Followers' engagement with instagram influencers: The role of influencers' content and engagement strategy

Wondwesen Tafesse [*], Bronwyn P. Wood

Department of Innovation, Technology and Entrepreneurship, College of Business and Economics, United Arab Emirates University, PO Box, 15551, Al Ain, United Arab Emirates

ABSTRACT

Influencer marketing has emerged as an effective approach for brands to connect with customers through social media influencers. Although influencer marketing has attracted increased interest from marketing researchers in recent years, relatively little is known about influencers' content and engagement strategy and its links to followers' engagement behavior. The present study addresses this gap by examining how measures of influencers' content and engagement strategy (i.e., follower count, followee count, content volume, and domains of interest) are associated with followers' engagement behavior on Instagram both independently and interactively. The study leverages a unique dataset of Instagram influencers compiled by scraping an online influencer database to test its hypotheses. The findings indicate that follower count and content volume are negatively associated with follower engagement, while followee count is positively associated with follower engagement. However, these main effects are modified by influencers' domains of interest. The findings contribute to the literature by illuminating how elements of influencers' content and engagement strategy contribute to followers' engagement behavior on Instagram.

1. Introduction

The unprecedented integration of social media into people's daily lives has provided brands with ample opportunity to connect with customers through these platforms (Kaplan and Haenlein, 2010; Kietzmann et al., 2011). However, the gradual saturation of social media platforms with brand messages has caused growing user fatigue (Jacobson et al., 2020), leading to less than satisfactory returns on social media efforts by brands (Beckers et al., 2018; De Vries et al., 2017). Among a multitude of innovative approaches that brands have been experimenting with, influencer marketing has emerged as a successful approach to connect with potential customers on social media (Childers et al., 2019; Jin et al., 2019; Lou et al., 2019).

Social media influencers are prominent social media users who accumulated a dedicated following by crafting an authentic online persona (Casalo et al., 2020; Lou et al., 2019; Sokolova and Kefi, 2020). Influencers forge deeper psychological bonds with their followers by sharing highly personal content that revolves around their lifestyle and interests (Audrezet et al., 2018; Ki et al., 2020; Ladhari et al., 2020). Social media users generally view influencers as attractive, authentic, and similar to them (Jin et al., 2019; Ki et al., 2020; Schouten et al.,

2020; Sokolova and Kefi, 2020). This positive perception of influencers by followers renders their messages highly effective in terms of creating the desired brand impact (Djarafova and Rushworth et al., 2017; Lou and Yuan, 2019). Influencer marketing involves leveraging the trust and connection that influencers have forged with their followers to extend the reach and impact of brands on social media (Childers et al., 2019; De Veirman et al., 2017).

Research on influencer marketing has begun to address several relevant issues including influencers' product endorsement (e.g., Belanche et al., 2020; Lou et al., 2019; Kim and Kim, 2020), influencers' likeability (De Veirman et al., 2017; Ki et al., 2020; Sokolova and Kefi, 2020), influencers' opinion leadership (Casaló et al., 2020; Ladhari et al., 2020), and influencers' efficacy relative to traditional celebrities (Jin et al., 2019; Schouten et al., 2020). Because of the nascent state of the field, however, several relevant issues remain underexplored. First, little research has looked at influencers' organic content and engagement strategy. The majority of available studies focus on cases of product endorsement by influencers (Belanche et al., 2020; Lou et al., 2019; Kim and Kim, 2020), despite much of the content influencers share on social media being organic and of a non-commercial nature (Audrezet et al., 2018; Ki et al., 2020). Second, little research has looked

---

at followers' engagement behavior with influencers' organic content. Studies have primarily examined followers' responses to influencers' product endorsements in terms of product attitude (Kim and Kim, 2020; Schouten et al., 2020) and purchase intention (Ladhari et al., 2020; Lou and Yuan, 2019; Sokolova and Kefi, 2020). As such, followers' responses in terms of liking, commenting on, and sharing influencers' organic content has not been adequately investigated. Finally, almost no effort has been made to develop a model linking influencers' content and engagement strategy with followers' engagement behavior.

The present study aims to address the aforementioned gaps by investigating how measures of influencers' content and engagement strategy are associated with followers' engagement behavior on Instagram. Specifically, the study develops a set of hypotheses linking influencers' follower count, followee count, and content volume with followers' engagement behavior and investigates whether these relationships are moderated by the breadth of influencers' domains of interest. The study draws on social influence theory (Kelman, 1961, 1974; 2006) and leverages a unique dataset of Instagram influencers to test its proposed hypotheses. The baseline data was compiled by scraping an online database of Instagram influencers and was augmented with additional information manually gleaned from influencers' Instagram accounts.

