can provide consumers with a pleasant and entertaining shopping experience. First constructs that will be explored is ubiquity. Ubiquity feature make consumers can receive and send information and conduct electronic transactions on shopping platforms anytime and anywhere, instantly [15]. Ubiquity provides convenience by breaking down mobility barriers and enriching users' experiences through instant application services [16][17].

Another key feature of e-commerce service quality is ease of use. The simplicity with which the system may be used, and purchases made influences impulse buying behaviors. Sellers or mobile commerce providers should give consumers with well-designed interfaces that are simple to understand and use, allowing users to quickly discover information and complete transactions [18]. The biggest difference between e-commerce environments and brick-and-mortar stores, is the experience of feeling the items they are interested in. Therefore, the exchange of information, the third aspect of platform quality in this study is important to provide feature for consumer and seller interact in the form of online stores. Information exchange can help business owners better understand their own items as well as their users or customers.

Based on above explanation, each of standards are representing by constructs that used to build the research questions. Ubiquity, ease of use and information exchange are the constructs that used to build hypothesis as below:

H1: The ubiquity of e-commerce platform significantly and positively impacts consumers' positive affect

H2: The ease of use of e-commerce platform significantly and positively impacts consumers' positive affect

H3: The information exchange of e-commerce platforms significantly and positively impacts consumers' positive affect.

2.4 Promotional campaigns

The presence of marketing stimulus in shopping environment enhances the possibility of consumers engaging in impulse buying behaviors. The better discount amount offered or the more convincing and expert the marketer sounds, the more inclined consumers are to buy in impulse [19][20]. Promotional tools can be categorized into "price promotion" and "non-price promotion" [21]. This study selects "discounted price" as the price promotion component and "celebrity endorsement" as the non-price promotion. Discounted price represent the promotional strategy to lower the cost of products in order to attract consumers.

The use of celebrity as an endorser is also part of the marketing communication strategy, for the promotion purpose. But sometimes, it is found if celebrity endorsement is not too relevant with its product or even provides a negative effect [22]. Therefore, companies need to precisely choose who should be their brand representation. With their popularity, celebrities

are not only able to attract consumers, but also able to communicate the message of the marketing communication and make this message recorded in the consumers' memory [22]. Djafarova and Bowes [23] also study the relation of the use of celebrity endorsement in terms of their social media posts with the impulse purchase in the fashion industry.

Based on above explanation, discount and celebrity endorsement are constructs that used to study the relationship between promotion campaigns and consumer's individual traits, as formed in hypothesis below:

H4. Discount significantly and positively affects consumers' normative evaluation regarding e-commerce platforms.

H5. Discount significantly and positively affects consumers' positive affect regarding e-commerce platforms.

H6. Celebrity endorsement significantly and positively affects consumers' normative evaluation regarding e-commerce platforms.

H7. Celebrity endorsement significantly and positively affects consumers' positive affect regarding e-commerce platforms

2.5 Impulse buying behavior

In the early days, Applebaum [24] defined impulsive buying is as an unplanned purchase made in response to a stimulus. According to Liu et al. [6], impulse buying is a quick and unconsidered decision made by consumers in response to powerful and compelling stimulation in their current shopping environment.

Previous research has demonstrated that depending on their research background and goals, various researchers have varying viewpoints on impulse buying behaviors [25]. This study describes impulsive buying as a reaction to receiving external stimuli in a consuming scenario that prompts them to acquire things they had not planned to buy.

Based on above explanation, this research will study the relationship between consumer's individual traits with the impact on impulse buying as formed with hypothesis below:

H8. The tendency toward impulse buying significantly and positively affects consumers' normative assessment regarding e-commerce platforms.

H9. Normative evaluation significantly and positively affects consumers' positive affect regarding e-commerce platforms.

H10. The tendency toward impulse buying significantly and positively affects consumers' impulse buying behaviors in e-commerce platforms.

H11. Normative evaluation significantly and positively affects consumers' impulse buying behaviors in e-commerce platforms.

H12. Positive affect significantly and positively affects consumers' impulse buying behaviors in e-commerce platforms.

