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Research Article

Impact of para-social interaction on impulsive buying through live-streaming shopping website

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ABSTRACT

Nowadays, the capability of live-streaming commerce has contributed to billions of income worldwide. Within a few hours of live-streaming, it has transformed the nascent of commercial value interaction into impulsive buying behaviour. Despites, the existing knowledge on this is unknown. This research seeks to understand the influence of para social interaction (PSI) in live-streaming shopping affects consumers impulsive buying in live-streaming platforms using the Stimulus Organism Response (SOR). A self-administrative questionnaire survey was conducted, and 335 valid responses are useable. The survey was validated by using Smart PLS technique to conduct direct and mediating effects. The result revealed that the relationships between social commerce, social presence, narrative involvement, parasocial interaction, and impulsive buying behaviour are significant. The parasocial interaction acts as mediation effect between the social factors, and impulsive buying on the live-streaming website. Based on the data analysed, the new proposed framework seems to be shaped very well. Despite the fact that, further extension and integration constructs, this study serves as a new contribution particularly in the live-streaming platforms area of studies.

Keywords: live-streaming platforms; narrative involvement; para-social interaction

1. Introduction

The advancement of information technology has changed the way people purchase through online platforms. This behavior has long been upgraded from the traditional commerce to online commerce called e-commerce, e-payment, social commerce and now moving forwards to live-streaming commerce. thus, affect this trend of online impulsive behaviors[1]. By observing at this trend precisely, they are now moving forward the concept into live-streaming commerce making the platform as real time entertainment shopping habits[2]. Precisely, the notion of impulsive buying has been explored over the past decades[3]. Live-streaming can be regarded as video live presentation proposing new products or services that may reduce perceived risk, increase trust and contributing to impulse buying[4]. Live-streaming commerce specifically affect impulsive buying pattern environment because the conversation and media contain of unique information which may transform them in real live social interaction. The live-streaming shopping could influence the audiences whereby they can express their thoughts and feelings by posting any comments and share the product information which affect the impulsive behavior[5]. The sharing session and interaction during live broadcasting influence users

on the online platforms once they started to share their attractive videos, live showing product functions and guidelines to use moreover, the effect after use including the information from various angle. Thus, these processes specifically contributing to impulsive buying behavior on the live-streaming social commerce platforms[1]. Companies and businesses that have begun to adopt live-streaming as a tool for online businesses. Thus, this has led to transformation business from traditional operation into live-streaming commerce has rapidly change the landscape of consumer buying behaviours[6]. With the strong consumption power by Internet users, it has changed the landscape of consumer buying behaviour. Live-streaming acts as one of the broadcasting videos in the real time over the online platforms. This new field encompasses both social environment and mass media interactions. Impulse buying manages to have significant revenue by the business[7]. Global statistic correspondingly received $6 billion of the highest sales were recorded in the Shopping Festival 2020 effectively from the live-streaming commerce which indicates that live-streaming as a lucrative industry for firms to venture into[8]. In Malaysia, online impulse buying generated approximately 84% of consumers make impulsive buying on social commerce platforms[7]. Despite the impact of skyrocketed sales to the businesses, it comes with a bigger socio-economic issue such as higher debts. Bank Negara Malaysia, a local financial institution governed by the Malaysian government has confirmed that the Malaysian youths are facing huge debts issue due to their impulsive buying behaviour[9]. These debts are affecting 104% bankruptcy cases due to high personal financial loans and credit cards debts.

Align with the issue, relevant research gaps are found to support the reasoning for further investigation as it is vital for the businesses and marketers to have a deeper understanding on how this phenomenon can be capitalized by them[8]. Previous studies have investigated live-streaming in the view of user engagement[10], promotion[11,12], time pressure[13]. However, very less studies have investigated on consumers impulsive behavior[10]. Previous studies argued impulse behavior came from many environment factors such as, social environment, store environment[14], social experience and social attraction[15]. With the same author argued that live-streaming shopping also lacking with the connection of PSI on impulsive behavior making this study focused into PSI on the influence of social interaction, and PSI affect impulsive behavior in the live-streaming context. PSI identified as face-to-face relationship with online figures which indirectly affect consumers believes, feels and emotional attachment. In marketing literature, PSI is one of the communications that may affect an online environment. The activities and communication have significant effect the engagement who interact and influence by the various factors. Activities such as comments and suggestions indirectly affect consumers who are motivated by that person and endorse specifically when it comes to celebrity or the person who their admire with. However, only few studies have examined the effects on individual PSI in the shopping website[16]. Social commerce attraction and information particularly link to that event will enable the interaction with influencers indirectly create a deeper understanding and connection between the consumers on the online platforms including the narrative involvement[17]. Narrative involvement defines as the ways of information process received by the online platforms such as story lines, experiences, feedback, and suggestions which makes users engaged and respond towards certain event particularly by the influencers[18]. The online social figures produce social media contents and allows the users to exchange the ideas and suggestions which leading to PSI and finally indirectly influence impulsive behavior on online social commerce platforms. Vazquez et al.[19] mentioned that there is a paucity of research looking into narrative involvement on online platforms as the relationship between narrative involvement, PSI and impulsive behavior on the online platform is rarely investigated. Considerable research has been revealed that social presence also falls underlying by the effectiveness of mechanisms which facilitate consumers experiences on online platforms. Social presence defines how is the consumers may be influenced by psychological responses on the digitalization interface communication during the discussion on the online platforms. Social communication enhances the relationship precisely, when it comes to online figures' involvement that would

