

# A Comparative Study of Consumers' Purchase Intention on Different Internet Platforms

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#### Abstract

The aim of this paper is to study consumers' purchase intention on web-based and social-based B2C e-commerce platforms. This research is one of the first empirical studies to employ the Stimulus-Organism-Response Model (S-O-R Model) as a main research model. The researchers found six findings which contrast with the previous literature. First, the two-way communication tools provided by the platform are not powerful enough to significantly affect the emotional needs of online consumers. Second, the stimulus that affect user's interpretation of online information is the two-way communication tools provided by the platform. Third, the risk perceived by a consumer in contemplating a particular purchase action does not significantly affect the emotional needs of consumers. Fourth, the stimulus that affects users' curiosity aroused while interacting with the platform is the ability of the platform to enhance user participation in the platform's activities. Fifth, consumers' emotional needs significantly affect online consumers' purchase intention. Finally, the degree of users' attention while using the platform significantly affects consumers' purchase intention.

**Keywords** E-commerce · Social-commerce · Stimulus-organism-response model · Web-based e-commerce

# 1 Introduction

Currently, with the rapid development of social media including social network services, the e-commerce industry is once again encountering major changes. It has transformed from a product-oriented environment to a social and customeroriented environment. With this transformation, the new model of e-commerce has emerged and has been recognized as social commerce [10]. Once again, customer behavior and their decision making processes have been impacted because of this new emerging model of e-commerce. With social commerce, customers can access social knowledge, information, and experiences which can enhance their better understanding of their online purchase purposes. Furthermore, this form of social commerce has the ability to make customers' purchase decisions more informed and accurate [10].

This research focuses on investigating the effects of stimuli on the purchase intention of consumers or customers, along with the comparison of the stimuli and their effects on consumers'

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purchase intention on a web-based B2C e-commerce platform and social-based B2C e-commerce platform.

The scope of this research is focused in Thailand because, at present, the total value of e-commerce worldwide has been increasing exponentially and this rapid growth of e-commerce has been clearly evidenced specifically in Asean countries. From 2015 to 2016, Thailand was ranked third in e-commerce growth rate (38.9%), which was behind Indonesia (64.29%) and Malaysia (46.92%). Nevertheless, the total value of Thailand e-commerce was around 20,686 million dollars which was greater than Indonesia and Malaysia [6]. From this, it is clearly evident that this form of retailing industry has undergone a significant transformation period. Moreover, this transformation has certainly affected customer behavior and their decision making processes [10].

#### 2 Literature review

# 2.1 Stimulus-organism-response model

The Stimulus-Organism-Response Model (S-O-R Model) is the paradigm or theoretical framework developed in the Cognitive approach, one of the typological classifications of the theoretical



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approaches of consumer behavior study. It was developed as an attempt to understand the processes of decision making of consumers individually, in groups, or in organizations. Additionally, the model also attempts to assess the influences of family, friends, society, and some reference groups on the decision making processes of consumers. The major concept of this approach holds that consumer behavior is caused by intrapersonal cognition. The individual consumer is viewed as an information processor and the consuming behavior of a consumer is said to be influenced by environmental variables and social experiences.

Specifically, the S-O-R Model is mainly used to evaluate how stimulus affects consumers and their behavior. The model can be separated into three parts: stimulus, organism, and response. Environmental and social stimuli can be classified as the stimuli which have the effects on the organism, and the response is the consumer decision making caused by the stimuli and organism parts of the model. Bray [3] stated that most of the modern theorists admit that the past experiences of the consumers will influence the processing of information and determine the information that will be sought and received by the consumers.

Online consumers interact with e-commerce sites via their available interactive features. These features are essential components of online shopping platforms which may have influences on the psychological processes of consumers and lead to purchase intention [12]. In the context of e-commerce sites, website interactivity is a crucial environmental stimulus for the online buying process. Additionally, environmental psychology provides the logical theoretical foundation for studying the influence of interactivity on e-commerce sites [12]. Several studies have deployed the S-O-R Model as a theoretical framework in order to study how website features affect website consumers and their behavior [7, 12].

According to the S-O-R Model, the environmental cues are posited as stimuli that affect the individual's affective and cognitive reactions, which in turn affect behavior [12]. In the context of e-commerce site, stimuli relate to the design features of the platforms which consumers interact with [7, 12]. For the organism, it refers to the individual's emotive and cognitive systems. The response can be in many forms ranging from conscious to unconscious and internal to external [11, 12]. Many of the past studies in the context of e-commerce sites have deployed active control and reciprocal communication as stimuli. Furthermore, they deployed affective involvement and cognitive involvement as the organism, and purchase intention as the response. The S-O-R Model in the context of e-commerce sites can be depicted in Fig. 1.

### 2.2 Website interactivity

In a study by Jiang, Chan, Tan, and Chua [12], the researchers utilized active control as a demonstration of mechanical interactivity and reciprocal communication as a demonstration of social interactivity. Likewise, Huang [9] also employed active

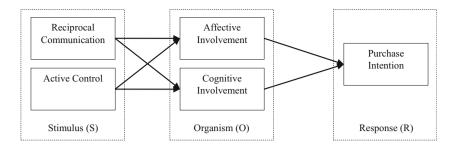
control and reciprocal communication in their research framework. Jiang et al. [12] also stated that active control and reciprocal communication have been endorsed as important conceptualizations in depicting interactivity. Moreover, interactivity also affects the different types of website involvement [9, 12, 26]. Interactivity also supports consumers in the appropriate selecting of the information that they need. Huang [9] stated that interactivity not only affects the website involvement but also triggers the flow experience of consumers which can be implied as intrinsic enjoyment, and, therefore, could affect the consumers' purchase intention. From the previous studies, it can be demonstrated that interactivity can be divided into two parts: active control and reciprocal communication.

Active control refers to the capability to select information and conduct interaction and is also normally referenced as an interactivity feature [9]. Jiang et al. [12] also stated that the effects of active control could be explained by principles of existing control-related theories in that "the ability to control information flow increases one's ability to explore and understand the information structure of information system" [12]. In the context of online shopping, Jiang et al. [12] defined the definition of active control as "the ability to choose information and guide an interaction." Nevertheless, in the context of social network services, Huang [9] defined active control as "a user perceived control by using a social networking site." Active control is an essential component which has an influence on website users in interactions with technology [12]. Active control of a website could be evaluated by the amount of flexibility and freedom to control the display of product information users receive from that website.

