

Instagram influencer marketing: Perceived social media marketing activities and online impulse buying by Kian Yeik Koay, Chai Wen Teoh, and Patrick Chin-Hooi Soh

Abstract

The main objective of this research is to investigate the impact of social media marketing activities — restricted only to Instagram influencers — on online impulse buying through the mediating effect of source credibility (attractiveness, expertise, and trustworthiness), predicated on Stimulus-Organism-Response (S-O-R) theory. The hypothesised relationships were examined using cross-sectional data obtained from 273 Instagram users. Partial least squares structural equation modelling (PLS-SEM) using the SMART-PLS software was employed as the primary data analysis method. The results revealed that the perceived social media marketing activities of Instagram influencers have a significant positive influence on the perceptions of followers pertaining to all three dimensions of source credibility (attractiveness, expertise, and trustworthiness). In turn, only attractiveness and trustworthiness were found to have a significant positive influence on online impulse buying. Moreover, this study revealed that it was the perceived attractiveness and trustworthiness of Instagram influencers that were the influential mediating factors in the relationship between perceived social media marketing activities and online impulse buying. There is a dearth of studies that have been conducted on the examination of the mechanism through which Instagram influencers' social media marketing activities influence online impulse buying. This study is significant as it provides new insights into the importance of Instagram influencers social media marketing activities in affecting followers' online impulse buying through source credibility.

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1. Introduction

Consumer behaviour affecting sudden and unplanned purchases when exposed to stimulating cues is coined impulse buying (Chan, *et al.*, 2017). While impulse buying has always existed, it has become an addictive trend in the current social networking environment. Online impulse buying accounts for more than 50 percent of online purchases (Zheng, *et al.*, 2019), with consumers spending of US\$5,400 per annum (O'Brien, 2018). One of the reasons for the upsurge in online impulse buying is that the online e-commerce environment frees consumers from constraints of traditional physical shopping such as restricted operating hours, travel time to physical shops or malls, and inconvenient store locations (Eroglu, *et al.*, 2001). A second reason is that the social networking environment enables influencers to spur online impulse buying. In particular, Instagram (also known as IG or Insta), a photo-sharing and video-sharing social-networking platform, is eminently suitable for these activities (Abidin, 2016). With over one billion monthly active users worldwide (Statista, 2020), Instagram has been rated by 90 percent of surveyed marketers to be the most desirable social media channel for influencer marketing (Mediakix, 2019). Social media influencers are people who often engage in a particular topic through their social media accounts and have acquired a large number of followers

(Loeper, *et al.*, 2014). These influencers typically use products according to their lifestyles, evaluate products, and provide reviews to their followers (Liu, *et al.*, 2015; Munukka, *et al.*, 2016).

Traditional celebrities garner their fame through sports, movies, or music and then utilise social networking sites as a supplementary channel to connect with their fans. Nonetheless, social media influencers build their fame by creating online content. Compared with traditional celebrities, social media influencers are also celebrities on their own terms and can be more effective in enhancing brands (Munukka, *et al.*, 2016) and in delivering persuasive marketing messages (Djafarova and Rushworth, 2017). Consumers relate better to social media influencers and perceive them to be more authentic (Jin, *et al.*, 2019). It is widely acknowledged that social media influencers have become a dominant information source from which consumers obtain information about products or services (De Veirman, *et al.*, 2017).

A literature review by Chan, *et al.* (2017) revealed that studies on online impulsive buying were predominantly carried out in a Web site marketing environment. There have been several studies on online impulsive buying based on social networking platforms (Jin and Phua, 2014; Spry, *et al.*, 2011), particularly Instagram. Instagram is preferred over Facebook and Twitter social media because of its high engagement rate per post (Jackson, 2019) and high conversion rate (Sahu, 2020). Numerous companies have initiated selling their products or services on Instagram (Sembada and Koay, 2021) and they have approached Instagram influencers to promote brands, veering away from traditional advertising methods (Hearn and Schoenhoff, 2015). One study referred to Instagram influencers as “any popular Instagram character with a high number of followers, who has a high taste in fashion and lifestyle, which enables them to monetise their appearance” [1]. Also known as Instafamous, the definition of Instagram influencers includes both social media celebrities and traditional celebrities in this study (Jin, *et al.*, 2019). A majority of traditional celebrities have their official social media accounts on various other platforms such as Facebook, Instagram, YouTube, and others, with a huge number of followers, which enable them to endorse products, services, or brands through these platforms. For example, Selena Gomez, a famous singer (celebrity), is also an Instagram influencer at the same time, with 195 million followers as of October 2020. It has been noted that Instagram has been the most preferred platform as a social channel for influencer marketing because it is the most effective platform for influencers to connect with their followers (InfluencerMarketingHub, 2020).

A plethora of studies have examined the influence of social media influencers on followers’ behavioural intentions (*e.g.*, Chatzigeorgiou, 2017; Koay, *et al.*, in press), but there have been very limited studies that have investigated the impact of Instagram influencers on followers’ online impulse buying. Such a platform-specific study is very important for academicians and marketers to capitalise on the understanding of what factors drive impulsive buying on Instagram. Hence, the purpose of this study is to utilise the Stimulus-Organism-Response (S-O-R) theory as the underpinning theory to investigate the effects of social media marketing activities of Instagram influencers on their followers’ online impulse buying behaviour through the mediating effect of source credibility (Ohanian, 1990). The S-O-R theory has been proven to be a useful theoretical approach to study online impulse-buying behaviour in the past decade (Chan, *et al.*, 2017).

