PREDICTING THE RELATIONSHIP BETWEEN SCARCITY AND SERENDIPITY INFORMATION TOWARD IMPULSE BUYING BEHAVIOR: HEDONIC SHOPPING VALUES AS MODERATOR VARIABLES

Natasha A. Prawira\textsuperscript{1}  
\textsuperscript{1}Department of Management, Universitas Pelita Harapan  
Tangerang, Indonesia  
prawiratania@gmail.com

Sabrina O. Sihombing\textsuperscript{2}  
\textsuperscript{2}Department of Management, Universitas Pelita Harapan  
Tangerang, Indonesia  
sabrina.sihombing@uph.edu

Abstract

Manuscript type: Research article
Research Aims: The purpose of this research is to predict the intervariable relationship between scarcity and serendipity information moderated by hedonic values and their influence towards online impulsive buying behavior.
Design/methodology/approach: This research uses a quantitative method and uses non-probability sampling method as the data collection techniques by distributing online questionnaires. There are 330 respondents with the criteria of having made transactions at Shopee in the last three months. The data are analyzed using Structural Equation Modeling (SEM) to test the each of the hypothesis and making the conclusion.
Research Findings: This study shows that the relationship between scarcity, serendipity information moderated by social shopping, adventure shopping, value shopping, relaxation shopping and idea shopping towards online impulse buying behavior
Theoretical Contribution/Originality: This research makes a theoretical contribution to international business as well as the theory of consumer behavior about situational factors namely, the scarcity and chance of information as independent variables are moderated by the value of hedonic shopping, namely, social, adventure, value, relaxation and shopping ideas affecting the dependent variable, online impulsive buying
Practitioner/Policy Implication: The results of this study can be used as information for PT Shopee International company management in determining online sales and marketing strategies that focus on the e-commerce marketplace
Research limitation/Implications: This study uses non-probability sampling, thus the results of this study cannot be generalized to other contexts

Keywords: scarcity, serendipity information, hedonic shopping values, online, impulse buying behavior

INTRODUCTION

The development of information technology has had an impact on the convergence of computing systems and communication systems that encourage the integration of the two systems. Electronic commercial transaction throughout the internet, recognized as ‘e-commerce,’ has developed so rapidly worldwide, including in Indonesia. Many merchants can take advantage of an online service in the form of e-commerce to improve and increase sales quickly by looking at the very rapid development of information
technology. Nowadays, most countries are shifting from companies moving offline to online. One of the most visible countries is Indonesia.

Indonesia is a market with attractive e-commerce growth from year to year (Rahayu, 2019). Census data from the Central Statistics Agency (BPS) also stated that Indonesia e-commerce industry in the last ten years has increased by 17 percent, with a total number of e-commerce businesses reaching 26.2 million units. Besides, Indonesian customers are certainly very impulsive towards online purchases. The influence of their impulsiveness is usually caused by sales promotion factors, lifestyle, and the e-commerce platform itself (Ahmadi, 2020). Therefore, marketers should emphasize on these strategies in purpose to enhance impulse buying behaviour which is a major impact around e-commerce retailing as well as marketing (Akram, et al., 2017).

There are many e-commerce platforms that Indonesians can use to take advantage of their opportunities to open their businesses or create jobs for others. The platform that is most often used is Shopee. The Shopee application ranking on both App store and Google Play Store occupies the first position with approximately 73 million monthly visitors (Andika, 2020). In Indonesia, Shopee recorded 1.2 million transactions every day and a growth of 93.3% year on year (Nurdiarsih, 2019). As shown as down below is the e-commerce ranking in Indonesia in Table 1.

| Name      | Monthly Visitor | Ranking in the App Store | Ranking in the Play Store | Instagram | Twitter | Facebook | Number of Employees |
|-----------|-----------------|---------------------------|---------------------------|-----------|---------|----------|---------------------|
| Shopee    | 72,973,300      | 1                         | 1                         | 3,600,020 | 152,280 | 14,720   | 3799                |
| Tokopedia | 67,900,000      | 2                         | 3                         | 1,617,380 | 347,950 | 891,440  | 3865                |
| Bukalapak | 39,263,300      | 4                         | 4                         | 964,010   | 181,210 | n/a      | 2672                |
| Lazada    | 28,383,300      | 3                         | 2                         | 1,613,690 | 379,020 | 8700     | 2606                |
| Blibli    | 26,863,300      | 5                         | 5                         | 921,300   | 495,180 | 946,880  | 1716                |

Source: iPrice.co.id (2019)

Shopee has successfully occupied the first rank for both App Store and Play Store in Indonesia. It can also be seen that the company with 3,799 employees is more focused on promoting its site through Instagram social media. So, that is why many Shopee site visitors come from the social media application. This caused Shopee to become one of the multinational companies engaged in the online marketplace and has been operating in Indonesia (Even, 2016), namely, PT Shopee International Indonesia (Rahayu, 2019). However, even though Shopee ranked first in the App Store, Playstore, and other social media in Indonesia in 2019, domestic e-commerce platforms still dominate the number of website visitors (Rachmatunnisa, 2020). Shopee was in second place behind Tokopedia in the number of visits both from desktop and mobile web during 2019 (Rachmatunnisa, 2020). This is caused by the issue related to the services that Shopee provides to its customers. Service in responding the customer chats takes a long time. Besides, sellers at Shopee are hard to find at certain times (Ayudhitama & Pujianto, 2019). Meanwhile, the seller’s response in this chat feature is very
important in influencing the customer assessment (Agustina & Kurniawan, 2018). Table 2 illustrated the top 10 local and foreign online shopping sites sorted by the largest amount of traffic in 2019.