Reciprocal communication is defined as the ability of communication between two or more entities [9, 12]. In the extant works, there are two terms that can be interchangeably used as reciprocal communication: reciprocity and two-way communication. Jiang et al. [12] stated that human communication processes systematically vary with the presence or absence of reciprocal communication. In the context of online shopping, Jiang et al. [12] described reciprocal communication as "the ability to communicate between two or more entities." However, in the context of social network services, Huang [9] described this construct as "a user perceived responsiveness and connection by using a social networking site." Websites provide the experience of reciprocal communication to their users via their available communication tools, i.e., email contact and live chat. The major objective of these communication tools is to provide the channels to the consumer to engage in conversations with online website personnel, i.e., sales representatives. Some research studies have suggested that the increased reciprocal communication could reduce the relationship uncertainty and increase communication intimacy. Additionally, reciprocal communication could reinforce the communication relationship when associating with shared language, shared signs, and feedback. Huang [9] also



Fig. 1 S-O-R Model in the context of e-commerce sites



suggested that the power of control over the information collection of the customer will be increased when customers are involved in communication.

# 2.3 Social identity

In the context of online social network sites, Cheung and Lee [5] conceptualized social identity as "the self-awareness of one's membership in a group, as well as the emotional and evaluative significance of this membership." Meanwhile, Kwon and Wen [15] conceptualized social identity in a social network service (SNS) context as "the perception of belonging to the SNS community where people have the motivation to arise social interaction with others." Likewise, Huang [9] conceptualized social identity as "a user self-esteem and commitment to groups in a social networking site." There are three main components of social identity: cognitive social identity, evaluative social identity, and affective social identity [5, 9]. For these three components, Cheung and Lee [5] defined cognitive identity as "the selfcategorization process renders the self stereotypically interchangeable with other group members, and stereotypically distinct from outsiders," evaluative social as "the evaluation of self-worth on the basis of belonging to a particular group," and affective social identity as "a sense of emotional involvement with the group, which is characterized by identification with, involvement in, and emotional attachment to the group." Meanwhile, Huang [9] also defined cognitive social identity as "the process of selfcategorization into an online group," evaluative social identity as an "indicator of the evaluation of self-worth to an online group," and affective social identity as "a sense of emotional attachment to the online group." All these three components can be measured by a single construct using social identity and treated as a combined function of environment-based stimulus.

From previous studies, many researchers have found the significant impacts of social identity in many dimensions. Clément, Noels, and Doeneault [4] found that communication support is significant to users who have social identity or it can be implied that an online social network service would be perceived as a useful tool for users who have social identity and collaborate with other users. In addition, Arnett, German, and Hunt [2] and Simon [22] suggested that "factors that affect the quality and quantity of social interactions may influence salience of identity and the value of investing in constructing and enhancing one's identity." From this suggestion, it can be

implied that people who have higher social identity tend to perceive in-group feeling which can positively distinguish themselves from out-group feeling and also tend to prefer a group that can provide them with a positive self-image. Song and Kim [23] recommended that social identity could be an important determinant which could affect the intention to utilize a system of virtual community service or a specific technology. Furthermore, Kwon and Wen [15] also identified the significance impact of social identity on attitude.

#### 2.4 Perceived risk

In the classical theory of decision, the sources of risk are the variation in distribution, subjective values, and probabilities of the possible outcomes. Nonetheless, the theory of consumer's perceived risk states that the perceived risk of the consumer generally comes from uncertainty and the prospectively undesirable outcomes of the purchasing result. The more risk the consumer perceives; the lower the probability he/she will purchase the products or services. Consumers normally adopt risk reduction strategies in order to reduce risk, i.e., finding more information before making a purchase. Lim [16] suggested that perceived risk is a powerful construct that demonstrates consumer behavior because "consumers are more often motivated to avoid mistakes than to maximize utility in their purchasing."

In the context of online shopping, Lim [16] identified four sources of perceived risk. The sources of perceived risk include technology, vendor, consumer, and product. Firstly, perceived technology risk is the degree of individuals' belief that "if they purchase products or services through the Internet, they will suffer losses caused by the Internet and its related technologies" [16]. Secondly, perceived vendor risk is the degree of individuals' belief that "if they purchase products or services through the Internet, they will suffer losses caused by Internet vendors" [16]. Thirdly, perceived consumer risk is the degree of individuals' belief that "if they purchase products or services through the Internet, they will suffer losses caused by social pressure" [16]. In this situation, social pressure can be described as the pressure individuals receive from their families, friends, or colleagues. Lastly, perceived product risk is the degree of individuals' belief that "if they purchase products or services through the Internet, they will suffer losses caused by products" [16]. Additionally, Vijayasarathy and Jones [24] found that consumers' perceived risk is a



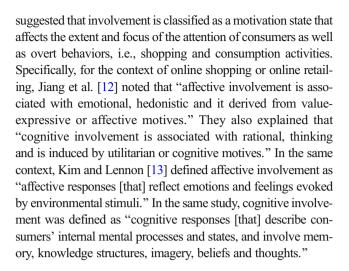
significant factor that has an influence on consumers' online shopping behavior. Lim [16] also stated that, in an online shopping situation, it can be predicted that perceived risk will have an influence on the consumer. Additionally, Mitchell [19] observed that perceived risk is often viewed as an antecedent of involvement which is a part of the S-O-R Model.

#### 2.5 Web site involvement

The concept of purchase involvement has been extended into the context of online shopping and online social network services. Many research studies focus and confirm the moderating effect of involvement on purchase intention [7, 18, 25]. Irrespective of these studies, other studies have paid more attention to web site involvement because the researchers believed that it is long-term involvement which has a direct influence on shaping customer behavior. Another reason is that web site involvement is a construct that has more stability than other concepts of involvement. This conclusion comes from the fact that the sources of the stimuli of web site involvement are mainly the result of the personally relevant experience of the consumer or knowledge derived from his/ her long-term memory. This experience or knowledge normally reflects the consumer's personal interest in a specific website over a long period of time. Therefore, website involvement is likely to be experience-based and remains unchanged; however, the situation changes. This is why it is included in this research's framework.

Generally, many studies have investigated two main aspects of web site involvement: affective involvement and cognitive involvement [9, 12, 13, 27]. According to these studies, interactions with web sites encourage both affective (emotional) effect and cognitive effect in the consumer [7, 14]. Cognitive involvement of the consumer could be raised by website cues while he/she is interacting with a web site; such cues could include product description and images, price, relevant sales policies, etc. Moreover, these cues could assist a consumer in achieving his/her shopping goal. Likewise, affective involvement with a web site of a consumer could be raised by the features available on that web site, which could include animation, sound, color, and peripheral information [7].