The findings contribute to the literature by discerning how measures of influencers' content and engagement strategy are associated with followers' engagement behavior on Instagram. Because extant studies are focused on influencers' product endorsement activities (Belanche et al., 2020; Kim and Kim, 2020), influencers' organic content and engagement strategy have not been adequately investigated (Ki et al., 2020). The present study fills this crucial gap. Further, our study focuses on aggregate measures of influencers' activities and links these to aggregate measures of followers' engagement behavior. Our approach, therefore, extends extant findings that only discerned discrete influencer activities, such as the characteristics of individual posts, and discrete follower responses, such as likes and comments to individual posts (Lou and Yuan, 2019; Lou et al., 2019). Because the study investigates aggregate behavior, the findings are more generalizable. Both influencers and brands looking to partner with influencers can benefit from the findings.

The balance of the paper is structured as follows. Section 2 discusses the theoretical background of the study. Section 3 introduces the conceptual framework and hypotheses. Section 4 details the study's methodology. Section 5 presents the empirical findings. The remaining sections of the paper discuss the theoretical and managerial implications of the findings.

2. Theoretical background

2.1. Social media influencers

Social media influencers are prominent social media users that are viewed as experts in specific domains of interest, such as fashion, lifestyle, photography, travel, and so forth (Audrezet et al., 2018; Jin et al., 2019; Ladhari et al., 2020). They are ordinary social media users who cultivated a dedicated following by crafting compelling stories around their interests and lifestyle (De Veirman et al., 2019; Ki et al., 2020; Lou and Yuan, 2019). Social media influencers create a powerful online identity by packaging and communicating authentic personal narratives that combine photos, videos, and activities (Audrezet et al., 2018; Childers et al., 2019; Khamis et al., 2016) with the interactive affordances of social media (Lou et al., 2019; Tafesse, 2016). This careful orchestration of a persuasive online persona helps influencers attract followers and engage them on an ongoing basis (Belanche et al., 2020; Ki et al., 2020; Ladhari et al., 2020).

Followers, too, actively participate in the construction and legitimation of influencers' online identities (Lou et al., 2019; Sokolova and Kefi, 2020). They follow, engage with, advocate for, and support

influencers, which play a crucial role in legitimizing and affirming influencers' status while also expanding the reach and impact of their messages (Jin et al., 2019; Khamis et al., 2016; Sokolova and Kefi, 2020).

Influencers typically adopt new products and services associated with their domains of interest earlier than the majority of consumers (Aral, 2011; Casaló et al., 2020; Iyengar et al., 2011), which gives them advance insight into how these products and services fit into their lifestyles (Casaló et al., 2020; Djarafova and Rushworth, 2017). Influencers leverage this insight to review products, make recommendations, and offer DIY tips to their followers, thereby enabling them to build expert credibility and monetize their work (Audrezet et al., 2018; Ki et al., 2020; Ladhari et al., 2020). As Kim and Kim (2020) noted, influencers "can promote a commercial entity [such as products and brands] by providing a reasonable relation to their identity and making it a plausible extension of their preexisting organic contents" (p. 2).

Although researchers typically characterize social media influencers in terms of product endorsement and brand promotion, much of their online activity revolves around their domains of interest and lifestyle (Audrezet et al., 2018; Ki et al., 2020; Lou and Yuan, 2019). Only a fraction of their social media content contains explicit product endorsements (Audrezet et al., 2018; Lou and Yuan, 2019). However, the pressure to demonstrate brand impact has led some influencers to engage in malicious practices that include buying fake followers and likes (De Veirman et al., 2019). Such fraudulent activities, once discovered, result in follower backlash and quickly tarnish influencers' carefully constructed online persona (Audrezet et al., 2020; Childers et al., 2019).

The phenomenal rise of social media influencers has also prompted their comparison with traditional celebrities, individuals who enjoy mass public recognition due to their professional achievements (De Veirman et al., 2019; Knoll and Mathhes, 2017). Findings indicate that followers identify more strongly with social media influencers than with traditional celebrities (Jin et al., 2019; Lou et al., 2019; Schouten et al., 2020). Followers perceive influencers as being more relatable than celebrities, which contributes to the increased efficacy of product endorsements by influencers relative to celebrities (De Veirman et al., 2019; Childers et al., 2019; Schouten et al., 2020).

2.2. Social influence theory

Social influence theory offers a useful theoretical lens to understand the underlying mechanisms of influencers' relationships with their followers (Kapitan and Silvera, 2016; Sokolova and Kefi, 2020). In its original formulation (Kelman, 1961, 1974; 2006), social influence theory distinguishes three processes of social influence: compliance, identification, and internalization.

Compliance occurs when individuals accept influence to gain approval or avoid disapproval from the influencer (Kelman, 1974, 2006). Influence through compliance is based on means-control, that is, the influencer has the ability to supply or withhold material or psychological resources on which followers' goal achievement depends (Kelman, 1974, 2006). Influence through compliance is also extrinsically motivated and it is accepted only superficially, for instance, in public settings or the presence of the influencer (Kelman, 1961).

Identification occurs when followers accept influence to establish or maintain a self-defining relationship with the influencer, which becomes part of followers' self-image (Kelman, 1974, 2006). Followers maintain the relationship and the satisfying self-definition that it provides by emulating the influencer (Kelman, 1961). Influence through identification is based on attractiveness, that is, the influencer possesses qualities, such as desired roles, popularity, or creativity that the followers themselves lack, which in turn makes an ongoing relationship with the influencer desirable (Kelman, 1974, 2006). Generally, influence through identification is intrinsically motivated and much deeper than compliance as it is tied to followers' self-concept.