Table 2. The Largest Amount of Traffic of Local and International Foreign Shopping Sites in 2019

| Online Sites | Number of Visitors in 2019 from the Desktop | Number of Visitors in 2019 from Mobile Web | Number of Indonesian Visitors in 2019 | % Of Visitors from the Desktop | % Of Visitors from the Mobile Web |
|--------------|-------------------------------------------|------------------------------------------|--------------------------------------|--------------------------------|---------------------------------|
| Tokopedia    | 329,823,447                               | 863,056,416                              | 1,192,879,863                       | 27.65%                        | 72.35%                         |
| Shopee       | 172,275,455                               | 664,805,215                              | 837,080,670                        | 20.58%                        | 79.42%                         |
| Bukalapak    | 153,624,428                               | 669,862,991                              | 823,487,419                        | 18.66%                        | 81.34%                         |
| Lazada       | 67,129,891                                | 378,450,756                              | 445,580,647                        | 15.07%                        | 84.93%                         |
| Blibli       | 141,642,937                               | 211,559,283                              | 353,202,220                        | 40.10%                        | 59.90%                         |

Source: Rachmatunnisa (2020)

Table 2 shows that Shopee was in second place behind Tokopedia for the number of web and mobile web visitors during 2019 (Rachmatunnisa, 2020). One of the reasons is that Shopee often gets complaints from both sellers and buyers because chat communication between the seller and the buyer often takes a long time even though buyers often want to know immediately about the product they are going to buy (Ayudhitama & Pujianto, 2019). This factor might explain why Tokopedia is preferred over Shopee. Serendipity information plays an important role in purchasing decisions, especially information that can affect impulse buying. In impulse buying, especially online buying, serendipity information and scarcity influence impulse buying (Abdelsalam et al., 2020; Akram et al., 2018). Serendipity information relates to processed facts and knowledge to make it more meaningful and pleasant for someone to feel accidentally. Meanwhile, scarcity refers to a real or real threat to the ability of consumers to fulfill their needs and wants due to lack or lack of access to goods or services (Hamilton et al., 2019). Therefore, this study is conducted to examine how situational factors, namely, scarcity and serendipity information, can influence online impulsive buying behaviour by having hedonic shopping values as the moderating variables, namely, social shopping, adventure shopping, value shopping, relaxation shopping, and idea shopping. Research on variable scarcity and serendipity information is still relatively minimal compared to the other hedonic shopping values, while these two variables could have significant effects on impulsive buying behaviour (Akram et al., 2018; Chung et al., 2017; Gwee & Chang, 2013). It is found that many sellers have been commenting on the sold-out sign on Shopee application. When sellers want to change the stock availability, often Shopee blocked their account, resulting in buyers not being able to access and buy products from the site (Luis, 2020). Another problem is that many times the
sellers want to change the product description, it does really take a long time for Shopee to respond because the customer service at Shopee is still minimal (Afandi, 2020). This is resulting in customers not being able to obtain serendipity information when they want to purchase something, although serendipity information can create unplanned and spontaneous consumers to understand the value of shopping differently from the rational consumer’s way (Akram et al., 2018). Both situational factors, namely scarcity and serendipity information should be discovered at Shopee to give an understanding of how impulsive buying can happen and how marketers can better analyze consumers’ needs (John et al., 2019). This study deliberates the initiative of Indonesian customers of online e-commerce platform, which is Shopee.

LITERATURE REVIEW

Online Impulsive Buying Behaviour

Impulsive buying behaviour online is the propensity of consumers to purchase directly, not reflective, kinetic, and unprompted (Akram et al., 2018). There are four general categories of impulsive buying, namely, pure impulsive buying, reminder impulsive buying, impulsive buying recommendation and planned impulsive buying identified by Zhang et al. (2018). Pure impulsive buying is an impulsive buying behaviour in which the consumer breakdowns their ordinary buying pattern to immediately make a new purchase (Zhang et al., 2018; Muruganantham & Bhakat, 2013). The impulsive buying of reminders involves recalling of the previous experience or knowledge of the product, and cognitive effort will be required along the process (Zhang et al., 2018; Muruganantham & Bhakat, 2013).