In the context of online shopping or online retailing, Kim and Lennon [13] suggested that "the cognitive state concerns issues regarding how online shoppers interpret information provided online and form thoughts and beliefs toward the service/product being provided." Users can also be affectively involved with a social networking site through features such as friend messages, photos, music, movies, chat windows, and game activities. In this context, Jiang et al. [12] defined involvement as "the perceived relevance of the web site based in the inherent needs, values, and interests of the consumer." Huang [9] also defined involvement in the same context as "a consumer's overall subjective feelings of personal relevance." Additionally, Huang [9]



#### 2.6 Flow

Although the flow theory has its origins in psychology, it has been generally used to deal with optimal user experiences with a personal computer [17]. Flow is a complex concept which many researchers operationalize and measure through several dimensions. Some measure it by using two constructs, enjoyment and concentration, while others measure it using three constructs (perceived enjoyment, concentration, and curiosity). However, another three constructs could also be used in order to measure flow (perceived enjoyment, perceived control, and concentration). Additionally, flow can be measured using five constructs (control, attention, focus, curiosity, and intrinsic interest). Nonetheless, most research studies have specifically used only four constructs to measure flow, including enjoyment, concentration, perceived control, and curiosity [17].

Recently, in the context of online consumer experiences or online consumer behavior, much research in this area has initially focused on studying flow [1, 8, 14, 21]. The reason behind this phenomenon is that people can develop positive emotions naturally when they are in a flow state because flow is a highly enjoyable and absorbing experience [9]. For the online consumer, flow could be generated by involving consumers with a website that provides online environment. In many previous studies, researchers have found the positive relationship between purchase intention and return intention of online shopping and web usage [14, 20]. In addition, flow can be used in the examination of websites' effects on attitude and intention [8, 9]. Therefore, flow theory is included in this research's framework.

# 2.7 Purchase intention

Purchase intention is classified as one format of the online experience [9]. Additionally, Huang [9] suggested that there are two classifications of online experiences: direct product experience and indirect product experience. Direct product experience occurs when a consumer obtains information from interacting



with a product, while indirect product experience comes from the experience with a product of the consumer and is mediated by an advertisement. Direct product experience has an influence on consumer's expectations regarding what to purchase. The response of the consumer as a result of this influence could be in many forms and reactions varying from a conscious purchase to an unconscious once [9]. Huang [9] also suggests that the "intention to buy online is influenced by the level of consumer's lack of leisure time, as in offline shopping, but also by the level of their lifestyle." Regarding consumer behavior, one key difference between online and offline in that the online consumer is generally more powerful, demanding, and utilitarian in his/her shopping expeditions. For this reason, the loyalty of a web site's customer is low overall [14]; although, as in the real world, customer loyalty is influenced by the availability of good and relevant content in an enjoyable context [14].

Huang [9] defined purchase intention in his research, in the context of virtual goods consumption, as "a user willing to buy virtual goods in a social networking site." Additionally, from numerous previous studies, researchers have found a strong influence of affective involvement, cognitive involvement, and flow on purchase intention. For this reason, these three concepts have been used to observe consumers' online experience in the context of an online social network.

#### 3 Contribution

Most of the studies in the field of B2C e-commerce focus only on web-based platforms. In addition, there are few empirical studies of B2C e-commerce in the context of social-based platforms [10]. The main objective of the research, therefore, is to study these two contexts, web-based and social-based B2C e-commerce, in terms of the factors that affect the consumers' purchase intention. Among several studies, a small number of them employ the S-O-R Model as a main research model.

This research is one of the first empirical studies set up to compare the effects of the stimuli of online shopping platforms, both web-based and social-based, on consumers' online experiences and their purchase intention. The study employs the S-O-R Model as a main research model to study the effects of these stimuli on the online experience and consumers' purchase intention. The researchers hope to contribute empirical evidence and fill the gap in the field of B2C e-commerce.

# 4 Research framework and hypothesis

# 4.1 Research framework

The research framework was constructed according to the combination of the related literature and the results from expert interviews. According to the results of expert interviews, this research focuses on the factors that are anticipated to have influences on consumers' purchase intention at the consumer level rather than at the organizational level. Figure 2 shows the research framework with its causal relationship. The corresponding hypotheses will be presented in the following subsections.

#### 4.1.1 Online Stimuli

According to the S-O-R Model concept, in this research, there are four variables which can represent the stimulus part (S) of the model and are incorporated in the research framework. The descriptions and measurements of these variables are as follows:

- Active Control: This variable is intended to capture the ability of the e-commerce platform to allow users to choose information and guide the user's interaction. The measurements focus on the degree of controlling ability that users perceived while interacting with the platform.
- Reciprocal Communication: This variable is intended to capture the ability of two-way communication tools which the online shopping platform provides to its users. The measurements focus on the degree of the abilities of these tools that users perceived while interacting with the platform.
- Perceived Risk: This variable is intended to capture the degree of risk perceived by a consumer when contemplating a particular purchase action. The measurements focus on the different types of risk and their degree.
- 4. Social Identity: This variable is intended to capture the abilities of the online shopping platform which can enhance user participation in the platform's activities. The measurements focus on the different types of these abilities and their degree.

## 4.1.2 Online experience and purchase intention

According to the S-O-R Model concept, in this research, there are five variables which can represent the organism part (O) of the model and are incorporated in the research framework. The descriptions and measurements of these variables are as follows:

- Affective Involvement: This variable is intended to capture
  the emotional or affective needs of consumers. The measurements focus on the degree of consumers' emotional or
  affective needs in various aspects which are arousing while
  they contemplate a particular purchase situation.
- 2. Cognitive Involvement: This variable is intended to capture the users' interpretation of online information that affects the thoughts of the users toward the products. The measurements focus on the degree of the ability of consumers' interpretation in various aspects which are arousing while they contemplate a particular purchase situation.