affect followers' perceptions, and increase social communication environment. The interaction becomes more effective and aggressive when there is intervention by the PSI on the online shopping platforms. Numerous studies have indicated the association between social presence and PSI[20]. However, very few studies have explored the social presence with PSI in the study of impulsive behavior[17]. Underlying these limitations, the present study examines the following research questions:

(1)   Is there any positive significant relationship between social attraction, social presence, narrative involvement, and PSI?

(2)   Is there any positive significant relationship between PSI and impulsive buying behavior?

(3)   Is there any mediating influence of PSI in the relationship between social attraction, social presence, narrative involvement, and impulsive buying behavior?

2. Literature review

The application of SOR model as theoretical framework consists of three (3) underlying components namely stimulus, organism, and response. The model insinuates that environmental stimuli influences customers' internal state, and consequently it affects behavioral response through organism. In the present study, the model explains the connection of social attraction, social presence, and narrative involvement as stimulus, PSI and impulse buying behavior as organism and behavioral response, respectively in the social media setting. Prior research has confirmed that social attraction, social presence, and narrative involvement can be applied as stimulus[21–23] and it enhance impulse buying behavior[17].

2.1. Social attraction and para-social interaction

Social attraction defines as audiences perceptions of similarity, likes, and compatibility toward influencers[24]. In the case of social media commerce, the definition of social attraction is the users' willingness to communicate and the degree of intimacy with social media influencers. Active communication of sharing thoughts and interests results in sufficient likability towards, thus changes of attitudes among audiences[22]. That is, audiences strengthen their PSIs with social media influencer as social attraction causes the audiences to perceive a stronger friendship when they recognize the similar traits as the influencer[25]. The more similar traits that influencers have with the audiences, the more relatable condition that they experience[22]. Better PSI with influencers on social media is prone to establish. Hence, based on the arguments, it is relevant to propose this:

H1: Social attraction has a positively significant influence on PSI.

2.2. Social presence and para-social interaction

The term social presence is firstly mentioned in the literature in midst 70s by Short[26]. It is defined it as "the saliency of objects in media communication and the sub-sequent saliency of interpersonal relationships". Early scholars explored social presence within the characteristics of media and revealed the communication effect of different media through comparing the differences between remote communication media and face-to-face communication[27]. Scholars in the recent years have explored social presence much further where it has dimensions and perspectives. In the context of the study, the social presence is highlighted in the social network as the development has promoted increasing numbers of scholars to explore the impact of new media use on individual users from the perspective of network social presence[28]. The technology of social network is similar to real communication where the media users perceive strong sociality, authenticity, and intimacy, and produce a strong sense of belonging, reflecting the degree to which individuals use media to build interpersonal relationships. The social presence can enhance the immersion and authenticity of group

communication, improve the interactive experience between audiences and strengthen the network density, which can build a close connection between members, maintain the rapid flow of information and resources, and then generate a sense of identity with the group[23]. In the social media, the audiences and the influencers perceive each other's existence, form emotional reactions, and gradually build a para-social relationship by continuously participating in online discussions. In line with the above, it can be hypothesed that:

H2: Social presence has a positively significant influence on PSI.

2.3. Narrative involvement and para-social interaction

The term narrative involvement refers as a sense of involvement in a storyline[18]. The interactive functions of social media have provided opportunities for influencers to communicate directly with their fans and followers[27]. Narrative involvement engages viewers in the storyline, and consumers are able to experience vicarious cognitive and emotional responses to the narrative. Narrative involvement in storylines thus helps to build para- social relationships with the characters, which are amplified and extended by social media, in particular by influencers[21]. Some marketers effectively place their products and brands in storylines in order to benefit from product placement effect. Therefore, it is fair to propose the following hypothesis:

H3: Narrative Involvement has a positively significant influence on PSI.