Scarcity

Scarcity refers to an actual or apparent threat to a consumer’s ability to fulfill their requirements and wants due to the deficiency or lack of access to goods or services or even resources (Hamilton et al., 2019). There are two types of scarcity which are product and resource scarcity (Hamilton et al., 2019). Product scarcity in accordance with Hamilton et al. (2019), is a shortage of actual or apparent goods and services offered to consumers whichever in a short period of time, for example, due to out of stock or the long period of time, for example, due to legal constraints. Resource scarcity is defined as an actual or perceived shortage of several procedures of capital (for example, financial or cultural) or other production input (for instance, time) that consumers devote to obtaining and using goods and services (Hamilton et al., 2019).

Serendipity Information.

According to Erdelez et al. (2016), explained serendipity as the phenomenon of finding valuable or pleasant things that are not sought. McCay-Peet and Toms (2015) argue that serendipity is an unpredictable experience driven by an individual's valuable communication with an idea, information, thing, or phenomenon, whereas the term serendipity is described in Bjorneborn (2017) as an occurrence when people find resources such as information, objects or human interesting in an unplanned manner.

Serendipity is not a singular or exact state, but rather a "continuum" or "space" involving a combination of three main elements that can
occur at diverse levels of intensity: unpredictable (incidental nature of discovering information); value (attached to information); and insight (real acknowledgment of such concurrences and value over the practice of subjective wisdom) in accordance to Solomon and Bronstein (2015). Serendipity is continuously associated with the physical information environment since this environment is conducive to serendipity encounters (Martin & Quan-Haase, 2013). To summarize, serendipity is a matter, idea, experience, phenomenon, or information obtained by someone accidentally or unexpectedly combined with unique insights and combined with opportunities. Information is data that has been processed into a form that is more useful and meaningful to the recipient. Thus, serendipity information is about data, facts, or knowledge that has been processed to make it more meaningful and enjoyable for someone to feel accidentally. On the other hand, information that is linked to the interests of consumers and unintentionally showed is known as serendipity information (Akram et al., 2018). It is a part of the web browsing experience. Serendipity enhances the consumer's experience, and serendipity information provides consumers with satisfaction and happiness by letting them look for new products (Akram et al., 2018). McCay-Peet and Toms (2010) inspected physical experiences of serendipity to enlighten the design of the digital environment. Both found that there are two key sections of serendipity in the physical environment: active acquiring and social networks.

**Hedonic Shopping.**

Hedonic shopping describes the value of experiences including fantasy, censorship, stimulation, joy, pleasure, curiosity, and delusion of joy (Putri & Suharyono, 2017). Hedonic shopping value is correlated with the involvement of shopping itself. There are five dimensions in hedonic shopping which are social shopping, adventure shopping, value shopping, relaxation shopping and idea shopping that can moderate the connection between scarcity, serendipity information and online impulse shopping behaviour (Akram et al., 2018).

**Hypotheses development**

**Scarcity towards Online Impulse Buying Behaviour**

Urgency, conversely, is based on limited time availability, which, for instance, prompts consumers to take action before deadlines, sometimes enforced on e-commerce sites with countdown clocks. Research has revealed that limited-time deals are one of the most regularly self-reported triggers of online impulsive buying (Moser et al., 2019). Hence, time pressure primarily indicates the sustained scarcity of time as well as quantity and deals with overwhelming promotional stimuli in cases of the persistent scarcity of time, making consumers become impulsive to make more unplanned purchases, as opposed to those in a traditional environment (Zheng et al., 2013). Previous studies have shown a significant relationship between scarcity and online impulse buying behaviour (Chung et al., 2017; Gupta, 2013; Gabler & Reynolds, 2013; Ballina & Balinna, 2019; Vannisa et al., 2020; Chan et al., 2017; John et al., 2019; Thuong, 2020; Goetha, 2020). Therefore, the following hypothesis can be formed:

\[ H_1: \text{The better scarcity could increase the online impulse buying behaviour.} \]
Impulsive action is more possible than planned explorations because serendipity information arises through unpredictable and unexpected findings. Since serendipity is an unpredictable situation, it can leave unplanned and sudden consumers to perceive the value of shopping differently from the rational consumer's way (Chung et al., 2017). Consumers who find serendipity information, then the information is interesting and is shocking information for the consumer, this information that is accidentally obtained affects the consumers' emotions. Consumers unwittingly appear impulsive behaviour that continues the information-seeking activity. This system is situational and surprising and occurs unexpectedly (Joswendo, 2020).

There are previous studies that have proven a significant relationship between serendipity information and online impulsive buying behaviour as stated in Chung et al. (2017); John et al. (2019); Joswendo (2020); Thuong (2020); Sarker et al. (2020); Akram et al., (2018); Goetha (2020); Song et al. (2015). Therefore, the following hypothesis can be formed:

\[ H_2: \text{The better serendipity information could increase the online impulse buying behaviour.} \]

The sign for the social shopping dimension is that shoppers turn to be socialized when shopping. They experience the joy of shopping with friends and family and associate with other people. Many consumers love spending time while shopping with family members and friends. Social recognition is also an advantage received through social interaction when people shop together at the same place (Akram et al., 2018).