Based on the above hypothesis, the proposed model for this study is:

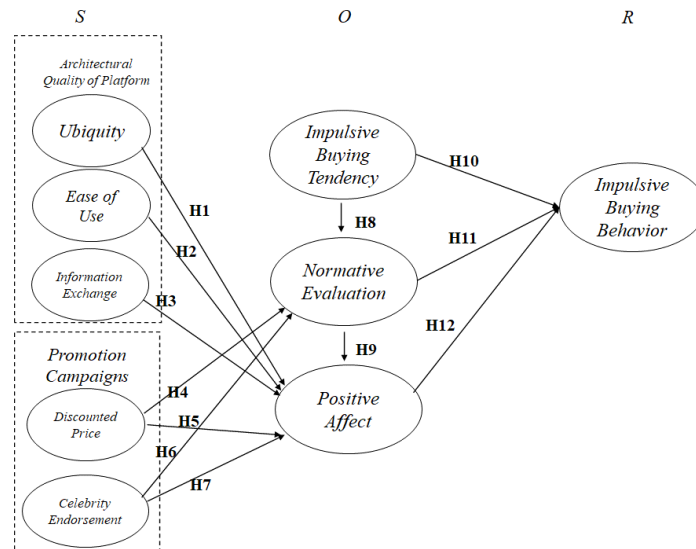


Fig. 1. Proposed Research Model

3 Method

3.1 Data collection

Data were collected through an online questionnaire via google form from the beginning of March 2021 until the beginning of May 2021. The study used non-probability purposive sampling technique, which means only participants that suit the purpose of the study were included. The criteria for respondents for this research were individual consumers who used e-commerce applications for the last 3 months when the questionnaire was distributed, age range between 25-40 and had a social media account. The self-administered questionnaire was distributed through social media and social messaging applications.

3.2 Respondents

The questionnaire was distributed and responded by 434 respondents which 54 of them were eliminated as they did not meet the criteria. There are 380 respondents who are described in the table 1.

Table 1. Respondents' demographic profile

Variable	Category	Frequency	Percentage
Gender	Male	156	41%
	Female	224	59%
Marital status	Single	126	33%
	Married	254	67%
Occupation	Employee	313	82%
	Professional	24	6%
	Entrepreneur	16	4%
	Homemakers	19	5%

Variable	Category	Frequency	Percentage
Domicile	Others	8	2%
	Jakarta Greater Area	316	83%
	Java outside Jakarta Greater Area	19	5%
	Out of Java	45	12%
Educational background	High school	7	2%
	Diploma	24	6%
	Bachelor	281	74%
	Master	68	18%
Monthly average expense	< IDR 1,000,000	19	5%
	IDR 1,000,000 - 3,000,000	65	17%
	IDR 3,000,000 - 5,000,000	92	24%
	IDR 5,000,000 - 10,000,000	92	24%
	> IDR 10,000,000	112	29%

3.3 Measures

The questionnaire used consisted of three parts: (1) screening questions to evaluate the respondents' criteria, (2) main questions to answer the research questions, using a 5-point likert scale ranging from "strongly disagree" to "strongly agree", and (3) respondents' profile. The questionnaire items made from variety resources. Architectural quality of platform dimension indicators was referred to study made by Clarke [15], Tojib and Tsarenko [17], Verhagen and van Dolen [7] and Liu et al. [6]. Meanwhile, promotion campaigns dimension indicators were referred to study made by Hsu et al. [26] and Wells et al. [27] for discounted price and Knoll and Matthes [28], Zafar et al. [29], and Djafarova and Bowes [23] for celebrity endorsement constructs. The indicators for individual traits were referred to Liu et al. [6] and Mittal et al. [30] for impulsive buying tendency and normative evaluation constructs, and Verhagen and van Dolen [7] for positive affect. Lastly, impulse buying behavior indicators were referred to on Verhagen and van Dolen [7] study.

3.4 Statistical analysis

This study used Structural Equation Modeling (SEM) to process the data and test the hypothesis. Based on Hair et al. [31], SEM has the advantage of being able to describe the relationship between constructs without testing the model, where previous theories have proven the model.

4 Results and Discussions

The proposed model and hypotheses were tested with Structural Equation Modeling (SEM) using SmartPLS and SPSS software (SEM). Confirmatory factor analysis has been used to verify reliability and validity before investigating the hypotheses.