2.4. Para-social interaction and impulse buying behavior

Para-social relationships are one-sided relationships that audience establish with media character from shows, news anchors, talk show hosts and celebrities[29]. The focal point of it is the audience's interaction and relations towards the character. Vazquez et al.[19] discovers that PSI might lead to impulse buying behavior. Impulse buying is defined as a spontaneous and immediate purchase "without prior plans and buying items with no prior recognized need"[30]. Consumer emotions have limited cognitive control will drive impulsive buying. This behavior is often triggered by an appealing product, which encourages unplanned buying among consumers in social commerce without further consideration of their financial means and other aspects in justifying such a purchase[31]. Thus, when a purchase is done at the spur of the moment, it is referred as impulse buying behavior. According to the SOR framework, response refers to the consequences of a consumer's reactions to impulse buying[32]. It is an approaching behavior that will have positive effects in certain areas such as online communication and buying behavior. Para-social interaction is verified to have a considerable significant effect on impulse buying behavior[19]. Based on the argument, the present study hypothesized:

H4: PSI has a positively significant influence on impulse buying behavior.

2.5. PSI as mediator

In an online world, particularly social media, a virtual connection is likely established when audiences have invested their time, efforts, money, and emotion on certain storyline[4]. Audiences will actively engage, follow or respond with certain characters online. These activities stimulate a deeper sense as it involve a complex process of reflection between audiences and characters. This allows development of para-social experience and relationships[21–23]. The mediated link of PSI between social attraction, social presence, narrative involvement, and impulse buying behavior is relevant and empirically proven and significant[21–23]. Based on the following justification, it is fair to propose the following hypotheses:

H5: PSI is positively mediating the relationship between social attraction and impulse buying behavior.

H6: PSI is positively mediating the relationship between social presence and impulse buying behavior.

H7: PSI is positively mediating the relationship between narrative involvement and impulse buying behavior.

3. Methodology/materials

The present study was created based on the previous expert. Subsequently, the researchers make some arrangement the questionnaires which fit to the Malaysian respondents. The questionnaire purposes to access the present study based Malaysian consumers of impulsive behavior through social commerce websites. The study used pre-tests with three experts in the social marketing environment area with the good test to understand factors of social environments affect impulsive behavior on the social commerce websites. Based on the literatures[33] three experts are considered good enough for fine tune the validation of content validity of a questionnaire. Thus, the present study finding based on statistical analysis which expect to contribute the general overview of consumers impulsive behavior on online platforms.

3.1. Instrument development

For the present study, data collection is collected from the primary data sources. The respondents are those based on the consumers who have an account in social networking sites which previously had impulsive purchased through the online platforms. The study finally used 7 points Likert scale ranging from (1 = strongly disagree to 7 = strongly disagree). The 7-points Likert scale been chosen due to the stronger correlation with the t-test result[34]. Therefore, total up this study used five scale measurements-based form the previous literatures: (i) social attraction (ii) social presence (iii) narrative involvement (iv) PSI and (iv) impulsive behavior.

3.2. Data collection

The data were collected based on the self-administered survey. The study targeted consumers who had impulsive purchases through online social commerce platforms. There were a total of 335 valid responses. As for the finding analysis, the gender reported 121 respondents as males and 214 respondents as females. Besides, 267 respondents age range between 18 to 25 years old, 47 respondents age between 26 to 30 years old, meanwhile 16 of respondents age between 31 to 39 years old and the last result about 5 respondents age 40 years and above.

4. Results and findings

The present study applies based PLS technique of structural equation modelling. PLS-SEM was deemed the best approach for answering the research objectives of the study, as it can manage and analyze overall data and fit indices and deal with the various independent variable relationships. For the present study, the PLS-SEM using the SmartPLS3.0 was applied to assess the measurement structural model proposed by Hair et al.[35]. PLE-SEM is one of the analyses who can manage the causal predictive relations and able to provide explanations and predictions, guaranteeing and demonstrating its superior to regression analysis in evaluating the mediations[36]. PLS-SEM has flexible assumptions on the properties of constructs and error terms. Besides, the PLS-SEM has the capacity to analyze both reflective and formative measurement models.