Coupled with the serendipity information they get when socializing with sellers or when opening a product page, for instance, through a website or e-commerce, it also encourages online impulsive buying behaviour. This suggests that hedonic shopping motivation is paramount in the case of purchasing online, whereas few previous studies (Ozen & Engizek, 2014, Abdelsalam et al., 2020, John et al., 2019, Maqhfiroh & Prihandono, 2019, Cinjarevic et al., 2011) have considered it significant. This discussion allows us to assume that hedonic consumers are likely to purchase products and services through visiting a click store.

Social shopping successfully has a significant relationship to online impulsive buying behaviour, as mentioned in Ozen and Engizek (2014). Nonetheless, there is only one previous study that has shown that social shopping moderates the significant relationship between scarcity and online impulse buying behaviour. Also, only one study has proven that social shopping moderates the significant relationship between serendipity information and online impulse buying behaviour in Akram et al. (2018). Therefore, the following hypothesis can be formed:

\[ H_3: \text{The relationship between scarcity and online impulse buying behaviour will be stronger when social shopping presents.} \]

\[ H_8: \text{The relationship between serendipity information and online impulse buying} \]
behaviour will be stronger when social shopping presents.

The Moderating Effect of Adventure Shopping
An emphasis on adventure shopping may be an efficient way to retail strategy to encourage impulsive buying behaviour (Cinjarevic et al., 2011). Customers are looking for products to satisfy their visual desire, but not just products that give consumers sensual desire during the shopping process. The use of computers is also a basis of recreation for some buyers and arouses curiosity. This perceived curiosity factor leads to a sense of adventure that pleases the adventurous feeling of the customer (Akram et al., 2018).

Also, by exploring or discovering some information through website or e-commerce application regarding certain products accidentally, since the previous study has shown that serendipity information increases buyers’ experience as stated in Kim et al. (2013) and increases buyers’ satisfaction and happiness as stated in Bellotti et al. (2008). Thus, it also motivates someone’s impulsive buying behaviour. Adventure shopping has a significant relationship to online impulsive buying behaviour (Ozen & Engizek, 2014). The previous study has proven that adventure shopping moderates the significant relationship between serendipity information and online impulse buying behaviour (Akram et al., 2018). Therefore, the following hypothesis can be formed:

H₄: The relationship between scarcity and online impulse buying behaviour will be stronger when adventure shopping presents.

H₉: The relationship between serendipity information and online impulse buying behaviour will be stronger when adventure shopping presents.

The Moderating Effect of Value Shopping
Consumers feel very delighted and happy when they obtain a good deal (for instance, discounts or promotions) since they reflect on themselves as smart buyers (Akram et al., 2018). Finding good deals or discounts can show buyers’ satisfaction from personal satisfaction. When shopping online, some people prefer to look for discounts and special offers with the massive use of daily use websites, and this action can affect consumers' impulse online purchases and unplanned shopping (Akram et al., 2018). Value shopping successfully has a significant relationship to online impulsive buying behaviour (Ozen & Engizek, 2014). However, there is only one previous study that shown that value shopping moderates the significant relationship between scarcity and online impulse buying behaviour. Besides, only one study has mentioned that value shopping moderates the significant relationship between serendipity information and online impulse buying behaviour in Akram et al. (2018). Therefore, the following hypothesis can be formed:

H₅: The relationship between scarcity and online impulse buying behaviour will be stronger when value shopping presents.

H₁₀: The relationship between serendipity information and online impulse buying behaviour will be stronger when value shopping presents.
The Moderating Effect of Relaxation Shopping

The satisfaction motivation of shopping encourages shopping to be used as a means of stress relaxation, to improve a negative mood, or just to buy a special treat (Kang & Park-Poaps, 2010). Driven by role-shopping motivation, a person goes shopping to give desire or gifts to others to make themselves happy. The relaxation value attained when shopping provides opportunities for escape or therapeutic measures that help consumers feel better (Kang & Park-Poaps, 2010). As declared in Ozen and Engizek (2014), relaxation shopping successfully has a significant relationship to online impulse buying behaviour directly.

This variable is the main factor in producing online impulse behaviour. Yet, there is only one previous study that has shown that relaxation shopping moderates the significant relationship between scarcity and online impulse buying behaviour. Correspondingly, only one study has proven that relaxation shopping moderates the significant relationship between serendipity information and online impulse buying behaviour in Akram et al. (2018). Therefore, the following hypothesis can be formed:

H_6: The relationship between scarcity and online impulse buying behaviour will be stronger when relaxation shopping presents.

H_{11}: The relationship between serendipity information and online impulse buying behaviour will be stronger when relaxation shopping presents.