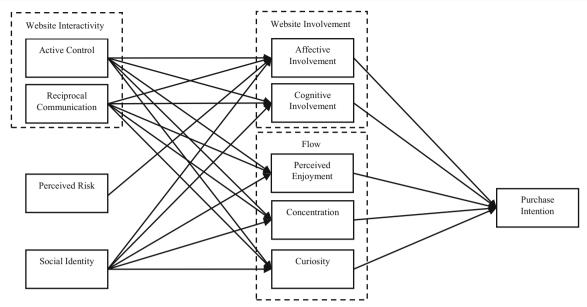


Fig. 2 The research framework

- Perceived Enjoyment: This variable is intended to capture the users' perceived enjoyment. The measurements focus on the degree of various types of enjoyment arousing while consumers are contemplating a particular purchase situation.
- 4. Concentration: This variable is intended to capture the users' attention while using the online shopping platform. The measurements focus on the degree of consumers' attention while they are contemplating a particular purchase situation.
- 5. Curiosity: This variable is intended to capture the users' curiosity aroused while they are interacting with the platform. The measurements focus on the degree of the consumer's curiosity in various aspects which are arousing while they contemplate a particular purchase situation.
- 6. Finally, in this research, purchase intention can be represented as the response part (R) of the model and is incorporated into the research framework. Purchase intention is the variable that is intended to capture users' willingness to buy product(s) from the B2C e-commerce online shopping platform. The measurements focus on the B2C e-commerce online shopping platform selection by a customer to make his/her purchase.

## 4.1.3 Control variables

A set of four experimental units is utilized as a comparison standard for this research. The controls consist of four different settings. The first setting situates the consumers in the functional product shopping situation on a social-based B2C e-commerce site. The second setting situates the consumers in the functional product shopping situation on a web-based B2C e-commerce site. The third setting situates the consumers in the expressive product shopping situation on a social-based

B2C e-commerce site. The fourth setting situates the consumers in the expressive product shopping situation on a web-based B2C e-commerce site.

# 4.2 Research hypotheses

- H1a: Active control significantly affects affective involvement
- H1b: Active control significantly affects cognitive involvement
- **H1c:** Active control significantly affects perceived enjoyment
- H1d: Active control significantly affects concentration
- H1e: Active control significantly affects curiosity
- H2a: Reciprocal communication significantly affects affective involvement
- H2b: Reciprocal communication significantly affects cognitive involvement
- **H2c:** Reciprocal communication significantly affects perceived enjoyment
- H2d: Reciprocal communication significantly affects concentration
- H2e: Reciprocal communication significantly affects curiosity
- H3: Perceived risk significantly affects affective involvement
- **H4a:** Social identity significantly affects affective involvement
- H4b: Social identity significantly affects cognitive involvement
- H4c: Social identity significantly affects perceived enjoyment
- **H4d:** Social identity significantly affects concentration



- **H4e:** Social identity significantly affects curiosity
- H5: Affective involvement significantly affects purchase intention
- H6: Cognitive involvement significantly affects purchase intention
- H7: Perceived enjoyment significantly affects purchase intention
- **H8:** Concentration significantly affects purchase intention
- **H9:** Curiosity significantly affects purchase intention

# 5 Research methodology

This research was conducted by deploying a three-pronged approach. Firstly, a literature review was conducted to gather the relevant theories, concepts, and literature. Secondly, experts in the areas of web-based and social-based e-commerce were interviewed to verify the proposed research model. Finally, a set of questionnaires was developed by making use of the information derived from the first two steps. Additionally, the literature review and expert interviews were iteratively conducted in order to revise the research framework and the questionnaires.

#### 5.1 Literature review

The relevant literature was reviewed to discover the theories, concepts, and knowledge of the S-O-R Model and the relationship between online shopping platforms' characteristics and consumers' purchase intention. Following this, a research framework was constructed with the information derived from the literature review.

# 5.2 Expert interviews

Expert interviews were conducted to verify the proposed model from the previous step. Fourteen experts relating to webbased e-commerce and social-based e-commerce were selected. They are:

- three business owners of B2C e-commerce on online social network sites who have recently organized their shops for at least one year or who have experience in organizing their shops in the past for at least one year;
- three business owners of B2C web-based e-commerce which are not on online social network sites who have recently organized their shops for at least one year or who have experience in organizing their shops in the past for at least one year;
- four consumers of B2C e-commerce on online social network sites who have had continuous purchasing experience for at least one year; and

 four consumers of B2C web-based e-commerce which are not on online social network sites who have had continuous purchasing experience for at least one year

All of these experts were interviewed with semi-structured and open-ended questions. The interview of each expert lasted for thirty minutes and was recorded, transcribed, and encoded. The results retrieved from the expert interviews are consistent and covered all possible factors, including the Stimulus and Organism parts of the S-O-R Model which can lead to online consumer's purchase intention.

# 5.3 Questionnaire survey

The questionnaire was constructed according to the findings from the literature review and was subsequently revised according to the results from the expert interviews. The questions in the questionnaire was carefully designed to explore the essence of each construct in a straightforward manner. The five-point Likert scale was exploited to facilitate the questionnaire as much as possible for respondents to understand and respond meaningfully. Additionally, before the questionnaire was actually exploited, a beta test and final revision were conducted to ensure that the questions did not induce bias.

# 5.4 Experimental design

An experiment with a  $2 \times 2$  factorial design was conducted to test the research model. Four treatments were constructed with two control variables, online shopping platform (social-based/web-based) and product type (functional/expressive). Each treatment provided each shopping scenario to the respondents and was exploited as an assembled instrument together with questionnaire for data collection. The four scenarios consist of the scenario of functional product shopping via a social-based e-commerce site, the scenario of expressive product shopping via a web-based e-commerce site, and the scenario of expressive product shopping via a web-based e-commerce site.

For both functional and expressive products, an online B2C e-commerce shop with two platforms (social-based and webbased) was selected in order to prevent the bias caused by the diversity of available products.

# 5.5 Experimental setting

Four experimental scenarios were set up; a respondent was randomly assigned to each of these four experimental scenarios. Firstly, the respondents were asked to respond to the demographic questions. Secondly, the respondents were asked to go to the online shopping platform (social-based or web-based) depending on the scenario they were assigned to. Then they were asked to freely explore the product(s) that they would like



to purchase. After that, they were asked to answer the questions about the platform that they had just experienced. Thirdly, the respondents were asked to go to another online shopping platform (social-based or web-based) and perform the same course of actions as prescribed in the previous step. Finally, the respondents were asked to select the online shopping platform that they would like to make the actual purchase on (social-based or web-based). Additionally, they were asked to identify those products individually.

# 6 Results and discussion

# 6.1 Results of expert interviews

The experts were categorized into four group depending on the areas of expertise. The results from the interviews are consistent, as shown in Table 1. Note that the figures are not mutually exclusive.