Finally, internalization occurs when followers accept influence

because it is congruent with their value system (Kelman, 1974, 2006). In internalization, it is the content of the influence itself that is intrinsically rewarding for the follower (Kelman, 1969). Followers adopt the influence because they find its content useful in resolving a problem, is congenial to their personal orientation or is demanded by their value system. The influencer's credibility and expertise are of paramount importance in internalization as these characteristics are directly tied to the content of the influence (McCormick, 2016). For instance, adopting new behavior because of expert recommendation is a form of internalization.

The three social influence processes outlined above have proved instrumental in explaining the influence process on social media (Kapitan and Silvera, 2016; Sokolova and Kefi, 2020). Followers accept influence from social media influencers to the extent that they perceive them to be popular, credible, and/or relatable (De Vermien et al., 2017; Kapitan and Silvera, 2016; Ki et al., 2020; Kim and Kim, 2020; Ladhari et al., 2020; Schouten et al., 2020; Sokolova and Kefia, 2019).

In this study, we do not directly measure followers' perceptions of influencers' attractiveness and credibility. Instead, we capture measures of influencers' content and engagement strategy consisting of follower count, followee count, domains of interest, and content volume, which codify the influencing mechanisms from social influence theory with objective metrics (Arora et al., 2019). Follower count, for instance, speaks to influencers' popularity—influencers followed by a large number of people are often perceived as popular (De Veirman et al., 2017; Djafarova and Rushworth, 2017; Ladhari et al., 2020). Follower count might thus be helpful to create influence through identification (Kelman, 1961, 1974). Followee count signals the extent to which social media influencers are integrated into social media platforms and validate some of their followers by subscribing to their updates, which is a form of influencer approval (Arora et al., 2019; De Veirman et al., 2017). Influencers' domains of interest articulate their areas of expertise. Interest in a singular domain might indicate the depth of influencer expertise (Casaló et al., 2020; Ladhari et al., 2020). As domains of interest delineate influencers' areas of expertise, it might be helpful to create influence through internalization (Kelman, 1961, 1974). Finally, content volume signifies influencers' level of active participation on

social media (Audrezet et al., 2018; Colliander and Marder, 2018). In this way, social influence theory offers a useful framework to probe the nature of the influencer-follower relationship on social media.

2.3. Conceptual framework and hypothesis development

The conceptual framework shown in Fig. 1 is introduced based on the background literature presented in the preceding section. The conceptual framework proposes follower engagement as its main outcome variable, which measures followers' involvement in and interactive responses to influencers' content on social media (Arora et al., 2019). It is manifested in such behaviors as liking/favoriting, sharing, and commenting on influencers' social media posts (Belanche et al., 2020; Lou et al., 2019). Follower engagement captures the extent to which followers view influencers favorably, engage with their content constructively, and are willing to accept influence from them. As such, it offers a parsimonious numeric measure of influencers' degree of influence on social media.

Follower engagement corresponds to the concept of customer behavioral engagement widely discussed in the brand engagement literature (Harmeling et al., 2017; Pansari and Kumar, 2017; Van Doorn et al., 2010). Constructive customer engagement behavior has been shown to contribute to favorable brand outcomes in terms of increased customer acquisition, greater customer satisfaction, and growing customer spending (De Vries et al., 2017; Harmeling et al., 2017; Tafesse and Wien, 2018). To summarize, the basic premise of the conceptual framework is that elements of influencers' content and engagement strategy including follower count, followee count, content volume, and domains of interest, are associated with follower engagement behavior both independently and interactively. In the subsequent section, we elaborate on the proposed relationships.

2.4. The direct effect of follower count on follower engagement

Follower count measures the number of social media users subscribed to an influencer's social media account (Arora et al., 2020; De Veirman et al., 2017). Users who follow a social media influencer
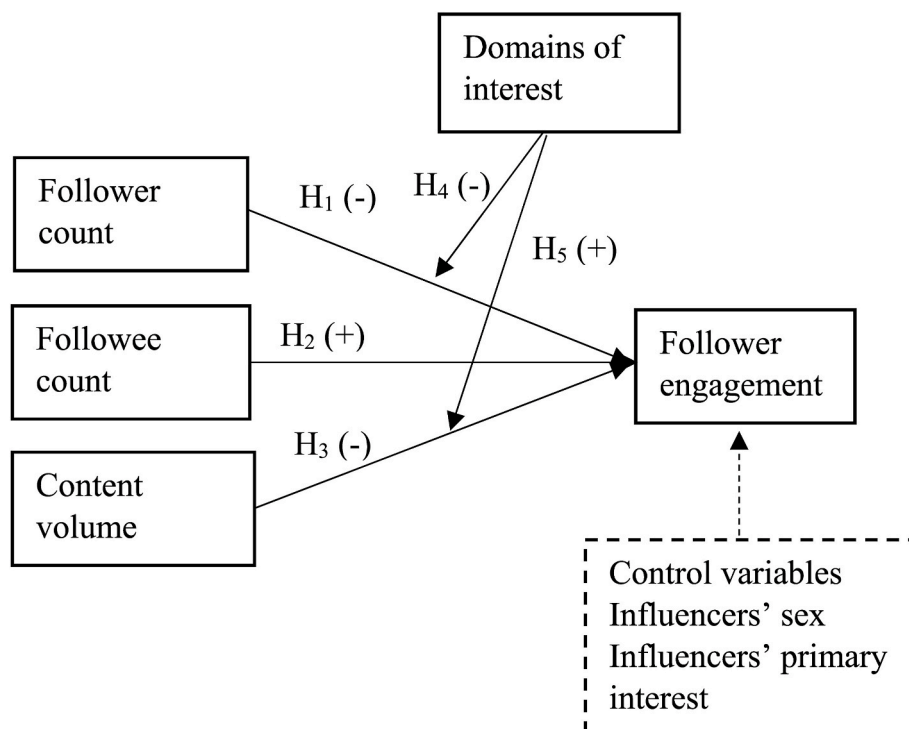