2. Literature review

2.1. S-O-R theory

S-O-R theory posits that exposure to environmental stimuli will influence an individual’s cognitive and affective reactions, subsequently driving their actions (Jacoby, 2002; Mehrabian and Russell, 1974). The S-O-R model is a prevalent framework for research in online impulsive buying (Chan, *et al.*, 2017). In this study, the Instagram influencers’ social media marketing activities represent the stimuli (S), the perceptions of source credibility (attractiveness, expertise, and trustworthiness) towards an Instagram influencer represents the organism (O), and impulsive buying serves as the response (R). A study by Eroglu, *et al.* (2001) was considered as one of the pioneering studies that applied the S-O-R model to online consumer behaviour. That study discovered that atmospheric cues of an online store trigger consumer inner subconscious states which subsequently influence behaviours. Similarly, Manganari, *et al.* (2009) found that online store atmosphere evokes consumer emotions, thereby affecting their behaviours. The quality of the ambiance and atmospheric cues of an online store plays a vital role in triggering various aspects of online consumer behaviour. There has been an extensive number of empirical studies (*e.g.*, Jones, *et al.*, 2003; Kim and Lennon, 2013; Ariningsih, *et al.*, 2018) which revealed that certain environmental cues can be very effective in making predictions of and influencing consumers actual online impulse buying behaviour. Another study by Huang (2016) adopted the S-O-R model to examine consumer online impulse buying in social commerce by exploring affective and reactive factors based on social capital theory, and flow theory. Sections 2.2, 2.3, and 2.4 will explicate S-O-R theory by explaining matters that spur impulsive buying through the influence of Instagram influencers by their social media marketing activities.

2.2. Perceived social media marketing activities (stimuli)

This section will explicate the S-O-R theory by explaining matters pertaining to stimuli, which is equated to perceived social media marketing activities. Social media marketing is defined as “a process by which companies create, communicate, and deliver online marketing offerings via the social media platforms to build and to maintain relationships with stakeholders that enhance value to stakeholders by facilitating interaction, sharing information, offering personalised purchase recommendations about existing and trending products and services” [2]. This

definition revolves mainly around how companies orchestrate their moves in utilising social media for marketing strategies.

Amongst various social media marketing channels available, Instagram has emerged as the most preferred platform for businesses to promote their products and services via influencers (Mediakix, 2019). There are various means by which Instagram influencers have exploited in promoting products and services. For instance, amongst the methods enabled in Instagram are the posting of pictures, short videos, or stories with hashtags or well-curated captions associated with products and services that they endorse. The postings should be eye-catching and create interest in order to influence followers' decisions to purchase products or engage in services promoted by a specific influencer. Moreover, Instagram influencers can further interact with their followers through comments and direct message features. These interactions make transactions livelier and more fun, creating and heightening awareness, and concurrently stimulating impulses to buy.

In this research, perceived social media marketing activities of Instagram influencers are conceptualised as a reflective-formative construct comprising five lower-order constructs, namely interactivity, informativeness, personalisation, trendiness, and word-of-mouth (Yadav and Rahman, 2017). Interactivity refers to the degree to which Instagram influencers interact with their followers. For instance, Instagram influencers can interact with their followers in many ways such as replying to comments or sending direct messages. Informativeness refers to the degree to which an Instagram influencer offers accurate, useful, and comprehensive information. For example, Instagram influencers can provide product reviews to their followers. Personalisation refers to the degree to which Instagram influencers provide appropriate content to their followers. For instance, Instagram influencers should share content that fits the interests of their followers. Trendiness is defined as the extent to which an Instagram influencer offers trendy content. Lastly, word-of-mouth refers to the degree to which an Instagram influencer's followers recommend and share information about the influencer's account to others.

2.3. Source credibility (organism)

This section will explain the S-O-R theory by describing matters pertaining source credibility of the organism, which is equated in this study to the Instagram influencer. According to Ohanian (1990), source credibility is "a term employed to imply a communicator's positive characteristics that affect the receiver's acceptance of a message" [3]. The effectiveness of source credibility of Instagram influencers can be measured by three components, namely attractiveness, trustworthiness, and expertise (Ohanian, 1990). Attractiveness is the degree to which an Instagram influencer is perceived as classy, sexy, and beautiful (Weismueller, *et al.*, 2020). Meanwhile, trustworthiness is the degree to which an Instagram influencer is perceived as reliable, dependable, and honest (Weismueller, *et al.*, 2020). In addition, expertise is the extent to which an Instagram influencer is perceived as a valid source of information (Weismueller, *et al.*, 2020). Experts are viewed as knowledgeable, experienced, and skilful. It does not matter whether Instagram influencers are 'real' experts as long as their followers believe in them. It has been revealed that consumers' associations and perceptions of Instagram influencers are possibly the most powerful factors affecting consumer attitudes towards a product (Li, *et al.*, 2012). When consumers have a positive attitudes towards products and services endorsed by their favourite Instagram influencers, they are more likely to be influenced to make impulsive purchases. Jin and Phua (2014) found that Instagram influencers with a large number of followers are more likely to be perceived as attractive and trustworthy. Credibility and trustworthiness are equated to large numbers of followers.