# 6.2 Results of the experiment

The data collected from the experiments, both online and offline, were merged and migrated to SPSS (AMOS) to perform the main data analysis, Structural Equation Modeling (SEM). Firstly, confirmatory factor analysis (CFA) was conducted in order to verify the reliability of each measurement instrument. Secondly, a preliminary model was constructed and then carefully adjusted to be the most optimal. Thirdly, the proposed model was statistically analyzed with SEM methodology and was proved to be a fit with the data, as shown in Fig. 3. The model fit indexes are shown in Table 2.

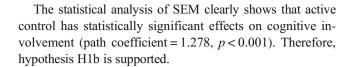
Using AMOS, hypothesis tests were performed by using the maximum likelihood estimation technique. The results of the measurement show that the GFI (0.943), AGFI (0.925), NFI (0.942), RFI (0.928), IFI (0.971), and CFI (0.971) all exceed the cutoff values, while the CMIN/DF (1.929), RMR (0.29), and RMSEA (0.033) met the recommended threshold criteria. The results of the hypothesis tests can be depicted in Table 3.

As shown in Fig. 3, 15 paths of the research model were supported. In details, these paths can be explained as follows:

H1a: Active control significantly affects affective involvement

The statistical analysis of SEM clearly shows that active control has statistically significant effects on affective involvement (path coefficient = 1.016, p < 0.001). Therefore, hypothesis H1a is supported.

• H1b: Active control significantly affects cognitive involvement.



• H1c: Active control significantly affects perceived enjoyment.

The statistical analysis of SEM clearly shows that active control has statistically significant effects on perceived enjoyment (path coefficient = 1.634, p < 0.001). Therefore, hypothesis H1c is supported.

H1d: Active control significantly affects concentration.

The statistically analysis of SEM clearly shows that active control has statistically significant effects on concentration (path coefficient = 0.902, p < 0.001). Therefore, hypothesis H1d is supported.

• H1e: Active control significantly affects curiosity.

The statistical analysis of SEM clearly demonstrates that active control has statistically significant effects on curiosity (path coefficient = 1.301, p < 0.001). Therefore, hypothesis H1e is supported.

- H2a: Reciprocal communication significantly affects affective involvement.
- H2b: Reciprocal communication significantly affects cognitive involvement.

The statistical analysis of SEM clearly demonstrates that there is no statistically significant effect between reciprocal communication and affective involvement. Additionally, there is no statistically significant effect between reciprocal communication and cognitive involvement. Therefore, hypotheses H2a and H2b are not supported.

 H2c: Reciprocal communication significantly affects perceived enjoyment.

The statistical analysis of SEM clearly demonstrates that reciprocal communication has statistically significant effects on perceived enjoyment (path coefficient = -0.216, p < 0.05). Therefore, hypothesis H2c is supported.

H2d: Reciprocal communication significantly affects concentration.

The statistical analysis of SEM clearly demonstrates that reciprocal communication has statistically significant effects



 Table 1
 Results of expert interviews

Variables / Effects	Percentage of Expert's Mention of Variables or Effects			
	Business Owners and Consumers of B2C Online Stores on Online Social Network Sites	Business Owners and Consumers of B2C Online Stores which are not on Online Social Network Sites	Total Percentage of All Groups	
Active Control	85.71%	71.43%	78.57%	
Reciprocal Communication	100%	71.43%	85.72%	
Perceived Risk	100%	85.71%	92.59%	
Social Identity	71.43%	71.43%	71.43%	
Affective Involvement	100%	71.43%	85.72%	
Cognitive Involvement	42.86%	85.71%	64.29%	
Perceived Enjoyment	71.43%	42.86%	57.15%	
Concentration	85.71%	57.14%	71.43%	
Curiosity	100%	71.43%	85.72%	
Active Control on Affective Involvement	85.71%	57.14%	71.43%	
Active Control on Cognitive Involvement	42.86%	71.43%	57.15%	
Active Control on Perceived Enjoyment	57.14%	42.86%	50.00%	
Active Control on Concentration	71.43%	57.14%	64.29%	
Active Control on Curiosity	85.71%	42.86%	64.29%	
Reciprocal Communication on Affective Involvement	100%	71.43%	85.72%	
Reciprocal Communication on Cognitive Involvement	42.86%	71.43%	57.15%	
Reciprocal Communication on Perceived Enjoyment	71.43%	0%	35.75%	
Reciprocal Communication on Concentration	42.86%	14.29%	28.58%	
Reciprocal Communication on Curiosity	85.71%	42.86%	64.29%	
Perceived Risk on Affective Involvement	100%	57.14%	78.57%	
Social Identity on Affective Involvement	71.43%	42.86%	57.15%	
Social Identity on Cognitive Involvement	42.86%	57.14%	50.00%	
Social Identity on Perceived Enjoyment	57.14%	14.29%	35.72%	
Social Identity on Concentration	57.41%	14.29%	35.72%	
Social Identity on Curiosity	71.43%	14.29%	42.86%	
Affective Involvement on Purchase Intention	85.71%	71.43%	78.57%	
Cognitive Involvement on Purchase Intention	42.86%	85.71%	64.29%	
Perceived Enjoyment on Purchase Intention	57.14%	28.57%	42.86	
Concentration om Purchase Intention	14.29%	28.57%	21.43%	
Curiosity on Purchase Intention	57.14%	0%	28.57%	

on concentration (path coefficient = 0.235, p < 0.05). Therefore, hypothesis H2d is supported.

• H2e: Reciprocal communication significantly affects curiosity.

The statistical analysis of SEM clearly demonstrates that reciprocal communication has statistically significant effects on curiosity (path coefficient = 0.317, p < 0.001). Therefore, hypothesis H2e is supported.

• H3: Perceived risk significantly affects affective involvement.

The statistical analysis of SEM clearly demonstrates that there is no statistically significant effect between perceived risk and affective involvement. Therefore, hypothesis H3 is not supported. H4a: Social identity significantly affects affective involvement.

The statistical analysis of SEM clearly demonstrates that social identity has statistically significant effects on affective involvement (path coefficient = 1.702, p < 0.001). Therefore, hypothesis H4a is supported.

 H4b: Social identity significantly affects cognitive involvement.

The statistical analysis of SEM clearly demonstrates that social identity has statistically significant effects on cognitive involvement (path coefficient = 0.628, p < 0.001). Therefore, hypothesis H4b is supported.