The Moderating Effect of Idea Shopping

Some desires and encouragement depend on a hedonic element derived from literature such as "ideas shopping". Searching, assessing, and escalating new trends, brands, product launches, and pre-launches information in online stores as value shopping ideas moreover affect consumer online behaviour (Luo & Ye, 2019). With the desire to follow new trends or the latest fashion styles, buyers will gain information about the latest products through the website or e-commerce platform. With this, move someone's desire to buy the product. In addition, with the help of unexpected information about certain products, it also spurs someone's desire to buy that product higher (Kang & Park-Poaps, 2010). The previous study (Akram et al., 2018) shows that idea shopping moderates the significant relationship between scarcity and online impulsive buying behaviour. Also, that study has proven that idea shopping moderates the significant relationship between serendipity information and online impulsive buying behaviour. Therefore, the following hypothesis can be formed:

H_7: The relationship between scarcity and online impulse buying behaviour will be stronger when idea shopping presents.

H_{12}: The relationship between serendipity information and online impulse buying behaviour will be stronger when idea shopping presents.

Research Model

This model consisting of eight variables including two independent determinants of online impulse buying behaviour which are scarcity and serendipity information. It also moderated by five
hedonic shopping values namely, social shopping, adventure shopping, value shopping, relaxation shopping and idea shopping over the factors influencing online impulsive buying behaviour. This model is applied to prove the existence of online impulsive buying behaviour. The research model will be shown in Figure 1.

Figure 1. The Proposed Research Model
Source: Akram et al. (2018)

METHODS
This study is a quantitative research. This research applied purposive sampling as the sampling design. Purposive sampling requires respondents’ criteria thus, this study uses respondents that were online shoppers aged between 17 to 30 since they are the most expert and active in experiencing the online commerce and shop online (Harahap & Amanah, 2018; Prasetyo, 2017; Wan et al., 2012). Furthermore, respondents were customers who have transaction history in the last three months. All research indicators are generated from previous study (that is, Akram et al., 2018).

Likert scale is used in this study. Following the original authors who developed the measurement items, this study applies a 5-point Likert scale. In addition, the scale makes it easier for respondents to answer with the provided options that have a better index of reliability, validity, and discriminant power. Also, it shows sensitivity and linearity (Budiaji, 2013). For data analysis, this research uses Smart-PLS. Sample size is an important feature of any empirical study where the aim is to appoint implications about a population from the sample (Taherdoost, 2017). In this study, the number of the sample was 330 respondents based on Hair et al., (2017), the number of sample to use SEM-PLS application has a minimum requirement of 200 respondents, and number of sample used are usually range between 30 to 500 (Sekaran & Bougie, 2016).
RESULTS AND DISCUSSION

The data is obtained through SEM to conduct the reliability and validity testing. Out of 330 distributed questionnaires, there were 271 females and 59 males, in which the percentage between females and males was found to be 82.1% and 17.9%, respectively. Furthermore, the age range was dominated by 21 to 25 years old, a total of 120 with a percentage of 36.4%. In terms of domicile, many respondents live in West Jakarta with a percentage of 41.8%. Meanwhile, the education section was measured from the last level of education of the respondent itself. It can be concluded that many respondents had the latest education in bachelor’s degree with a total of 179 respondents by 54.2%.

Tabled 3. Reliability and Validity Testing

| Variable and Indicators | Corrected Item-Total Correlation (> 0.4) | Reliability Cronbach’s Alpha (> 0.7) | Composite Reliability (≥ 0.7) | AVE (> 0.5) | Outer Loading (> 0.6) |
|-------------------------|--------------------------------------|-------------------------------------|-------------------------------|-------------|-----------------------|
| **Online Impulse Buying:** | | | | | |
| OIB1                    | 0.700                                | 0.838                                | 0.891                         | 0.671       | 0.809                 |
| OIB2                    | 0.638                                |                                      |                               |             | 0.822                 |
| OIB3                    | 0.674                                |                                      |                               |             | 0.843                 |
| OIB4                    | 0.666                                |                                      |                               |             | 0.801                 |
| **Scarcity:**           | | | | | |
| SCA1                    | 0.666                                | 0.870                                | 0.911                         | 0.720       | 0.800                 |
| SCA2                    | 0.762                                |                                      |                               |             | 0.881                 |
| SCA3                    | 0.728                                |                                      |                               |             | 0.853                 |
| SCA4                    | 0.734                                |                                      |                               |             | 0.857                 |
| **Serendipity Information:** | | | | | |
| SIF1                    | 0.750                                | 0.892                                | 0.925                         | 0.755       | 0.864                 |
| SIF2                    | 0.760                                |                                      |                               |             | 0.869                 |
| SIF3                    | 0.800                                |                                      |                               |             | 0.893                 |
| SIF4                    | 0.736                                |                                      |                               |             | 0.850                 |
| **Social Shopping:**    | | | | | |
| SSP1                    | 0.655                                | 0.847                                | 0.888                         | 0.667       | 0.702                 |
| SSP2                    | 0.678                                |                                      |                               |             | 0.882                 |
| SSP3                    | 0.752                                |                                      |                               |             | 0.838                 |
| SSP4                    | 0.655                                |                                      |                               |             | 0.835                 |
| **Adventure Shopping:** | | | | | |
| ADS1                    | 0.713                                | 0.845                                | 0.895                         | 0.681       | 0.865                 |
| ADS2                    | 0.670                                |                                      |                               |             | 0.788                 |
| ADS3                    | 0.746                                |                                      |                               |             | 0.857                 |
| ADS4                    | 0.598                                |                                      |                               |             | 0.789                 |