4.1. Measurement model assessment

The present study analyzed for convergent and discriminant validity before the study can proceed with the hypotheses testing. Convergent validity is assessed by three types which are the composite reliability (CR), the average variance extracted (AVE) and outer loading. After running the analysis all the loadings are above 0.6 and fit with the rule of thumb by Stever[37]. Besides, the value of CR was exceeded 0.9 and the value of AVE were above 0.5. Based on the above mentioned all the analysis followed with the suggestion by Stever[37]. For the second analysis was discriminant validity that used to identify either each of the variables are contributed to the uniqueness, and it is not observe by the other study. Which means the discriminant validity

is one of the analysis measurements that should not be uncorrelated to each other. Therefore, the analysis is based on the Heterotroit-Monotrait Ratio (HTMT). Su et al.[38] recommended to use HTMT for the best assessment of discriminant validity due to the less of threshold value of 0.85. Based form the analysis, the HTMT for this study are all below the threshold value of 0.85 indicated that all the constructs adequate satisfaction enough for low cross loading between the constructs. **Table 1** revealed the result of discriminant validity.

Table 1. Results of HTMT.

Variables	IB	NI	PI	SA	SP
IB					
NI	0.392				
PI	0.513	0.453			
SA	0.535	0.727	0.434		
SP	0.513	0.491	0.499	0.472	

Notes: IB denotes impulsive behavior; NI denotes narrative involvement; PI denotes para-social interaction; SC denotes social attraction; SP denotes social presence.

4.2. Multicollinearity

It is important for the present study to analyze multicollinearity. The analysis is to identify whether items in the constructs are correlated with each other. The analysis is used to detect whether there is tendency of interrelationships among the independent variables. Based form the experts[39], failure to conduct multicollinearity will affect the misleading interpretation of the data analysis. Thus, this study analyzes multicollinearity and the results found that the VIF is between the range of 1.5 and 2.5 which means the multicollinearity based on this study is not an issue[40].

4.3. Common method bias (CMB)

The t-test was run in the study to evaluate the differences between early and late respondents. Podsakoff & Organ[41] claimed that CMV may occur due to self-collecting the data based on the same respondent group. For this study the survey collected based cross-sectional design from the respondents for early and late respondents. The results revealed an insignificant difference between the respondents' groups. Hence, the possibility of the sample having non-response bias was removed. Besides, Harman's one factor test is to check the amount of false variance[42]. Harman's one-factor test, which accounted for 41.70% of the total data variation. Single factor accounts for less than 50% indicated that CMB is not an issue which are deemed accepted for the present study.

4.4. Structural model assessment

For this research, the model assessment was evaluated based on the model one-tailed test type. One-tailed test type determines whether there is a statistical significance in one direction besides, it predicts a change in the result in one direction. Further, Cho and Abe [6] claimed that one-tailed test type have more statistical power to detect the effect of the relationship with only one direction as well as the researchers could avoid making inaccurate decision whether a directional research hypotheses is supported or not. However, since this study used Partial Least Square (PLS) the important values of one-tailed and two-tailed test type for the path coefficients can be used and even perfectly recommended by Ramayah et al.[43]. Hence, one-tailed or two tailed test type is not an issue for the present study. Therefore, the result showed that all the relationships were significant in **Figure 1** below.
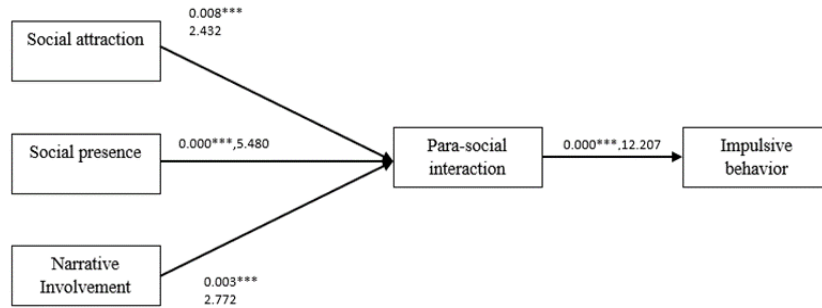
Figure 1. Path coefficient.

The detailed of the result demonstrated that social attraction were found significant influence PSIs with t-statistics of 2.432 ($p = 0.008$). Furthermore, social presence was found to have a significant influence on PSI with the t-statistics 5.480 ($p = 0.000$). Besides, the relationship between narrative involvement and PSI also were found as significant with t-statistics 2.772 ($p = 0.003$). Finally, the direct relationship of the model which is para-social interaction and impulsive behavior found as significant value with the t-test of 12.207 ($p = 0.000$). By referring to the results above, the present study hypothesized that all the relationships H1, H2, H3 and H4 are supported. **Table 2** below summarizes the result of the research hypotheses testing.

Table 2. The summary of the path analysis.