Fig. 1. Conceptual framework.

receive updates when the influencer posts new content (Lou et al., 2019). As such, follower count is critical to enhancing influencers' message reach (Arora et al., 2019; Belanche et al., 2020: Djafarova and Rushworth, 2017). It also serves as a measure of influencer popularity. In fact, influencers are categorized into different gradations of popularity (i.e., mega, macro, and micro) according to their follower size (Childers et al., 2019; De Veirman et al., 2019).

However, a large follower base does not necessarily guarantee increased follower engagement (De Veirman et al., 2017; Djafarova and Rushworth, 2017). As De Veirman et al. (2017) noted, popularity on social media is not equivalent to opinion leadership. In fact, follower count could be negatively associated with follower engagement. A major reason for followers' continued engagement with influencers is their perception of influencers as being personable, authentic, and relatable (Belanche et al., 2020; Jin et al., 2019; Lou and Yuan, 2019; Schouten et al., 2020). When influencers amass a significant following on social media, however, followers' sense of connection with them might dissipate, which might in turn weaken their engagement behavior. As pointed out previously, much of influencers' persuasive power stems from followers' identification with them (Ki et al., 2020). In support of this argument, Djafarova and Rushworth (2017) found that Instagram users tend to trust influencers with more modest numbers of followers than those with larger follower bases. Moreover, popular influencers use questionable tactics to artificially boost their follower count, such as buying bot followers, which nonetheless make no practical contribution to follower engagement (De Veirman et al., 2019). In light of the above arguments, we propose the following hypothesis:

H_1: Influencers' follower count will be negatively associated with follower engagement.

2.5. The direct effect of followee count on follower engagement

Followee count is another important influencer metric reported in social media platforms such as Instagram and Twitter (Arora et al., 2019; De Veirman et al., 2017). Followee count is indicative of how much social media influencers are integrated into social media platforms (De Veirman et al., 2017). A higher followee count signifies that social media influencers are active members of the social media community and are willing to keep up with other users on the platform. As De Veirman et al. (2017, p. 803) noted, "a user with many followers has more opportunities to learn about different topics and opinions, and thus more ability to look beyond their own social environment, which might be beneficial in terms of opinion leadership".

Accordingly, followee count may have the opposite effect on follower engagement to that of follower count. While a higher follower count likely precipitates a sense of detachment from social media influencers, a higher followee count might induce a sense of connection to them. Specifically, a higher followee count might remind followers that influencers, despite their status, are as accessible and relatable as regular social media users. This increased sense of identification with social media influencers might in turn enhance followers' engagement behavior (De Veirman et al., 2017; Ki et al., 2020; Sokolova and Kefi, 2020). An influencer regularly following other social media users is also a form of public approval alluded to in social influence theory (Kelman, 1961, 1974). Followers might be willing to accept greater influence from social media influencers who publicly reward their behavior by subscribing to their updates. We, therefore, propose the following hypothesis:

H_2: Influencers' followee count will be positively associated with follower engagement.

2.6. The direct effect of content volume on follower engagement

Content volume captures the volume of posts that social media influencers share on their social media accounts (Casaló et al., 2020; Colliander and Marder, 2018). Content volume measures how active

influencers are on social media (Casaló et al., 2020). User-generated content, such as photos, videos, and stories, along with creative content in the form of animations and memes is the primary mechanism through which influencers interact with their followers (Audrezet et al., 2018; Lou and Yuan, 2019). In fact, "active participation in social media platforms is essential to be identified as an opinion leader" (Casaló et al., 2020, p. 4). User-generated content is also central to establishing and reinforcing influencers' personal brand on social media (Audrezet et al., 2018; Childers et al., 2019; Ki et al., 2020).