 H4c: Social identity significantly affects perceived enjoyment.



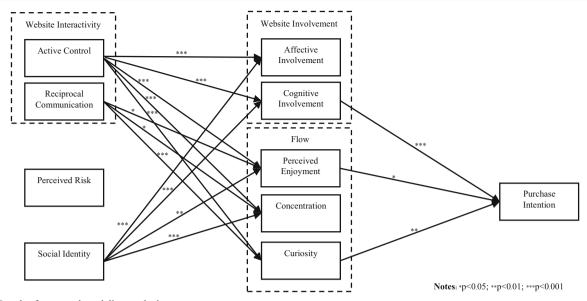


Fig. 3 Result of structural modeling analysis

The statistical analysis of SEM clearly demonstrates that social identity has statistically significant effects on perceived enjoyment (path coefficient = 0.360, p < 0.005). Therefore, hypothesis H4a is supported.

• *H4d: Social identity significantly affects concentration.* 

The statistical analysis of SEM clearly demonstrates that social identity has statistically significant effects on concentration (path coefficient = 0.498, p < 0.001). Therefore, hypothesis H4d is supported.

• H4e: Social identity significantly affects curiosity.

The statistical analysis of SEM clearly demonstrates that there is no statistically significant effect between social identity and curiosity. Therefore, hypothesis H4e is not supported.

 H5: Affective involvement significantly affects purchase intention. The statistical analysis of SEM clearly demonstrates that there is no statistically significant effect between affective involvement and purchase intention. Therefore, hypothesis H5 is not supported.

 H6: Cognitive involvement significantly affects purchase intention.

The statistical analysis of SEM clearly demonstrates that cognitive involvement has statistically significant effects on purchase intention (path coefficient = -3.696, p < 0.001). Therefore, hypothesis H6 is supported.

 H7: Perceived enjoyment significantly affects purchase intention.

The statistical analysis of SEM clearly demonstrates that perceived enjoyment has statistically significant effects on purchase intention (path coefficient = 1.670, p < 0.05). Therefore, hypothesis H6 is supported.

**Table 2** Results of the goodness of model measurement from structural modeling analysis

Goodness of fit model measurement	Acceptable value	Pass	
Relative Chi-Square (CMIN/DF)	≤2	<b>√</b>	
Root Mean Residual (RMR)	$\rightarrow 0$	✓	
Goodness of Fit Index (GFI)	$\geq$ 0.90	✓	
Adjusted Goodness of Fit Index (AGFI)	$\geq$ 0.90	✓	
Norm Fit Index (NFI)	$\geq$ 0.90	✓	
Relative Fit Index (RFI)	$\geq$ 0.90	✓	
Incremental Fit Index (IFI)	≥ 0.95	✓	
Comparative Fit Index (CFI)	≥ 0.95	✓	
Root Mean Square Error of Approximation (RMSEA)	≤ 0.05	✓	



**Table 3** The results of hypothesis tests

Hypothesis	Support	
H1a: Active control significantly affects affective involvement	✓	
H1b: Active control significantly affects cognitive involvement	✓	
H1c: Active control significantly affects perceived enjoyment	✓	
H1d: Active control significantly affects concentration	X	
H1e: Active control significantly affects curiosity	✓	
H2a: Reciprocal communication significantly affects affective involvement	X	
H2b: Reciprocal communication significantly affects cognitive involvement	X	
H2c: Reciprocal communication significantly affects perceived enjoyment	✓	
H2d: Reciprocal communication significantly affects concentration	✓	
H2e: Reciprocal communication significantly affects curiosity	✓	
H3: Perceived risk significantly affects affective involvement	X	
H4a: Social identity significantly affects affective involvement	✓	
H4b: Social identity significantly affects cognitive involvement	✓	
H4c: Social identity significantly affects perceived enjoyment	✓	
H4d: Social identity significantly affects concentration	✓	
H4e: Social identity significantly affects curiosity	X	
H5: Affective involvement significantly affects purchase intention	X	
H6: Cognitive involvement significantly affects purchase intention	✓	
H7: Perceived enjoyment significantly affects purchase intention	✓	
H8: Concentration significantly affects purchase intention	X	
H9: Curiosity significantly affects purchase intention	✓	

H8: Concentration significantly affects purchase intention.

The statistical analysis of SEM clearly demonstrates that there is no statistically significant effect between concentration and purchase intention. Therefore, hypothesis H8 is not supported.

H9: Curiosity significantly affects purchase intention.

The statistical analysis of SEM clearly demonstrates that curiosity has statistically significant effects on purchase intention (path coefficient = 0.780, p < 0.005). Therefore, hypothesis H10 is supported.

## 6.3 Discussion

The results of this study can be discussed according to the S-O-R model. Table 4 below summarizes the research results based on the proposed hypotheses and their results from both the literature review and the empirical evidence.

In the construct "website interactivity," the variable "active control" significantly affects the "affective involvement" variable in the construct "website involvement" (H1a). This means that the online shopping platform that allows users to choose information and guide their interaction (active control) has a positive impact on the emotional or affective needs of

consumers. This result is consistent with the previous study (affective involvement) [9, 12, 26].

Additionally, in the construct "website interactivity," the variable "active control" significantly affects the "cognitive involvement" in the construct "website involvement" (H1b). This means that the online shopping platform that allows users to choose information and guide their interaction (active control) has a positive impact on the users' interpretation of online information that affects the thoughts of the users toward the products (cognitive involvement). This result is consistent with the previous study [9, 12, 26].

In contrast, in the construct "website interactivity," the variable "reciprocal communication" has no significant effects on every variable in the construct "website involvement" (affective and cognitive involvement).