The expertise of Instagram influencers is one of the important factors affecting followers' decisions to purchase or not to purchase recommended products (Yadav, *et al.*, 2013). Kapitan and Silvera (2016) stated that social media influencers are famous for possessing knowledge and expertise recognised by their followers in niche product categories. Their knowledge and expertise give credibility to their recommendations (Kapitan and Silvera, 2016). Hence, when an Instagram influencer is perceived to be an authority in a given niche, followers are more receptive to advertising messages (Yadav, *et al.*, 2013). Weismueller, *et al.* (2020) reported that three dimensions of source credibility (expertise, trustworthiness, and attractiveness) for Instagram influencers were positively related to followers' purchase intentions. Nevertheless, the influence of source credibility of Instagram influencers on the followers' online impulse buying remains unexplored.

2.4. Online impulse buying (response)

This section will explicate the S-O-R theory by explaining matters about response, which is equated with online impulse buying. Impulsive buying occurs "when people experience an urge to buy a product, without a thoughtful consideration why and for what reason one needs the product" [4]. The concept of impulse buying originated in a study by Applebaum (1951) which postulated that consumers first received stimuli at stores, and their subsequent responses were impromptu purchasing behaviour. Consistent with the S-O-R theory, consumers should first be exposed to stimuli. Subsequently, they will process and assimilate stimuli and then react accordingly (Liu, *et al.*, 2020). Therefore, online atmospheric cues are vital in activating an impulse purchase. The cues should influence consumers' internal cognitions and emotional states which subsequently drive consumers to engage in certain behaviours, for instance, online impulse buying (Kimiagari and Asadi Malafe, 2021). Impulse buying is also determined by consumers' personal traits (Dholakia, 2000). This study posits that perceived marketing social media marketing activities of Instagram influencers (stimuli) have a significant positive influence on followers' evaluation of source credibility towards Instagram influencers (organism), subsequently causing online impulse buying (response).

3. The development of hypotheses

3.1. *Perceived social media marketing activities and source credibility*

Instagram provides features that enable Instagram influencers to promote products and services by posting pictures, short videos, and stories along with descriptions. Hence, Instagram influencers need to post appropriate content judiciously. Weismueller, *et al.* (2020) revealed that proper and clear disclosure of sponsorships or partnerships when promoting a product, a service, or a brand is crucial in building perceptions of honesty to enhance an Instagram influencer's source credibility. Furthermore, a social media post that lacks transparency may foster followers to perceive it as inappropriate with manipulative intent. Additionally, the language for promotional messages must be constructed professionally and be persuasive, because a badly written promotional description can negatively affect an Instagram influencer's credibility as texts represent their image as well as their knowledge of products or services that they endorsed. For instance, Clementson, *et al.* (2014) disclosed the power of language that can induce actions, such as in the case of presidential candidates who use high-intensity language (defined as emotionalism and extremity) for political marketing, which will adversely affect their credibility ratings if carelessly or ineffectively employed. In this research, it is proposed that Instagram influencers' social media marketing activities are stimuli that can persuasively influence their followers' internal states (organism) represented by source credibility, namely attractiveness, expertise, and trustworthiness.

H1: Perceived social media marketing activities have a significant positive influence on attractiveness

H2: Perceived social media marketing activities have a significant positive influence on expertise

H3: Perceived social media marketing activities have a significant positive influence on trustworthiness

3.2. *Source credibility and online impulse buying*

Past studies found that source credibility plays a vital part in affecting consumer behaviour. For instance, Breves, *et al.* (2019) revealed that an influencer's credibility affects the way in which followers evaluate endorsed brands. Similarly, Lou and Yuan (2019) reported that the degree of perceived Instagram influencers' trustworthiness is positively related to their followers' purchase intention. Lee and Koo (2015) revealed that if consumers perceive that online reviews about a brand are credible, they tend to be happy with the brand, and therefore are more likely to buy products from the brand spontaneously as a result of endorsements given to a product by an influencer. In addition, source expertise and trustworthiness were found to be important factors of purchase intentions and purchase behaviour in the context of off-line word-of-mouth (Gilly, *et al.*, 1998; Harmon and Coney, 1982). Hu, *et al.* (2019) also tested the impact of source credibility on consumer online impulse buying for 303 social commerce participants on the Sina Weibo app, a microblogging site in China. It was found that when people perceive their peers to be experts and trustworthy, they were more likely to accept and believe their recommendations about a given product and to purchase it impulsively. Furthermore, perceived source expertise was found to be significantly related to purchase intention in the context of online consumer reviews (Filieri, *et al.*, 2018).

Based on the evidence of past studies, this study asserts that followers' perceptions of attractiveness, expertise, and trustworthiness towards an Instagram influencer will affect their online impulse buying behaviour. Hence, three hypotheses are formulated as:

H4: Attractiveness has a significant positive influence on online impulse buying

H5: Expertise has a significant positive influence on online impulse buying

H6: Trustworthiness has a significant positive influence on online impulse buying

3.3. *The mediating role of source credibility*

Based on the S-O-R theory, behavioural responses are motivated by an individual's internal state, which is triggered by external environmental cues surrounding the individual (Jacoby, 2002; Mehrabian and Russell, 1974). By applying the S-O-R theory in the research context, there is a need to empirically test the mediating effect of source credibility on the relationship between perceived social media marketing activities and online impulse buying. When Instagram influencers' social media marketing activities (stimuli) are evaluated positively, their followers are more inclined to believe that Instagram influencers are attractive, expert, and trustworthy (organism), subsequently triggering online buying impulse (response). This line of reasoning is similar to Koay, *et al.* (2021) whose study found that a brand's social media marketing activities are positively related to consumers' brand experiences, and subsequently brand experiences lead to brand equity. Hence, the following hypotheses are formulated:

H7: Attractiveness mediates the relationship between perceived social

H8: Expertise mediates the relationship between perceived social media marketing activities and online impulse buying

H9: Trustworthiness mediates the relationship between perceived social media marketing activities and online impulse buying

The postulated hypotheses are illustrated in [Figure 1](#).