Reliability and Validity

Reliability and validity testing are conducted in this study to determine the reliability of a measure before hypotheses testing. Within this study, Cronbach’s alpha is used in order to assess the internal consistency of the questionnaire. Cronbach’s alpha must be equal to 0.70 or higher is considered acceptable (Khazaee-pool et al., 2017). For testing the convergent validity, this study applies Average Variance Extracted (AVE). This method is useful for measuring validity. The values should be greater than 0.5 in accordance with Hair et al. (2011). If AVE is equal to or above 0.5, it means there is good convergence, while below 0.5 means there is an error in the item. Table 3 shows the outcome for reliability and validity testing for this study.
Hypotheses Testing

Hypothesis testing is conducted to provide insight into the relationship between each variable (Hair et al., 2017). This study uses PLS-SEM to conduct the hypotheses testing of the research model. The limitation for these hypotheses is measured using t-statistics or critical value with a limitation of about 1.65 and a p-value below 0.05 (LaMorte, 2017; Hair et al., 2011).

Table 4. Result of Structural Model

| H     | Variable Relationship | Path Coefficient | Critical Value | P-value | Conclusion |
|-------|-----------------------|------------------|---------------|---------|------------|
| H1    | SCA → OIB             | 0.230            | 4.023         | 0.000   | Significant |
| H2    | SIF → OIB             | 0.314            | 5.374         | 0.000   | Significant |
| H3    | SCA*SSP → OIB         | -0.021           | 0.323         | 0.373   | Not significant |
| H4    | SCA*ADS → OIB         | -0.175           | 2.613         | 0.005   | Significant |
| H5    | SCA*VAS → OIB         | -0.214           | 3.213         | 0.001   | Significant |
| H6    | SCA*RES → OIB         | 0.142            | 1.757         | 0.040   | Significant |
| H7    | SCA*IDS → OIB         | 0.088            | 1.395         | 0.082   | Not significant |
| H8    | SIF*SSP → OIB         | -0.094           | 1.248         | 0.106   | Not significant |
| H9    | SIF*ADS → OIB         | 0.127            | 2.238         | 0.013   | Significant |
| H10   | SIF*VAS → OIB         | 0.144            | 2.226         | 0.013   | Significant |
| H11   | SIF*RES → OIB         | -0.199           | 2.983         | 0.001   | Significant |
| H12   | SIF*IDS → OIB         | -0.010           | 0.191         | 0.424   | Not significant |
In this study, the $R^2$ value and path coefficient were obtained to assess the inner model. The $R^2$ is expected to be among 0 to 1. An $R^2$ value of 0.75 indicates that the model is strong, 0.50 indicates that the model is moderate, and 0.25 indicates that the model is weak (Hair et al., 2011).

**Moderating Effect of Hedonic Values**

When the t-value or critical value is above 1.65, and the p-value is below 0.05 thus, the moderating variable is considered as significant, and vice versa. Since the moderator effect has four types: quasi, pure, predictor, and homologous moderator, to determine which one can be formulated by calculating the $a_2$ and $a_3$. The formula of moderator effect itself is shown as down below.

$$Y = a_0 + a_1X_1 + a_2X_2 + a_3X_1 \times X_2 + e.$$  

If the $a_2$ value is not significant and the $a_3$ value is significant, it is called as pure moderator. If both of $a_2$ and $a_3$ are significant, it is called as quasi moderator. If $a_2$ is significant but $a_3$ is not significant, it is called as predictor moderator. Lastly, if both of $a_2$ and $a_3$ are not significant, it is called as homologous moderator (Bryan & Haryadi, 2018. The result is shown as down below (Table 5).

**Table 5. Type of Moderator Variable**

| Hypotheses | $a_2$ | $a_3$ | Type of Moderator |
|------------|-------|-------|-------------------|
| $H_4$: OIB = SCA + ADS + SCAxADS | 0.001 (significant) | 0.563 (not significant) | Predictor moderator |
| $H_5$: OIB = SCA + VAS + SCAxVAS | 0.000 (significant) | 0.028 (significant) | Quasi moderator |
| $H_6$: OIB = SCA + RES + SCAxRES | 0.000 (significant) | 0.751 (not significant) | Predictor moderator |
| $H_9$: OIB = SIF + ADS + SIFxADS | 0.027 (significant) | 0.944 (not significant) | Predictor moderator |
| $H_{10}$: OIB = SIF + VAS + SIFxVAS | 0.010 (significant) | 0.832 (not significant) | Predictor moderator |
| $H_{11}$: OIB = SIF + RES + SIFxRES | 0.000 (significant) | 0.377 (not significant) | Predictor moderator |