On the other hand, in the construct "website interactivity," the variable "active control" significantly affects some variables of the construct "flow" (perceived enjoyment, concentration, and curiosity) [9]. Firstly, the variable "active control" significantly affects the variable "perceived enjoyment" (H1c). This means that the online shopping platform that allows users to choose information and guide their interaction (active control) has a positive impact on users' perceived enjoyment (perceived enjoyment). This result is consistent with the previous study [9]. Secondly, the variable "active control" significantly affects the variable "concentration" (H1d). This means that the online shopping platform that allows users to



Table 4 Results summary

Hypothesis	Support	
	Literature	Empirical
H1a: Active control significantly affects affective involvement	<b>√</b>	<b>√</b>
H1b: Active control significantly affects cognitive involvement	✓	✓
H1c: Active control significantly affects perceived enjoyment	✓	✓
H1d: Active control significantly affects concentration	✓	✓
H1e: Active control significantly affects curiosity	✓	✓
H2a: Reciprocal communication significantly affects affective involvement	✓	X
H2b: Reciprocal communication significantly affects cognitive involvement	✓	X
H2c: Reciprocal communication significantly affects perceived enjoyment	✓	✓
H2d: Reciprocal communication significantly affects concentration	✓	✓
H2e: Reciprocal communication significantly affects curiosity	✓	✓
H3: Perceived risk significantly affects affective involvement	$\checkmark$	X
H4a: Social identity significantly affects affective involvement	✓	✓
H4b: Social identity significantly affects cognitive involvement	✓	✓
H4c: Social identity significantly affects perceived enjoyment	$\checkmark$	✓
H4d: Social identity significantly affects concentration	✓	✓
H4e: Social identity significantly affects curiosity	✓	X
H5: Affective involvement significantly affects purchase intention	✓	X
H6: Cognitive involvement significantly affects purchase intention	✓	✓
H7: Perceived enjoyment significantly affects purchase intention	✓	✓
H8: Concentration significantly affects purchase intention	✓	X
H9: Curiosity significantly affects purchase intention	✓	✓

choose information and guide their interaction (active control) has a positive impact on the degree of user attention while using the platform (concentration). This result is consistent with the previous study [9]. Thirdly, the variable "active control" significantly affects the variable "curiosity" (H1e). This means that the online shopping platform that allows users to choose information and guide their interaction (active control) has a positive impact on the arousing of users' curiosity while they interact with the platform (curiosity). This result is consistent with the previous study [9].

In addition to the construct "website interactivity," the variable "reciprocal communication" of this construct significantly affects some variables of the construct "flow" (perceived enjoyment, concentration, and curiosity) [9]. Firstly, the variable "reciprocal communication" of the construct "website interactivity" significantly affects the "perceived enjoyment" variable in the construct "flow" (H2c). This means that the online shopping platform that provides two-way communication tools to its users (reciprocal communication) has a negative impact on users' perceived enjoyment (perceived enjoyment). This result is consistent with the previous study [9]. Secondly, in the construct "website interactivity," the variable "reciprocal communication" significantly affects the "concentration" variable in the construct "flow" (H2d). This means that the online shopping platform that provides two-way communication tools to its users (reciprocal communication) has a positive impact on the degree of user attention while using the platform (concentration). This result is consistent with the previous study [9]. Finally, in the construct "website interactivity," the variable "reciprocal communication" significantly affects the "curiosity" variable in the construct "flow" (H2e). This means that the online shopping platform that provides two-way communication tools to its users (reciprocal communication) has a positive impact on users' curiosity aroused while interacting with the platform (curiosity). This result is consistent with the previous study [9].

The variable "social identity," which is one of the stimuli variables of the S-O-R Model, significantly affects the "affective involvement" variable in the construct "website involvement" (H4a). This means that the online shopping platform which can enhance user participation in the platform's activities (social identity) has a positive impact on the emotional or affective needs of consumers (affective involvement). This result is consistent with the previous studies [2, 4, 15, 22, 23].

Additionally, the variable "social identity" significantly affects the "cognitive involvement" variable in the construct "website involvement" (H4b). This means that the online shopping platform which can enhance user participation in the platform's activities (social identity) has a positive impact on the user's interpretation of online information that affects the thoughts of the users towards the products (cognitive involvement). This result is consistent with the previous studies [2, 4, 15, 22, 23].



In addition to the variable "social identity," it significantly affects some variables of the construct "flow" (perceived enjoyment and concentration). Firstly, the variable "social identity" significantly affects the variable "perceived enjoyment" of the construct "flow" (H4c). This means that the online shopping platform which can enhance user participation in the platform's activities (social identity) has a positive impact on users' perceived enjoyment (perceived enjoyment). This result is consistent with the previous studies [2, 22, 23]. Secondly, the variable "social identity" significantly affects the variable "concentration" of the construct "flow" (H4d). This means that the online shopping platform which can enhance user participation in the platform's activities (social identity) has a positive impact on the degree of user attention while using the platform (concentration). This result is consistent with the previous studies [2, 22, 23].

From this study, there are three significant effects of the variables that represent the consumers' online experiences or the "Organism" section of the S-O-R Model on consumers' responses or the "Response" section of the model. Firstly, the "cognitive involvement" variable in the construct "website involvement" significantly affects the variable "purchase intention" (H6). This result is consistent with the previous study [9]. In addition to this result, it means that the user's interpretation of online information that affects the thoughts of the users toward the products (cognitive involvement) has a negative impact on the user's willingness to buy the products on an online shopping platform (purchase intention). Secondly, the "perceived enjoyment" variable of the construct "flow" significantly affects the variable "purchase intention" (H7). This result is consistent with the previous studies [9, 14, 20]. Additionally, this means that users' perceived enjoyment (perceived enjoyment) has a positive impact on their willingness to buy the products on an online shopping platform (purchase intention). Thirdly, the variable "curiosity' of the construct "flow" significantly affects the variable "purchase intention" (H10). This means that a user's curiosity aroused while interacting with the platform (curiosity) has a positive impact on a user's willingness to buy the products on an online shopping platform (purchase intention). Moreover, this result is also consistent with the previous studies [9, 14, 20].

Furthermore, the results of this study can be discussed according to the S-O-R model in the sense that the stimuli or variables that affect the consumers' purchase intention through the organisms are the variable "active control," the variable "social identity," and the variable "reciprocal communication." In this study, the variable "active control" was defined as "the ability of users to choose information and guide their interaction." The variable "social identity" was defined as "the platform's ability to enhance user participation in the platform's activities." The variable "reciprocal communication" is defined as "the two-way communication tools provided by the platforms."

According to this study, the variable "active control" significantly affects the variable "cognitive involvement" which then affects the consumers' purchase intention. For this reason, it can be interpreted that the greater the ability of users to choose information, the greater the ability of users' interpretation of online information, and the more likely they are to make purchases on social-based e-commerce sites. This could be because of the nature of social-based e-commerce sites which can encourage participants to generate and share their contents [10]. This situation, however, does not exist in the web-based e-commerce sites.

Regarding the variable "social identity," it significantly affects the variable "cognitive involvement" which then affects consumers' purchase intention. This result can be interpreted as meaning that the higher the degree of social identity, the greater the ability users have to interpret online information, and the more likely they are to make purchases on social-based e-commerce sites. This could be because of the high degree of users' participation (social identity) in the static environment of the social-based e-commerce sites which can lead to users' interaction, collaboration, and communication [10]. This situation, however, does not exist in the web-based e-commerce sites.