To appreciate the role of content volume, the concept of content novelty—audiences' perception of the originality and creativity of content (Tokunaga, 2013)—can be instructive. On social media platforms, such as Twitter, Instagram, and YouTube, users are typically exposed to copious amounts of information, which causes information overload (Gomez-Rodriguez et al., 2014; Roetzel, 2018). In this situation, novel content is crucial to capture followers' attention (Carmel et al., 2012). Prior research has confirmed that users' perception of novelty is a potent source of user engagement with blogposts (Carmel et al., 2012) and brand engagement behavior on social media (Tafesse, 2015). In the context of influencer marketing, Casaló et al. (2020) found a positive association between followers' perception of content originality and influencers' opinion leadership on Instagram.

To the extent that content production is a creative process, a focus on content volume on social media may interfere with content creativity (Audrezet et al., 2018). A substantial creative effort goes into producing engaging content on social media (Colliander and Marder, 2018). For instance, many influencers share highly creative images and videos on their Instagram accounts (Colliander and Marder, 2018). Indeed, digital enhancement of photos and videos to create stunning visual effects is a widespread practice on visual platforms like Instagram (Colliander and Marder, 2018; Djafarova and Rushworth, 2017) and YouTube (Tafesse, 2020). Given this, influencers producing and sharing copious content may lack the resources to consistently produce creative and original content. For this reason, sharing large volumes of content on social media might weaken follower engagement by diminishing the perception of content novelty (Carmel et al., 2012; Tafesse, 2015). Accordingly, we hypothesize as follows:

H_3: Influencers' content volume will be negatively associated with follower engagement.

2.7. The interaction effect of follower count and domains of interest

The theoretical mechanism linking follower count with follower engagement is followers' identification with influencers. Specifically, we hypothesized that a higher follower count will be negatively associated with follower engagement as it might undermine followers' identification with influencers. However, we anticipate influencers' domains of interest to modify this theoretical link.

Influencers with diverse interests produce and share a variety of content on their social media accounts (Belanche et al., 2020; Kim and Kim, 2020). When influencers with higher follower count share diverse content, the combination of large followers and diverse content might further exacerbate followers' feelings of detachment from influencers by conveying incoherent information about influencers' domains of interest. Followers might grow ambivalent about influencers' true identity. In contrast, influencers who specialize in a particular domain of interest produce and share highly coherent content, which can help cement influencers' identities in followers' minds.

Recent pieces of evidence highlight the positive effect of the congruence between influencers' content and their domains of interest on follower behavior. For instance, Kim and Kim (2020) found that content that corresponds with an influencer's domain of interest generates a more favorable evaluation of endorsed products. Similarly, Belanche et al. (2020) reported that content that comports with influencers' domains of interest increases followers' intention to interact with influencers' social media accounts. In light of this evidence, we

hypothesize as follows:

H₄: The negative association between follower count and follower engagement will be stronger when influencers' have diverse domains of interest.

2.8. The interaction effect of content volume and domains of interest

The theoretical mechanism linking content volume with follower engagement is followers' perception of content novelty. Specifically, we hypothesized that sharing large volumes of content on social media will be negatively associated with follower engagement. The reason is that a focus on content volume could interfere with followers' perception of content novelty, which might subsequently weaken their engagement behavior. However, we anticipate influencers' domains of interest to modify this theoretical link.

Specifically, influencers with diverse domains of interest produce and share a variety of content on their social media accounts (Belanche et al., 2020; Kim and Kim, 2020) and so expose their followers to diverse content. The diversity of content that followers are exposed to might increase their perception of content novelty, thereby helping to suppress the negative effect that content volume is hypothesized to have on followers' engagement behavior. In contrast, influencers with a focused domain of interest produce and share a large volume of related content (Belanche et al., 2020; Kim and Kim, 2020) and so expose their followers to similar content. Producing large volumes of content on a related theme can weaken followers' perception of content novelty (Carmel et al., 2012), thereby exacerbating the negative effect of content volume on followers' engagement behavior. Accordingly, we hypothesize as follows:

H₅: The negative association between content volume and follower engagement will be weaker when influencers have diverse domains of interest.

3. Methodology

3.1. The dataset

The baseline data for this study was obtained from the data science website Kaggle.com. It was compiled by scraping influence.co's website, which is an agency specializing in influencer marketing. Influence.co maintains a database of thousands of social media influencers based in different countries. Well-known brands such as Jack Daniel's, Dyson, Caspers, and Bumble partner with influence.co for their influencer marketing programs. Importantly, the database is publicly available, allowing access to a large number of influencers active in different parts of the world.

In our case, an automated web crawler was deployed to scrape influencer.co's online database of Instagram influencers. The web crawler targeted 243 Instagram influencers based in Riyadh, Saudi Arabia, and compiled details on their Instagram accounts. With their higher follower to followee ratio and higher engagement rate relative to regular Instagram users, the selected influencers are representative of the broader influencer community (Arora et al., 2019; De Veirman et al., 2017). Among the details extracted by the web crawler were influencers' follower count, influencers' domains of interest, and follower engagement metrics.