**Discussion**

This study aims to test a model of online impulsive buying. The result shows that out of twelve hypotheses, there are eight hypotheses being accepted. The result shows that the first hypothesis has a significant relationship between scarcity to online impulse buying. These results similar to previous studies such as Chung et al. (2017), Gupta (2013), Gabler and Reynolds (2013), Ballina and Balinna (2019), Vannisa et al., 2020), Chan et al. (2017), John et al. (2019), Thuong (2020), and Goetha (2020). Result also shows that the second hypothesis has a significant relationship between serendipity information and online impulsive buying behaviour. These results similar with previous studies such as Chung et al. (2017), John et al. (2019), Joswendo (2020), Thuong (2020), Sarker et al. (2020), Akram et al. (2018), Goetha (2020), and Song et al. (2015). However, the result also shows that social shopping was not found to moderate the relationship between scarcity and impulse...
buying. This is caused by Shopee provided unsatisfactory services for both sellers and buyers as stated in Ayudhitama and Pujiarto (2019). Buyers must wait a long time to get chat replies from the sellers and if sellers want to update the available stock, their account is often blocked by Shopee itself so that the buyer cannot access their shop and cannot view updated information (Luís, 2020). Also, Purnomo and Riani (2018) mentioned that consumers in Indonesia who shop online have the motivation to avoid social interaction and not deal with the seller directly. Based on the previous study, 30% of the consumers who buy online ask questions 195 before buying goods (Putri, 2020). Hence, it is concluded that the majority of Indonesian customers don't like to ask questions or make interactions when shopping online.

The problem that arises on behalf of sellers is when they want to update the available stock, their account is often blocked by Shopee itself so that the buyer cannot access their shop and cannot view updated information (Luís, 2020). The Shopee system has not been able to generalize to its sellers, which causes sellers to not be able to provide social shopping value to their buyers, so in return, this does not have an effect on customers for impulsive buying online. Therefore, the variable social shopping given in this study does not successfully moderate the relationship between scarcity and online impulse buying due to the issues presented by Shopee.

Thereafter, the result also indicates that there is a significant relationship between scarcity as well as serendipity information moderated by value shopping to online impulse buying. The research shows that there is a significant relationship between scarcity as well as serendipity information moderated by relaxation shopping to online impulse buying behaviour. All these hypotheses are supported in previous research by Akram et al. (2018).

Additionally, the relationship between scarcity as well as serendipity information to online impulse buying moderated by idea shopping is not supported in this study. This is happened because if consumers who follow trends or modes are aware online and like to follow trends using the internet, this means they will not make online impulse buying behaviour (Ozen & Engizek, 2014). Besides that, Indonesians who follow the trend themselves are more likely to use Instagram to be able to follow the developing fashion models (Wardani, 2017). Also, this occurs because of the transformation to the digital era 4.0 with all the technological sophistication available, the results in trend-following people likely to turn it into an opportunity. Christian (2017) explained that the behaviour of millennial groups in viewing the concept of entrepreneurship tends to be influenced by environmental factors (one of which is family) and the development of entrepreneurial trends (friends or community).

**Theoretical implications**

Based on the results of the analysis that has been carried out, this study describes the theoretical implications of the results of this study. First, scarcity, in the form of limited purchase time and the number of products offered, will create a
sense of urgency in consumers and encourage consumers to act immediately. Scarcity can also assist in heuristic information processing and shape consumer desirability in agreement. This desire, in turn, can tempt a person to buy immediately (Gwee & Chang, 2013). Urgency is based on limited time availability. Research has exposed that limited-time deals are one of the most often self-reported triggers of online impulsive buying (Moser et al., 2019). Second, serendipity is one of the situational factors that tend to be unexpected and quick, and consumers do not plan for the situation resulting in a new sense of shopping value that links impulsive behavior (Joswendo, 2020). When consumers receive the information accidentally, this information affects their perception because the information is thought to have shopping value. Furthermore, because this information appeared unintentionally and unplanned, the consumers perceive differently from the usual occasion (Chung et al., 2017).

Third, the relationship between scarcity and online impulse buying behavior is moderated by adventure shopping, value shopping, and relaxation shopping. Furthermore, the relationship between serendipity information and online impulse buying is moderated by adventure shopping, value shopping, and relaxation shopping. It can be stated that all of the hedonic values shopping has their part in affecting impulsive buying behavior. Sign for the social shopping dimension is that shoppers turn to be socialized when shopping. They feel the joy of shopping with friends and family and interact with other people. Followed by the limitations of a product due to limited quantity and time, consequential in increased hedonic behavior in buyers, which ultimately will refer to online impulsive buying decisions. However, some customers choose to shop online and avoid social interactions. Adventure shopping is another efficient way to e-commerce strategy in order to stimulate impulsive buying behavior (Cinjarevic et al., 2011) by exploring or discovering some information through websites or e-commerce applications regarding certain products accidentally (Kim et al., 2013). Furthermore, some people prefer to look for value shopping they will obtain through discounts and special offers with the massive use of daily use websites, and this action can affect consumers' impulse online purchases and unplanned shopping (Akram et al., 2018). The relaxation value achieved when shopping offers opportunities for escape or therapeutic measures that help consumers to feel better (Kang & Park-Poaps, 2010).