This study used the test of Cronbach's α to perform reliability analysis. Based on past studies, Cronbach's α must be larger than 0.7 to ensure that the survey questions are of sufficient reliability [32]. One construct's Cronbach's α was under 0.7 (0.68) but this variable was still included on the main test as previous theory proved the construct was important. To perform the validity analysis, this research used three indicators: factor loading, composite

reliability (CR) and average variance extracted (AVE). Based on Fornell and Larcker [32], and Hair et al. [31], the cut off for each analysis are 0.5 for factor loading, 0.6 for composite reliability and 0.5 for average variance extracted. The complete results are shown in Table 2.

Table 2. Reliability and Validity Analysis

Constructs		Cronbach's Alpha	Factor Loading	Composite Reliability	Average Variance Extracted
Ubiquity	UB1	0.823	0.792	0.882	0.652
	UB2		0.832		
	UB3		0.779		
	UB4		0.827		
Ease of Use	EU1	0.872	0.889	0.921	0.794
	EU2		0.91		
	EU3		0.875		
Information Exchange	IE1	0.774	0.803	0.851	0.588
	IE2		0.723		
	IE3		0.748		
	IE4		0.792		
Discounted Price	DP1	0.686	0.771	0.827	0.615
	DP2		0.844		
	DP3		0.732		
Celebrity Endorsement	CE1	0.913	0.908	0.945	0.852
	CE2		0.943		
	CE3		0.917		
Impulsive Buying Tendency	IBT1	0.722	0.802	0.844	0.643
	IBT2		0.848		
	IBT3		0.753		
Normative Evaluation	NE1	0.895	0.857	0.922	0.704
	NE2		0.855		
	NE3		0.832		
	NE4		0.831		
	NE5		0.82		
Positive Affect	PA1	0.865	0.84	0.908	0.711
	PA2		0.842		
	PA3		0.868		
	PA4		0.823		
Impulse Buying Behavior	IBB1	0.809	0.792	0.868	0.572
	IBB2		0.774		

Constructs	Cronbach's Alpha	Factor Loading	Composite Reliability	Average Variance Extracted
IBB3		0.835		
IBB4		0.586		
IBB5		0.768		

Based on the main test analysis, four out of twelve hypotheses are not significant while the rest had a positive and significant affect. The complete test results are shown on figure 2.

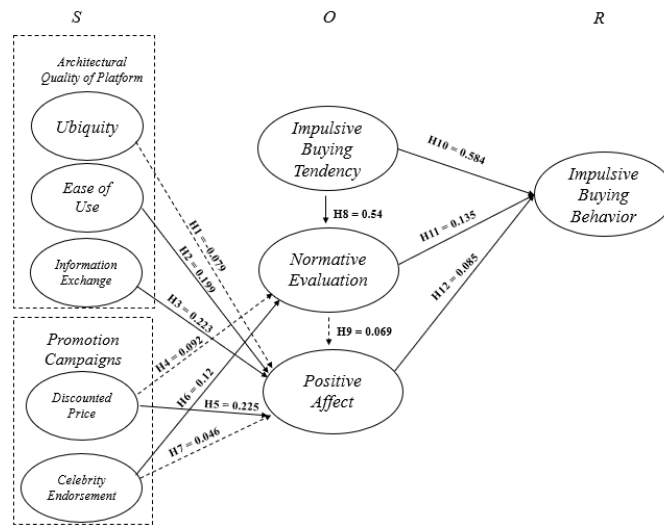


Fig. 2. Hypothesis testing results

4.1 Findings of research hypothesis analysis

On the relation of the influence of platform architectural quality on positive affect, two constructs have effect on positive affect. Chen and Yao [25] proved that when the consumption environment provides services unlimited by time and space it affects customers. affect. The result was different with this study as it could be affected with the recent trend if ubiquity was mandatory for an e-commerce platform. As currently we never see any popular e-commerce nowadays closed their platform temporarily due to maintenance process. Regarding the capability to search for information, the study proved if this situation could make customers easily convert their activities to complete the transactions according to their needs based on their information so during the purchase journey, the time consumed are effectively spend and it caused a positive emotion on customer feelings [17]. Meanwhile Lin and Lo [18] in their study proved that the easier a platform to navigate then it will increase the possibility of positive affect.