Because the web crawled data do not contain all the data points needed to test our model, we collected additional details from the influencers' Instagram accounts manually. These newly collected details include influencers' followee count, their number of Instagram posts, influencers' sex, and influencers' primary interest. During the manual data collection process, we came across several private Instagram accounts (those that prohibit access to non-friends). Some other accounts could not be found, perhaps because the account name was changed or the account was deactivated or deleted altogether since the crawler was deployed. These missing influencer accounts reduced the number of

Instagram accounts with complete details to 140. We further deleted seven influencers who had lower than expected follower counts and numbers of posts, thereby reducing the final sample to 133.

3.2. Operationalization of variables

Most of the variables in the dataset including follower count, followee count, and the number of Instagram posts are expressed in numeric terms. As such, their operationalization is rather straightforward.

Follower count was operationalized using the number of Instagram users who follow the influencers. Followee count was operationalized using the number of Instagram users whom the influencers themselves follow. Content volume was operationalized using the number of Instagram posts that influencers have shared on their accounts. We should note that the volume of Instagram posts is not a perfect measure of influencers' content production. For instance, some Instagram influencers delete posts that did not produce enough positive engagement to preserve their image. Because Instagram reports only those posts that are still publicly available, our measure of content volume does not account for deleted Instagram posts.

Influencers' domains of interest were operationalized using the number of interests that influencers publicly disclosed on their Instagram accounts. These domains of interest are defined by the influencers themselves and a higher count indicates a diverse interest. Again, we should note that domains of interest, as operationalized above, may not capture relevant nuances. For instance, some influencers' may share content outside their publicly stated domains of interest, while others may not commit to all of their publicly stated domains of interest. This limitation of how we operationalized influencers' diversity of interest should be considered while interpreting the findings. Fig. 2 depicts the frequency distribution of influencers' domains of interest. With over 58 individual domains of interest in the dataset, we only reported interests indicated by at least two influencers.

Follower engagement was calculated by influence.co. According to influencer.co's website, follower engagement was calculated by aggregating followers' responses (likes and comments) to each influencer's Instagram posts shared in the past 45 days, divided by each influencer's follower count. The resulting aggregate score captures each influencer's ability to derive engagement from their followers on average.

To operationalize influencers' primary interest, we manually examined 45 days of influencers' Instagram posts, which is equivalent to the 45 days of Instagram posts that influence.co used to calculate follower engagement. When influencers content spans multiple interests, we selected the leading interest. To code influencers' primary interest, we used the domain category developed by socialbakers.com, which consisted of advertising, automobiles, business, beauty, cooking, family, fashion, fitness and wellness, food and drink, interior design, jewelry, luxury, motherhood, and travel, among others. The frequency distribution of influencers' primary interest is shown in Fig. 2. The main difference between influencers' domains of interest and influencers' primary interest is that the former measures the diversity of influencers' interest, while the latter measures their primary area of interest. Influencers' primary interest was used as a control variable as influencers might generate higher or lower engagement depending on their primary interest.

Finally, influencers' sex was dummy coded with the female category as the reference, which is the largest of the two sexes (64%). Table 1 summarizes the definition and operationalization of the study variables and Table 2 reports their descriptive statistics and pair-wise correlation.

3.3. Model specification

To investigate the proposed hypotheses, the OLS regression model shown in equation (1) was developed. The dependent variable, follower engagement, is a continuously measured and a normally distributed
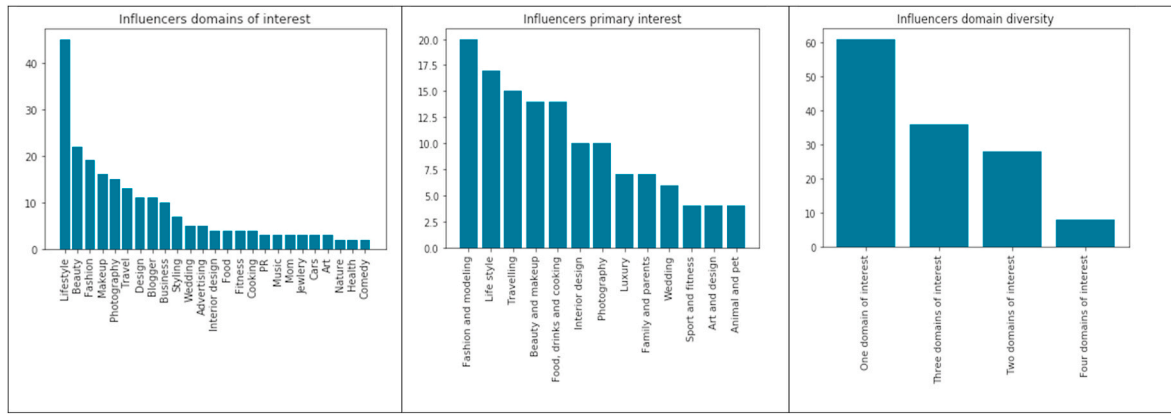
Fig. 2. Frequency distribution of categorical variables.

Table 1
Operationalization of study variables.