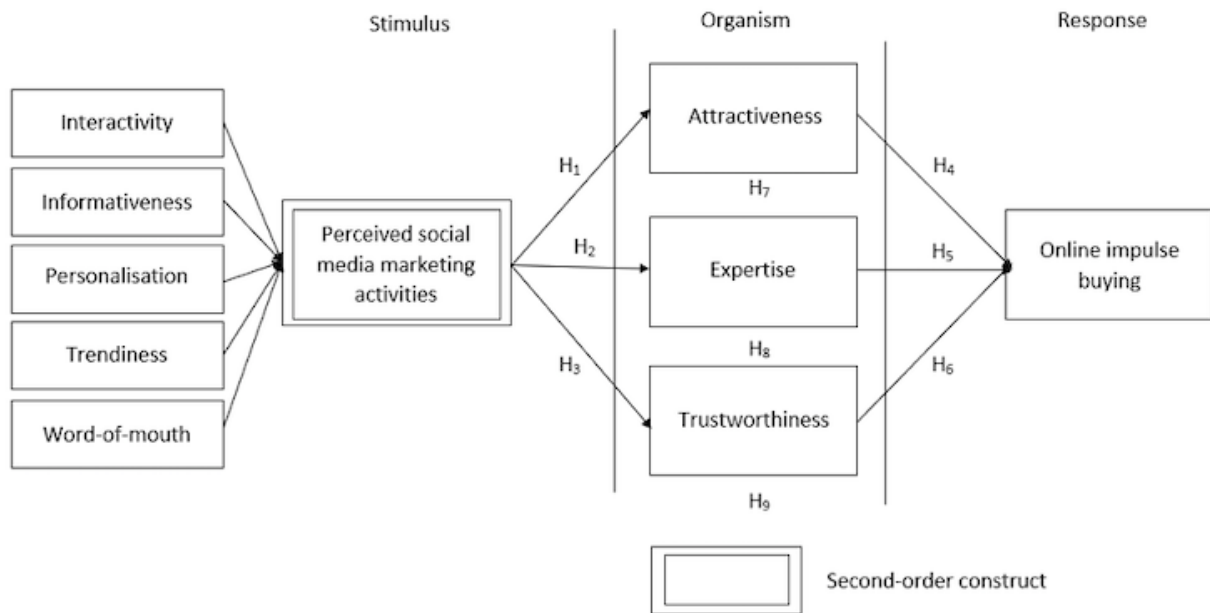


Figure 1: Research model.

4. Methodology

4.1. Data collection and sample

This study used a survey questionnaire method as a means of data collection to verify the hypotheses. A purposive sampling method was chosen because respondents were required to possess certain knowledge related to the research topic to participate in the project. Hence, respondents answered two filter questions before they could further proceed to complete the survey questionnaire. The criteria included 1) they must be an Instagram user; and 2) they must have followed at least one Instagram influencer on their Instagram account. They were asked to list an Instagram influencer that they followed, which then served as an anchor reference to answer questions in the survey questionnaire. This method is a commonly used procedure in past studies in online behaviour (Ismail, 2017; Koay, *et al.*, 2021).

A cover letter outlining the purpose and significance of the research was appended to the front page of the questionnaire. The respondents were promised that their data would be kept confidential so that their identities were protected from external parties. The next part of the questionnaire included all of the items related to their respective constructs. Lastly, demographic information such as gender, age, and income level was collected. The data were compiled with the help of a student assistant from a private university in Malaysia. Specifically, the student assistant posted the online survey link on various social media groups and his personal Instagram account through the stories-sharing channel to create awareness of the survey. As previously mentioned, the respondents were asked whether they were Instagram users and had followed an Instagram influencer. Potential respondents who failed to meet these two criteria were excluded from the survey.

A total of 273 usable data were collected for this study. The racial profile of the respondents was as follows: Chinese (86.5 percent), Indian (7.7 percent), Malay (3.3 percent), and other (2.2 percent). The sample comprised 60.8 percent females and 39.2 percent males. The respondents' average age was 23.74 ($SD = 3.389$). Almost half of the respondents (45.8 percent) reported that they spend approximately 30 to 50 hours online monthly.

4.2. Measures

To measure perceived social media marketing activities, the scale by Yadav and Rahman (2017) was employed which contained 15 items. Following Koay, *et al.*'s (2021) conceptualisation of perceived social media marketing activities, the construct was modelled as a reflective-formative construct, containing five lower-order constructs, namely interactivity, informativeness, personalisation, trendiness, and word-of-mouth. All five lower-order constructs contained three items. The scales measuring an Instagram influencer's attractiveness, expertise, and trustworthiness were adapted from Ohanian (1990). The scales were modified to suit the research context. Lastly, online impulse buying behaviour was measured by a three-item scale adapted from Chen, *et al.* (2018). All items were answered in a response format of a seven-point Likert-scale ranging from strongly disagree (1) to strongly agree (7). The full scales are shown in the [Appendix](#).