Additionally, the variable "active control" significantly affects the variable "perceived enjoyment" which then affects consumers' purchase intention. Regarding this result, it can be interpreted that the greater the ability of users to choose information, the higher the users' perceived enjoyment, and the more likely they are to make purchases on web-based e-commerce sites. This could be because of the openness to dynamic design of the web-based e-commerce sites which can lead to higher perceived enjoyment. This situation, however, does not exist in the social-based e-commerce sites.

In addition to the previous result, the variable "active control" also significantly affects the variable "curiosity" which then affects consumers' purchase intention. Regarding this result, it can be interpreted that the more users can choose information, the more the users' curiosity is aroused while interacting with the websites, and the more likely it is that they will make purchases on the web-based e-commerce sites. This could be because of the dynamic structure of websites' information which can lead to purchase intention. This situation, however, does not exist in the social-based e-commerce sites.

Another finding is that the variable "social identity" significantly affects the variable "perceived enjoyment" which then affects consumers' purchase intention. Regarding this result, it can be interpreted that the higher the social identity, the higher the users' perceived enjoyment, and the more likely they are to make purchases on web-based e-commerce sites. This could be because of the openness to dynamic design of the web-based e-commerce sites, which can lead to users' interaction, collaboration, communication, and then lead to users' perceived enjoyment [10]. This situation, however, does not exist in the social-based e-commerce sites.



Finally, the last factor that affects consumers' purchase intention on the web-based e-commerce sites is the variable "reciprocal communication." According to the results of this study, the variable "reciprocal communication" negatively affects the variable "perceived enjoyment" which then positively affects consumers' purchase intention. As for this result, the greater the two-way communication methods (reciprocal communication) provided by the platforms, the lower the users' perceived enjoyment, then, the more likely they are going to make purchases on web-based e-commerce sites. This could be because social-based e-commerce with numerous two-way communication tools can lead to users' annoyance and frustration.

In addition, the variable "reciprocal communication" affects the variable "curiosity" which then affects consumers' purchase intention. Regarding this result, it can be interpreted that the more the two-way communication methods are provided by the platforms, the more the users' curiosity is aroused while interacting with the websites, and the more likely it is they are going to make purchases on web-based e-commerce sites. Therefore, the web-based e-commerce sites that have a considerable number of two-way communication methods which can trigger users' curiosity could enhance the consumers' purchase intention. Therefore, when it comes to reciprocal communication, curiosity is important for purchase intention.

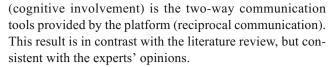
# 7 Conclusion and implications

This research demonstrates that, according to the S-O-R Model, when the user's interpretation of online information that affects the thoughts of the users toward the products (cognitive involvement) is enhanced, the likelihood of the consumers' purchase intention on social-based e-commerce sites will also increase. On the other hand, when users' perceived enjoyment (perceived enjoyment) and users' curiosity aroused while interacting with the platform (curiosity) are enhanced, the likelihood of the consumers' purchase intention on webbased e-commerce sites will also increase.

# 7.1 Findings that contrast with previous literature

Interestingly, the results of the literature review demonstrate that the two-way communication tools that the online shopping platform provides to its users (reciprocal communication) significantly affects the emotional or affective needs of consumers (affective involvement). However, this research reveals that the two-way communication tools provided by the platform are not powerful enough to significantly affect the emotional needs of online consumers, as suggested by the literature.

Additionally, this research reveals that the stimulus that affects the user's interpretation of online information that affects the thoughts of the users toward the products



Furthermore, the empirical evidence demonstrates that the risk perceived by a consumer in contemplating a particular purchase action (perceived risk) does not significantly affect the emotional needs of consumers (affective involvement). However, this evidence is in contrast to the literature review.

The empirical evidence also demonstrates that the stimulus that affects users' curiosity aroused while interacting with the platform (curiosity) is the ability of the platform to enhance user participation in the platform's activities (social identity). Additionally, the experts agree with this result. However, it is in contrast to the literature review.

According to the literature review, the results demonstrate that online consumers' purchase intention is affected by consumers' emotional needs (affective involvement). However, the empirical evidence clearly reveals that the emotional needs of online consumers do not have a significant effect on their online purchase intention as the literature suggested.

Finally, the empirical evidence reveals that the degree of user's attention while using the platform (concentration) significantly affects consumer's purchase intention. Accordingly, the experts agree with this result. However, it is in contrast to the literature review.

#### 7.2 Findings that conform to previous literature

The empirical evidence reveals that the stimuli that affect the emotional or affective needs of consumers (affective involvement) are the ability of the online shopping platform to allow users to choose information and guide their interaction (active control) and the ability of the platform to enhance user participation in the platform's activities (social identity). According to the literature, this empirical evidence is in conformance with the literature review.

Additionally, the empirical evidence demonstrates the relationship between the variable "active control" and the variable "cognitive involvement." Furthermore, the empirical evidence also reveals the relationship between the variable "social identity" and the variable "cognitive involvement." This empirical evidence is in conformance with the literature review.

For users' perceived enjoyment while they are using the online shopping platforms (perceived enjoyment), the empirical evidence demonstrates that the variables that affect this variable are the variable "active control," the variable "social identity," and the two-way communication tools that the online shopping platform provides (reciprocal communication). These results are in contrast to the literature review.

Furthermore, the empirical evidence demonstrates that the expected variable "active control," "reciprocal communication," and "social identity" significantly affect the degree of user



attention while using the platform (concentration). This empirical evidence is in conformance with the literature review.

The empirical evidence of this study also reveals that the variable "active control" and the variable "reciprocal communication" significantly affect users' curiosity aroused while they are interacting with the platform (curiosity). Accordingly, this empirical evidence is in conformance with the literature review.

In addition to the previously mentioned results, the empirical evidence of this study also demonstrates that the online users' experiences which significantly affect consumer purchase intention are the variable "cognitive involvement," the variable "perceived enjoyment," and the variable "curiosity." In addition, these results are in conformance with the literature review.

# 8 Future study

From the current research, the results of this study can be further generalized and expanded on. One of the possible directions to expand the context is to include a mobile-based B2C e-commerce platform. This would provide an opportunity to study more stimuli which can affect consumers' online experiences and purchase intentions.

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