Study variables	Operationalization
Follower engagement	The sum of likes and comments received by influencers' posts for 45 days divided by their follower count. It measures influencers' average engagement per Instagram post per follower.
Follower count	Count of users who follow influencers' Instagram accounts.
Followee count	Count of users whom influencers follow on Instagram.
Content volume	The total number of posts that influencers have shared on their Instagram accounts.
Domains of interest	Count of influencers' domains of interest as defined by the influencers themselves.
Influencers' sex	Influencers' sex, dummy coded as female = 0; Male = 1.
Influencers' primary interest	Influencers' primary domain of interest, dummy coded with "lifestyle" as the reference category.

numeric variable, which makes the use of OLS regression appropriate. The model incorporated main, interaction, and control effects. The main effects are related to the direct effects of follower count, followee count, content volume, and domains of interest. The interaction effects include the two-way interaction term between follower count and domains of interest and between content volume and domains of interest. Finally, the model included influencers' sex and influencers' primary interest as control variables:

$$Follower\_engagement_i = \alpha_0 + \beta_1\ Follower\_count_i$$

$$+ \beta_2\ Followee\_count_i$$

$$+ \beta_3\ Content\_volume_i$$

$$+ \beta_4\ Domains\_of\_interest_i$$

$$+ \beta_5 Follower\_count_i\ \times Domains\_of\_interest_i$$

$$+ \beta_6 Content\_volume_i\ \times Domains\_of\_interest_i$$

$$+ \beta_j\ Control\_variables_{ij} + \varepsilon_i$$

where β_1, β_2, ..., β_6 are parameter estimates for the hypothesized effects, α_0 is the intercept, ε_i is a normally distributed error term, and β_j is the parameter estimate for the jth control variable. The parameter estimates have a straightforward interpretation: a one-unit change in measures of the predictor variables will be associated with β_1, β_2, ..., β_j unit changes in follower engagement, respectively.

4. Results

Equation (1) was estimated using OLS regression. All the variables were standardized before estimation. The results of the model estimation are reported in Table 3. The overall model is significant (F = 5.34, p < .000), explaining 48% of the variance in follower engagement. Regression diagnostics indicated that the estimated model is well behaved. The residuals are normally distributed with $\mu = 0$ and $\sigma^2 = 1$. Further, the predictor variables have zero correlation with the residuals. Multi-collinearity was not an issue either. The variance inflation factor (VIF) for the predictor variables ranged between 1.1 and 2.1. To correct for heteroscedasticity, White's heteroscedasticity-consistent standard errors are reported (White, 1980).

Main effects Follower count is negatively associated with follower engagement ($\beta_1 = -0.46$, $p < .01$), implying that influencers with a higher follower count garnered lower engagement from their followers. This finding strongly supports H_1. Second, followee count is positively associated with follower engagement ($\beta_2 = 0.14$, $p < .01$), which suggests that influencers with a higher followee count garnered higher engagement from their followers. This finding supports H_2. Third, content volume is negatively associated with follower engagement ($\beta_3 = -0.25$, $p < .01$), implying that influencers who share large volumes of content on their Instagram accounts garnered lower engagement from their followers. This finding is consistent with H_3. Although we did not formally hypothesize it, we also tested the direct effect of influencers' domains of interest and found no statistically significant association with follower engagement ($\beta_4 = -0.11$, $p = .19$). Overall, the main

Table 2
Descriptive statistics and pair-wise correlations.

Study variables	Mean	St. Dev	Min.	Max.	(1)	(2)	(3)	(4)	(5)	(6)
(1) Follower engagement	4.14	.85	.20	5.12	1					
(2) Follower count	62587	136660	835	829000	−.529***	1				
(3) Followee count	722	908	0	6008	.028	.062	1			
(4) Content volume	850	892	44	4435	−.322***	.391***	.225**	1		
(5) Domains of interest	1.93	.986	1	4	.051	−.037	.071	.241***	1	
(6) Influencer sex (Male dummy)	.331	.472	–	–	.203**	−.006	−.116	.104	−.082	1

**P < .05; ***P < .01.

Table 3
Summary of OLS regression estimation.

Study variables	Std. coefficients	Std. error	T-value	Sig. level
Intercept	–0.04	0.066	–0.65	0.51
Follower count	–0.46	0.097	–4.79	0.00
Followee count	0.14	0.055	2.61	0.00
Content volume	–0.25	0.089	–2.85	0.00
Domains of interest	–0.11	0.087	–1.31	0.19
Follower count × Domains of interest	–0.19	0.098	–1.96	0.05
Content volume × Domains of interest	0.15	0.067	2.23	0.03
Influencers' sex (Male dummy)	0.25	0.079	3.13	0.00
Influencers' primary interest (reference category = Lifestyle)				
Family and friends	0.16	0.075	2.17	0.03
Luxury	0.11	0.054	1.98	0.05
Model summary, No. of observation = 133, R^2 = .46, F = 7.19, p < .000				

Note: The standard errors are heteroscedasticity-consistent.

effects confirmed all three hypotheses.