5. Data analysis

SmartPLS version 3.2.8 was used as the main statistical tool to perform partial least squares structural equation modelling (PLS-SEM) to validate the hypotheses (Ringle, *et al.*, 2015). The recommendations by Hair, *et al.* (2019) were followed as the basis for selecting PLS-SEM over covariance-based structural equation modelling (CB-SEM) in this study. First, PLS-SEM can be performed on data that are not normally distributed. Second, PLS-SEM is more suitable for testing complex models. This study tested a complex model involving five lower-order constructs and three mediators. Third, PLS-SEM is able to handle models involving higher-order constructs. In this research, the perceived social media marketing activities were modelled as a reflective-formative construct. Finally, PLS-SEM is able to perform well with small sample data. The measurement model was first assessed, followed by an assessment of the structural model (Anderson and Gerbing, 1988). The measurement model was evaluated by examining the validity and reliability of the instruments and discriminant validity. Subsequently, the structural model was examined to test the hypotheses.

5.1. Common method variance

Two statistical tests were conducted to examine the extent of common method variance in the data. Firstly, Harman's single factor test was conducted. To conduct the test, exploratory factor analysis was performed by including all measurement items (Podsakoff and Organ, 1986). The results revealed that none of the factors explained a large proportion of the variance from the set of variables tested because the first factor explained only 35.109 percent of the variance, which was lower than 50 percent. Secondly, a full collinearity test was also conducted according to Kock's (2015) recommendation, and the results showed that all the variance inflation factor (VIF) values were less than 3.3, indicating that common method variance is not problematic in this study.

5.2. Measurement model

The assessment of the measurement model was separated into two different stages. In the first stage, the measurement model was assessed including the lower-order constructs of perceived social media marketing activities. [Table 1](#) shows that the values of Cronbach's alpha and composite reliability were all greater than 0.7 (Hair, *et al.*, 2017), indicating there was no issue of reliability. The loadings were all above 0.7, and the average variance extracted (AVE) values were all higher than 0.5 (Fornell and Larcker, 1981), implying that convergent validity was not a problem. In the second stage, the higher-order construct of perceived social media marketing activities was assessed. Then, the latent variable scores of the five lower-order constructs serving as the formative indicators of the higher-order construct were assessed (Sarstedt, *et al.*, 2019). As shown in [Table 2](#), all the VIFs were lower than the suggested value of 3.3, showing no sign of multicollinearity. Although the beta values of interactivity and personalisation were found insignificant, their loadings were higher than 0.5. Hence, all formative items were retained.

Constructs	Indicators (Reflective)	Factor loadings	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Attractiveness	AT1	0.699			
	AT2	0.645			
	AT3	0.797	0.793	0.857	0.546

	AT4	0.783			
	AT5	0.761			
Expertise	EX1	0.805			
	EX2	0.745			
	EX3	0.810	0.838	0.885	0.606
	EX4	0.802			
	EX5	0.725			
Interactivity	I1	0.795			
	I2	0.791	0.751	0.857	0.667
	I3	0.863			
Online impulse buying	IB1	0.885			
	IB2	0.889	0.857	0.913	0.777
	IB3	0.869			
Informativeness	IN1	0.807			
	IN2	0.807	0.757	0.860	0.673
	IN3	0.846			
Personalisation	P1	0.870			
	P2	0.857	0.835	0.901	0.752
	P3	0.874			
Trendiness	T1	0.874			
	T2	0.838	0.773	0.868	0.688
	T3	0.869			
Trustworthiness	TR1	0.747			
	TR2	0.730			
	TR3	0.825	0.836	0.884	0.604
	TR4	0.781			
	TR5	0.800			
Word-of-mouth	W1	0.845			
	W2	0.829	0.756	0.860	0.672
	W3	0.785			

Table 2: Measurement model (stage 2).

Constructs	Indicators (Reflective)	Factor loadings	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Attractiveness	AT1	0.704			
	AT2	0.657			
	AT3	0.798	0.793	0.858	0.547
	AT4	0.780			
	AT5	0.750			
Expertise	EX1	0.803			
	EX2	0.748			
	EX3	0.811	0.838	0.885	0.606
	EX4	0.801			

	EX5	0.724			
Online impulse buying	IB1	0.885			
	IB2	0.889	0.857	0.913	0.777
	IB3	0.870			
Trustworthiness	TR1	0.745			
	TR2	0.731	0.836	0.884	0.604
	TR3	0.826			
	TR4	0.781			
	TR5	0.800			
Constructs	Indicators (Formative)	Outer weights	Outer loadings	Variance inflation factor (VIF)	t values
SMMA	Informativeness	0.459	0.882	1.927	4.842**
	Interactivity	0.093	0.704	1.795	0.816
	Personalisation	0.178	0.793	2.095	1.853
	Trendiness	0.249	0.728	1.492	2.189*
	WOM	0.264	0.785	1.946	3.076**
** < 0.01; * < 0.05					

The discriminant validity was examined using two criteria, namely the Fornell-Larcker criterion and the heterotrait-monotrait ratio of correlations (HTMT). To satisfy the Fornell-Larcker criterion, the square root of the AVEs on the diagonals, as represented by the italic values (Table 3), should be greater than the correlations between constructs (off-diagonal values). In addition, the HTMT ratio should not be greater than 0.85, otherwise, it is considered to have a discriminant validity issue (Henseler, *et al.*, 2015). As shown in Tables 3 and 4, it can be concluded that discriminant validity was not a problem in this research based on the two tests. Regarding the model fit, the model obtained a standardised root mean square residual (SRMR) value of 0.071, which was lower than 0.08, implying the model fits the data well (Henseler, *et al.*, 2016).