Hypotheses	Path	R^2	T-Statistics	*P*-values	Results
H1	SA → PSI	0.27	2.432	0.008	Supported
H2	SP → PSI		5.480	0.000	Supported
H3	NI → PSI		2.772	0.003	Supported
H4	PSI → IB	0.23	12.207	0.000	Supported

***$p < 0.001$, **$p < 0.05$, *$p < 0.01$, SA = social attraction, SP = social presence, NI = narrative involvement, IB = impulsive behavior.

4.5. Mediation analysis

The present research also purposes for the mediation analysis. Up to now, as researcher's knowledge and observe, there is no study that has measured the para-social interaction as mediator function with connection of social commerce, social presence, and narrative involvement. Hence, this study is looking something unique and for the mediation analysis and represent by the hypothesis's development H5, H6 and H7. Previous expert stated that the mediation analysis is good to be conducted by bootstrapping approach[44]. Hence, this study conducted as suggested Preacher & Hayes[45] the present study discovered that there is significant indirect effect of para-social interaction between social commerce, social presence, narrative involvement, and impulsive behavior. The result found that based 95% bootstrap confidence interval with (CI.95 = 0.131, 0.021), (CI.95% = 0.138, 0.030) and (CI.95% = 0.187, 0.091). Overall, these findings suggest that all the mediation analysis identified as partial mediation between all relationships.

5. Discussion and conclusion

In essence, the present study outcomes are consistent with the theoretical application of SOR model as the relationship between social attractive, social presence, narrative involvement, PSI, and impulse buying behaviour are positively significant. The influence of social attraction on impulse buying behavior was found to be significant, as it played a pivotal role in fulfilling customers' expectations related to task completion through recommendations received on social media platforms. The findings indicated that social figures should offer a sufficient number of adequate opinions to assist customers in meeting their expectations. The impact

of social presence on audiences' attitudes towards influencers on social media was significant. The present study posited that social figures should communicate more frequently with their audiences to bolster their amiable perception. In contrast to prior scholarly investigations, it has been demonstrated that social presence has a detrimental impact on PSI. The significance of narrative involvement for audiences was more significant, suggesting that social figures should prioritize in enhancing their appearance to foster improved audience engagement. PSI has been found to be a significant factor in shaping the dynamics of the relationship between audiences and influencers on social media platforms.

The findings of the study indicate that individuals who engaged in PSI with influencers on social media demonstrated a higher level of trust and comprehension towards these influencers compared to individuals who did not engage in such exchange. Additionally, they demonstrated a greater inclination to place trust in the statements made by influencers on social media platforms. Therefore, similar to the approach adopted by certain celebrities in traditional media, it is imperative for social media influencers to continue fostering PSI with their audiences. For example, it is essential for social media influencers to not only create content but also actively participate in interactive communication with their audiences. This practice can lead to increased audience engagement and the development of more robust para- social relationships. Despite of various factors contributing to impulsive buying behavior have been examined previously, up to the researchers' knowledge, lack of studies that has simultaneously investigated the relationship between social attraction, social interaction, narrative involvement, and impulsive buying behaviour and integrating PSI as a mediator. Therefore, this study will bridge the gaps that exist in the current literature. Additionally, the insertion of the mediators could provide valuable information on improving the determinants of impulse buying behaviours.

6. Limitation and future research

For this study there are a few essential elements to the present research that deserve future attention. First, this study concludes that the outcome from a single place, which may not represent the entire population of the country thus, limit the generalizability of the findings. Future research suggested conducting a cross-state comparison to pick out the possible dissimilarity in the model. Next, previous studies suggested consumers may think differently communicate in the social networking platforms, thus, it may be useful for the next generation and studies to focus on the direct efforts into examining the differences between attitudes and behavior across different platforms as to see the fruitful of the consumers perceptions. Schartel[46] represent the entire population of the country thus, limit the generalizability of the findings. Future research suggested conducting a cross-state comparison to pick out the possible dissimilarity in the model. Next, previous studies suggested consumers may think differently communicate in the social networking platforms, thus, it may be useful for the next generation and studies to focus on the direct efforts into examining the differences between attitudes and behavior across different platforms as to see the fruitful of the consumers perceptions[46].

Author contributions

Conceptualization, NM and KAH; methodology, NM; software, NM; validation, AA, KAH and FS; formal analysis, NM; investigation, FS; resources, AA; data curation, FS; writing—original draft preparation, NM; writing—review and editing, KAH; visualization, AA; supervision, NM; project administration, FS; funding acquisition, NM, KAH, AA, FS. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

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