Managerial implications
The managerial implication of this research can be stated as follows. Firstly, the study concludes that scarcity positively influences online impulse buying behavior. Given the quantity of goods that are not always available, the seller must be able to meet the needs of each buyer. For example, Shopee must enhance cooperation with retailers or distributors so that it can increase sales on the Shopee site itself. With so many sellers available, there must be many items available to customers. In addition, the seller must also sell products that are really interested and needed by customers. Besides, the product quantity mark feature on Shopee must represent the actual quantity of goods available. For instance, if the seller only provides “2 stocks”, it should be written according to the quantity available but not “< 10
stocks”. Shopee also has to improve its service so that it can solve problems with the seller if they want to add or update the stock status of the item itself. The quantity of goods available greatly affects a person to be impulsive. Also, Shopee must improve the services provided through the website or application to sellers as well as buyers. This happens because Shopee's service has taken a long time to respond to and respond to problems faced by sellers and buyers regarding the update stock mark. Therefore, it is important for Shopee to really pay attention to the e-service provided to their customers.

Second, this study proved that information serendipity is positively related to online impulse buying behavior. Customers tend to feel excited or more interested in sellers who provide unexpected information about certain products of interest. They must also represent accurate information about the product itself because the reliability of the information provided is an important basis for building consumer trust and confidence in the e-commerce business. Online shops should also pay close attention to this because the presence of this incidental information can increase one's impulsiveness to buy the product itself. Shopee also must really pay attention to and improve the services provided when the seller wants to provide additional detailed information about the product being sold or the service offered. Thus, this process does not take time for the seller to update the information.

Third, this study focuses on hedonic values, one of which is social shopping as a moderating variable that affects scarcity or serendipity information and online impulse buying behavior. Social shopping is an important variable for e-commerce today regarding the seller's services provided to customers. Because this variable is related to the interaction obtained from shopping online. This greatly affects the decision of the customer to buy the product being offered. Hence, Shopee must improve their e-service to be more responsive to their customers because their services are considered poor. Social shopping also is one of the important variables for developing e-business strategies because it relates directly to the final buyer. This happened because the strategy that is implemented in a physical store is not necessarily appropriate or running on an online store. They need a different strategy because the strategies and operations implemented are different. The sellers at Shopee must be able to provide good service to their customers. They must be able to create good relationships and maintain these relationships. With a good relationship, it certainly has an influence on customer loyalty and satisfaction. This in turn will increase people's impulsive attitude towards the product being offered.

This study shows that adventure shopping has a positive relationship with scarcity and serendipity of information on online impulse buying behavior. Adventure shopping is another variable of hedonic values that has an emotional influence on impulsive buying attitudes online. Shopee must provide applications that are as attractive as possible designs for customers so that they can feel their adventurous spirit when making buying and selling transactions. The menu button provided must be absolutely necessary so that customers are not confused when they want to search for products or transactions. An excellent e-commerce application will make buyers feel like they are in their own world and also inspire
them to make purchases. Hence, this will increase one's attitude to buy impulsively.

This study determined that value shopping succeeded in moderating the relationship between scarcity and serendipity information on online impulse buying behavior. Value shopping is another variable of hedonic values that gives a direct influence on one's emotionality. E-commerce, specifically Shopee, must provide promos or incentives to its customers as often as possible. This is done to increase customer loyalty to always obtain a good experience at Shopee. Values, promos, or incentives given to customers must also be fair and not disappoint. The process of claiming promos and cashback provided by Shopee also must be very responsive and not take a long time because the services provided by customers must be of utmost, because this will affect customer satisfaction and purchasing decisions. Online retailers should therefore promote promotions so that they are in line with the reality that is happening so that consumers do not experience bad experiences when shopping at Shopee.

**CONCLUSION**

The purpose of this study is to predict situational factors affecting online impulse buying behaviour moderated by five hedonic shopping values. Eight out of twelve hypotheses are accepted and supported. Scarcity, serendipity information, social shopping, adventure shopping, value shopping, relaxation shopping, and idea shopping are all important factors that are affecting online impulse buying. Scarcity and serendipity information is revealed to have a greater influence in relation to online impulsive buying behaviour. Moreover, the hedonic shopping values such as social shopping, adventure shopping, value shopping, relaxation shopping, and idea shopping are also important since impulsive buying behaviour is the result of emotional or hedonic motivation itself. The existence of these hedonic shopping values helps online retailers and web developers to design marketing strategies that are appropriate and influence the consumer purchasing decision process. However, social shopping and idea shopping are found to not having an influence on online impulse buying behaviour in this study.

This research has two main research limitations. Firstly, this research emphasizes on Shopee website as their platform media to make buying and selling transactions of their products. Secondly, this study uses non-probability sampling, meaning that each respondent is specially selected to be a research respondent. The whole population in non-probability sampling do not receive the same opportunity of being respondents in this study. Hence, it can be concluded that the results obtained cannot generalize the entire population of Shopee customers.
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