Table 3: Fornell-Larcker criterion.					
Note: Values on the diagonal (italicised) represent the square root of the average variance extracted while the off-diagonals are correlations.					
	1	2	3	4	5
1. Attractiveness	<i>0.740</i>				
2. Expertise	0.495	<i>0.778</i>			
3. Online impulse buying	0.420	0.383	<i>0.881</i>		
4. SMMA	0.467	0.617	0.600	NA	
5. Trustworthiness	0.313	0.605	0.405	0.688	<i>0.777</i>

Table 4: HTMT criterion.				
	1	2	3	4
1. Attractiveness				
2. Expertise	0.616			
3. Online impulse buying	0.491	0.441		
4. Trustworthiness	0.383	0.716	0.524	

5.3. Structural model

The assessment of the structural model required reporting the beta (β), effect size (f^2), coefficient of determination (R^2), and predictive relevance (Q^2 and $Q^2_{predict}$). The standard error and t -values were generated via a bootstrapping procedure (5,000 resamples) (Hair, *et al.*, 2017). As shown in [Table 5](#), perceived social media marketing activities were found to have a significant positive influence on attractiveness ($\beta = 0.467$, $t = 4.590$, $p < .001$), expertise ($\beta = 0.617$, $t = 9.816$, $p < .001$), and trustworthiness ($\beta = 0.688$, $t = 12.139$, $p < .001$). Thus, $H1$, $H2$, and $H3$ were supported. In addition, it was found that attractiveness ($\beta = 0.300$, $t = 3.186$, $p < .01$) and trustworthiness ($\beta = 0.339$, $t = 4.056$, $p < .001$) have a significant positive influence on online impulse buying but not expertise ($\beta = 0.030$, $t = 0.344$, $p > .05$). Hence, $H4$ and $H6$ were supported but not $H5$.

The mediation effects of attractiveness, expertise, and trustworthiness were also tested following the analytical steps proposed by Nitzl, *et al.* (2016). A bootstrapping procedure with 5000 resamples was conducted to obtain the bias-corrected confidence intervals (BCCIs) for the indirect effects. [Table 5](#) shows that attractiveness (BCCI = UB: 0.052; LB: 0.263) and trustworthiness (BCCI = UB: 0.108; LB: 0.368) mediate the relationship between perceived social media marketing activities and online impulse buying as the bias-corrected confidence intervals did not contain a value of zero. However, it was found that the mediating effect of expertise (BCCI = UB: -0.084; LB: 0.129) was not significant as zero was included in the confidence interval.

Table 5: Hypothesis testing.						
	Direct effects	Std. error	T values	P values	Effect size (f^2)	Decision
$H1$: SMMA \rightarrow Attractiveness	0.467	0.102	4.590	0.000	0.279	Supported
$H2$: SMMA \rightarrow Expertise	0.617	0.063	9.816	0.000	0.613	Supported
$H3$: SMMA \rightarrow Trustworthiness	0.688	0.057	12.139	0.000	0.900	Supported
$H4$: Attractiveness \rightarrow Online impulse buying	0.300	0.094	3.186	0.001	0.096	Supported
$H5$: Expertise \rightarrow Online impulse buying	0.030	0.087	0.344	0.365	0.001	Not supported
$H6$: Trustworthiness \rightarrow Online impulse buying	0.339	0.084	4.056	0.000	0.102	Supported
One-tailed test						
	Indirect effects	Std. error	T values	P values	Bias-corrected confidence intervals	Decision
$H7$: SMMA \rightarrow Attractiveness \rightarrow Online impulse buying	0.140	0.053	2.652	0.008	(0.052, 0.263)	Supported
$H8$: SMMA \rightarrow Expertise \rightarrow Online impulse buying	0.018	0.055	0.337	0.736	(-0.084, 0.129)	Not supported
$H9$: SMMA \rightarrow Trustworthiness \rightarrow Online impulse buying	0.233	0.067	3.464	0.001	(0.108, 0.368)	Supported
Two-tailed test						

Concerning the explanatory power and predictive relevance of the research model, the R^2 value of attractiveness was 0.218, expertise was 0.380, trustworthiness was 0.474, and online impulse buying was 0.290 (Hair, *et al.*, 2017). Likewise, the Q^2 and $Q^2_{predict}$ values for all the dependent variables (attractiveness: $Q^2 = 0.107$ and $Q^2_{predict} = 0.003$; expertise: $Q^2 = 0.209$ and $Q^2_{predict} = 0.317$; trustworthiness: $Q^2 = 0.266$ and $Q^2_{predict} = 0.434$; online impulse buying: $Q^2 = 0.206$ and $Q^2_{predict} = 0.290$) were higher than zero (Hair, *et al.*, 2017; Shmueli, *et al.*, 2019), suggesting that the model has predictive relevance.

5.4. IPMA analysis

The importance-performance map analysis (IPMA) was conducted to understand the importance and performance of attractiveness, trustworthiness, and expertise in online impulse buying (Ringle and Sarstedt, 2016). The total effect indicates the importance of the chosen variables, whereby the average value of their scores shows their performance. As shown in [Figure 2](#) and [Table 6](#), the IPMA results revealed that the majority of items of attractiveness, trustworthiness, and expertise performed well with online impulse buying. However, in terms of importance, the items of attractiveness and trustworthiness should be prioritised (high in total effects), indicating that Instagram influencers should focus on the characteristics of attractiveness and trustworthiness to encourage their followers to engage in online impulse buying.