The study results show that there is no significant effect between discounted price and normative evaluation. Different from previous study, Chen and Yao [25] show that the bigger the discount, the less likely people are to feel positive about the behavior of being impulsive. This is due to the people perception of online shopping. Many people believe they have a better possibility of receiving low-cost, substandard goods when they shop online. Other

promotional campaign forms, celebrity endorsement, have a significant effect on normative evaluation since this kind of promotional method makes customers feel that the promotional product was personalized and makes them able to choose products that really match their need. The study also found that the more favorable consumers' feelings on a discounted price, the more likely they are to have pleasant emotions. The feeling of unexpected savings from discounted price makes consumers feel pleased, satisfied, and positive that make them have a strong preference for discounted prices [33][34]. Other promotional methods, celebrity endorsement have no significant effect with positive affect.

A tendency of impulse buying affects consumers' normative evaluation as shown on Liu et al. [6]. But this study did not find if normative evaluation impacted the positive affect which similar by previous study made by Chen and Yao [25].

Our study showed that consumers with a high tendency of impulse buying created more impulse buying behaviors as shown by Chen and Yao [25] and Verhagen and van Dolen [7] showed that the more positive consumers feel, the more they engage in impulse buying behaviors as also shown on this study results. This demonstrates that emotion is one of the most important factors influencing impulse purchases.

5 Conclusions

On the architectural quality of platform constructs, only ease of use and information exchange influence positive affect. The ease with which consumers operate the application, as well as the ease with which consumers obtain information or interact with sellers in the e-commerce application make them feel happy. Meanwhile, another construct, ubiquity, has no effect on the emotional response of e-commerce consumers in Indonesia.

The discount promotion strategy increases the positive emotional response of consumers in shopping online because of the feeling of being able to spend less money than expected. On the other hand, the discount strategy does not influence consumer evaluations to justify that impulsive buying behavior is the right behavior. In contrast to the celebrity endorsement strategy where this strategy can make consumers justify that impulsive buying behavior is correct behavior or reasonable behavior. On the other hand, the celebrity endorsement strategy is proven not to provide a happy feeling for consumers.

Emotional response has proven to be one of the keys to making impulsive behavior in e-commerce consumers in Indonesia. The tendency to behave impulsively, consideration of impulsive behavior and feelings of happiness are believed to influence the impulsive shopping behavior of consumers. The tendency to behave impulsively is an individual trait of consumers while positive emotions such as feelings of happiness, satisfaction or enthusiasm make consumers tend to behave impulsively in buying. Evaluation of an impulsive action that justifies that the action is right and reasonable also motivates consumers to behave impulsively, especially in making purchases.

Positive affect such as feeling happy and excited, besides being able to make consumers behave impulsively in shopping, has also been shown to influence consumer behavior to disseminate information electronically (e-word of mouth) in the context of using their social media accounts as a medium to disseminate information, especially to friends and their followers.

5.1 Research limitations and future studies

The limitations which affect the results of the study include the numbers of constructs that tend to be small. As well as promotion and campaign indicators which only use two constructs. In terms of data sample, the respondent's profile only includes millennials, whose age range is 25 to 40 years. From the results of data collection, the e-commerce objects chosen by consumers are only dominated by two big Indonesian brands. Researchers also did not know how long respondents use the applications.

For further research, suggestions that can be given by researchers related to research on immediate behavioral response in Indonesia include adding several variables that affect each indicator, such as other variables in promotion & campaign or the latest important features on architectural quality of the platform. The more variables that are involved, the researchers can be more specific in knowing the effects of each of these variables, which will later be useful for practitioners.

The respondent's profile can be widened to cover a wider age range. In the next few years, it will also be interesting to examine the behavior of Generation Z, especially when this generation is already at the age of the workforce so that they already have purchasing power. This will be useful in its implications where marketers can set strategies to deal with market segments dominated by certain generations. The object of e-commerce research can also be more detailed, considering that currently this product is only dominated by a few brands. Perhaps the object of research can be detailed by categorizing research into e-commerce specialists for certain goods, for example fashion products, travel products and others. The respondent's profile can also be widened based on customer loyalty status and level. The frequency of use can affect their experience in using the application.

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