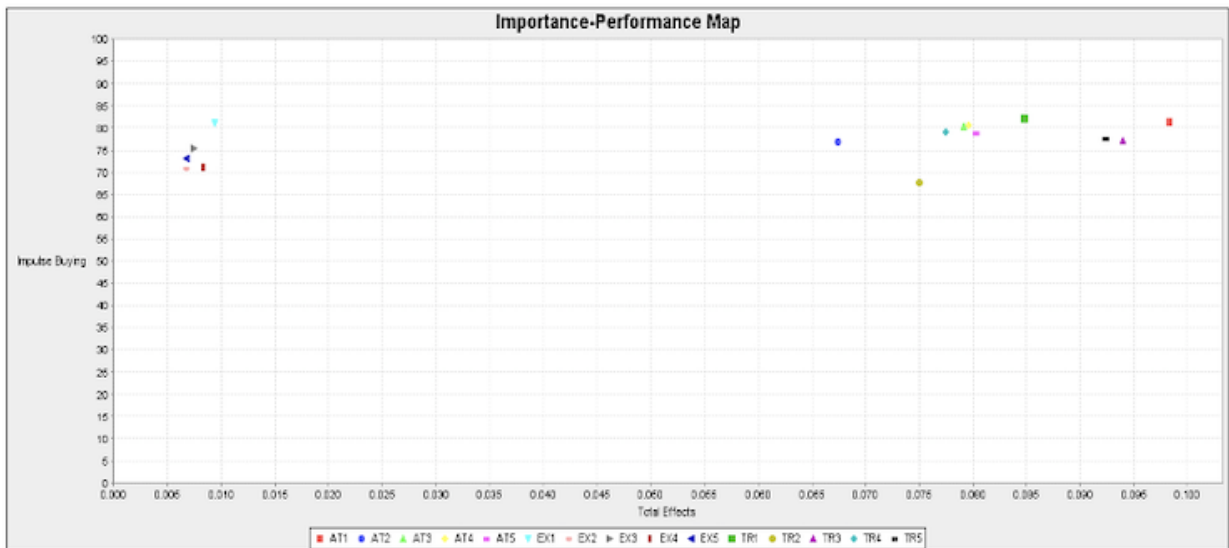


Figure 2: IPMA for online impulse buying.

Table 6: IPMA results.		
Construct	Online impulse buying	
	Importance	Performance
AT1	0.098	81.245
AT2	0.067	76.801
AT3	0.079	80.281
AT4	0.080	80.586
AT5	0.080	78.755
EX1	0.009	81.013
EX2	0.007	70.769
EX3	0.007	75.458
EX4	0.008	71.245

EX5	0.007	73.077
TR1	0.085	82.051
TR2	0.075	67.692
TR3	0.094	77.106
TR4	0.077	78.999
TR5	0.092	77.582

6. Discussion

6.1. Theoretical contributions

Extant social media marketing research has mainly treated purchasing intentions of consumers (e.g., Trivedi and Sama, 2019; Weismueller, *et al.*, 2020). Few studies have examined the influence of impulsive purchase behaviours in the online environment. Thus, the findings of this study are significant as they provide evidence of the applicability of S-O-R theory to explain the influence of Instagram influencers' social media marketing activities on online impulse buying behaviour through the mediating effect of source credibility. Firstly, this study found that Instagram influencers' social media marketing activities and the proper management of their accounts had a significant and direct positive influence on their perceived attractiveness, expertise, trustworthiness, and source credibility by their followers as well as the effectiveness of their endorsements. For instance, Xiao, *et al.* (2018) found that when YouTube influencers constantly engage with their followers, they can increase their overall perceived information credibility. Moreover, Koay, *et al.* (2021) reported that consumers' positive perceptions of a brand's social media marketing activities had a high potential of influencing their positive brand experiences with a given brand.

This research found that attractiveness and trustworthiness had a significant positive influence on online impulse buying but not expertise, indicating followers were more likely to engage in online impulse buying towards products and services advertised by Instagram influencers perceived as attractive and trustworthy. Such findings imply that persuasive Instagram influencers must first be perceived as attractive and trustworthy. In other words, Instagram influencers need to induce a positive perception regarding trustworthiness of information that they give followers, so that their followers are confident in their endorsements. Furthermore, the physical appearance of Instagram influencers is also an important element in promoting online impulse buying. This is supported by Lee and Watkins (2016), who found that followers tend to buy products advertised by social media influencers who are physically attractive. Sokolova and Kefi (2020) also reported that followers are more inclined to buy products promoted by social media influencers who are physically attractive because followers believe that they are credible. A possible reason why expertise is not a significant factor in online impulse buying is that Instagram influencers may not be regarded as real experts for those products and services that they advertise. It is true to a certain extent that Instagram influencers are not required to be the 'real' experts, but, rather, need to be competent in disseminating information to their followers, providing an allusion to expertise (Djafarova and Trofimenko, 2019).

Furthermore, this research found that attractiveness and trustworthiness mediated the relationship between perceived social media marketing activities and online impulse buying. This implies that Instagram influencers' social media marketing activities were important stimuli that affected followers' internal state (attractive and trustworthy), which led to online impulse buying, supporting SOR theory. It is crucial to ensure that Instagram influencers' social media marketing activities (stimuli) must be perceived positively by their followers (organism) because it could influence the ways in which followers perceive them. Instagram influencers who are perceived as attractive and trustworthy stand a higher chance to drive their followers to purchase endorsed products and services impulsively (response).

6.2. Managerial contributions

Instagram is a well-known social media platform for young users (more than 50 percent of the global Instagram user population is younger than 34 years old) (Chen, 2020). As these young people often do not engage with traditional media, Instagram becomes a vital channel for marketers to reach to this demographic segment. Companies that aim to connect to young consumers should utilise Instagram marketing by having Instagram influencers endorse their products and services. Nonetheless, marketers often face a dilemma in selecting the most appropriate Instagram influencers to endorse their products, services, and brands. This study provided useful insights on how to select appropriate Instagram influencers for advertising. In particular, Instagram influencers who are perceived as attractive and trustworthy are more likely to drive online impulse buying from their followers. The element of attractiveness has always been one of the important factors in celebrity endorsements, whether traditional or social media celebrities. Attractive Instagram influencers tend to be perceived as possessing a variety of positive traits (Little, *et al.*, 2011). Hence, companies need to manage wisely and choose Instagram influencers who are attractive to endorse or promote their products and services if they intend to encourage online impulse buying. Nonetheless, companies have to acknowledge the differences in interpreting attractiveness from consumers of different cultures and generations. In


addition, trustworthiness is a very important factor that has a major influence on followers' behavioural intentions. In this research, trustworthiness was a significant factor that drove online impulse buying. Consequently, companies should select Instagram influencers who are perceived as dependable, honest, reliable, and sincere to advertise their products and services because these traits are constituents of trustworthiness. Corporations should also request Instagram influencers to be transparent with their followers about their sponsorships (Weismuller, *et al.*, 2020).

Notably, this research reveals that attractiveness and trustworthiness mediate the relationship between Instagram influencers' social media marketing activities and online impulse buying. Prevalently, consumers today are bombarded with options. Thus, authenticity is a significant factor for Instagram influencers. Hence, the information shared by Instagram influencers through stories or posts should be useful, accurate, and comprehensive. In addition, Instagram influencers need to ensure that images and stories that they post must be perceived as trendy, otherwise, their followers might view them as unattractive and elect not to follow them. Instagram influencers' perceived attractiveness and trustworthiness were affected by their social media marketing activities, which had an impact on online impulse buying. As a result, it is recommended that companies should conduct a background check on their chosen Instagram influencers before selecting them to endorse and promote any products and services in order to gain effectiveness in marketing.

7. Conclusion

Predicated on the S-O-R theory, this study provided empirical support that effective social media marketing activities by Instagram influencers are critical in driving online impulse buying through the mediating effects of attractiveness and trustworthiness. Instagram influencers need to build a good reputation by judiciously managing their Instagram activities. When followers perceive Instagram influencers social media marketing activities positively, they are more likely to view them as attractive and trustworthy. In the current challenging times, where many activities of industries are turning to online platforms, this study is significant in highlighting influences on online buying. Thus, businesses should consider social media influencers as one of the means to market their products and services.

7.1. Limitations and future recommendations

This study did not consider the impact of social media marketing activities of other types of social media influencers from different platforms such as Facebook, YouTube, and Snapchat, on online impulse buying (Xiao, *et al.*, 2018). Hence, it would be interesting to replicate the same model in different contexts. Furthermore, cross-sectional data were collected for this study to analyse the model. Given that a cross-sectional study has limitations, we suggest collecting longitudinal data in future studies. Lastly, this study was limited to a focus on only understanding followers' online impulse buying. This study identified that there is room for future studies to explore other possible responses in buying patterns such as purchase intention, word-of-mouth, and ongoing search behaviour. 

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Notes

1. Jin, *et al.*, 2019, p. 569.
2. Yadav and Rahman, 2017, p. 1,296.
3. Ohanian, 1990, p. 41.
4. Verhagen and van Dolen, 2011, p. 320.

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Appendix: Scales

Interactivity

1. The [Instafamous'] account allows me to share and update the existing content.
2. The [Instafamous] interacts regularly with his/her followers and fans.
3. The [Instafamous'] account facilitates two-way interaction with its followers and fans.

Informativeness

1. The [Instafamous] offers accurate information on advertised products services.
2. The [Instafamous] offers useful information.
3. The information provided by the [Instafamous] is comprehensive.

Personalisation

1. The [Instafamous] makes purchase recommendations as per my requirements.
2. I feel my needs are met by following the [Instafamous] account.
3. The [Instafamous'] account facilitates personalised information search.

Trendiness

1. Contents visible on the [Instafamous'] account are the latest trend.
2. Following the [Instafamous'] account is really trendy.
3. Anything trendy is available on the [Instafamous'] account.

Word-of mouth

1. I would recommend my friends to visit the [Instafamous'] social media.
2. I would encourage my friends and acquaintances to follow the [Instafamous'] social media.
3. I would like to share my purchase experiences with friends and acquaintances on the [Instafamous'] social media.

Trustworthiness

1. The [Instafamous] is dependable.
2. The [Instafamous] is honest.
3. The [Instafamous] is reliable.
4. The [Instafamous] is sincere.
5. The [Instafamous] is trustworthy.

Attractiveness

1. The [Instafamous] is attractive.
2. The [Instafamous] is classy.
3. The [Instafamous] is beautiful.
4. The [Instafamous] is elegant.
5. The [Instafamous] is sexy.

Expertise

1. The [Instafamous] is expert.
2. The [Instafamous] is experienced.
3. The [Instafamous] is knowledgeable.
4. The [Instafamous] is qualified.
5. The [Instafamous] is skilled.

Impulse buying

1. As I read the product recommendations in this [Instafamous'] account, I had the urge to purchase the advertised products or services other than in addition to my specific shopping goal.
2. As I read the product recommendations in this [Instafamous'] account, I had a desire to buy the advertisement products or services that did not pertain to my specific shopping goal.
3. As I read the product recommendations in this [Instafamous'] account, I had the inclination to purchase the advertised products or services outside of my specific shopping goal.

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