Interaction effects The interaction between follower count and domains of interest is negative and statistically significant ($\beta_5 = -0.19$, $p < .05$), implying that influencers with a higher follower count garnered lower engagement when they had diverse domains of interest. This finding is consistent with H$_4$. On the other hand, the interaction between content volume and domains of interest is positive and statistically significant ($\beta_6 = 0.15$, $p < .05$), implying that influencers who shared large volumes of content garnered higher follower engagement when they had diverse domains of interest. This finding is consistent with H$_5$. Fig. 3 visualizes the interaction effects.

Control effects We found a positive association between male Instagram influencers and follower engagement ($\beta = 0.25$, $p < .01$), which suggests that male influencers are more successful in generating engagement on Instagram than female influencers. Regarding primary interest, we found only two statistically significant dummies. Influencers in the family and friends category ($\beta = 0.16$, $p < .05$) and those in the luxury category ($\beta = 0.11$, $p < .05$) garnered higher engagement than influencers in the lifestyle category (lifestyle is the reference category).

5. Discussion and implications

Influencer marketing has emerged as an effective approach for brands to connect with customers by leveraging the trust and psychological bond that influencers have forged with their followers on social media (Childers et al., 2019; Lou et al., 2019). This study draws on social influence theory (Kelman, 1961, 1974) and aggregate observations on

133 Instagram influencers to investigate how influencers' content sharing and engagement strategy is associated with followers' engagement behavior.

5.1. Discussion of results

The study's focal findings reveal the interplay between influencers' content and engagement strategy and followers' engagement behavior. In this section, the findings are discussed in the context of the relevant literature.

First, the study finds that follower count is negatively associated with follower engagement. The reason for this finding is likely related to followers' identification with influencers, which has been shown as integral to the influencer-follower relationship (Childers et al., 2019; Ki et al., 2020; Schouten et al., 2020; Sokolova and Kefi, 2020). As influencers amass a large follower base and start to resemble traditional celebrities, followers' identification with them weakens, thereby diminishing their engagement behavior (De Veirman et al., 2019; Childers et al., 2019; Schouten et al., 2020). This finding is consistent with previous findings that followers engage with influencers favorably when their identification with them is strong (Djafarova and Rushworth, 2017; Ki et al., 2020; Ladhari et al., 2020).

Second, the study finds that followee count is positively associated with follower engagement. Followee count signifies the extent to which influencers seek for information, opinions, and trends from other social media users (Arora et al., 2019; De Veirman et al., 2017). Previous research has indicated that followee count is essential to establish opinion leadership and build one's influence on social media (De Veirman et al., 2017). By helping to characterize influencers as ordinary social media users, higher followee count can enhance followers' identification with influencers (Schouten et al., 2020). In essence, followee count exerts the opposite effect on the influencer-follower relationship to that of follower count.

Third, the study finds that content volume is negatively associated with follower engagement. To the extent that content production on social media is a creative process (Audrezet et al., 2018; Colliander and Marder, 2018), sharing a large volume of Instagram posts might interfere with influencers' creativity and originality. At the same time, owing to the massive amount of content that users are exposed to on social media, content originality is crucial to gain followers' attention and motivate them to engage with content (Carmel et al., 2012; Casaló et al., 2018). This finding is consistent with prior findings that sharing novel content online is associated with greater user engagement behavior (Carmel et al., 2012; Tafesse, 2015).

Fourth, the study finds a significant negative interaction between influencers' follower count and domains of interest. This finding
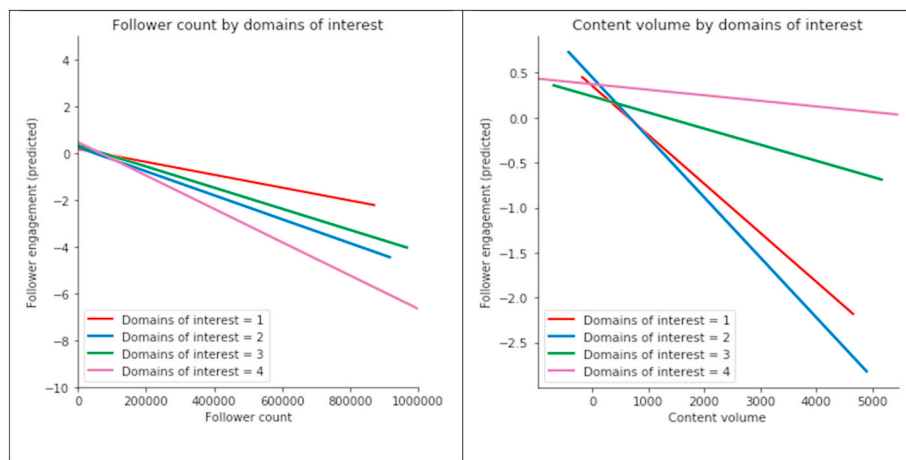

Fig. 3. Visualization of interaction effects.

suggests that influencers with vast followers generate lower engagement when they also have diverse interests. The combination of large numbers of followers and diverse interests likely exacerbates followers' feeling of disconnect with influencers, with some followers being potentially conflicted about influencers' identities. Although it did not test this relationship directly, past research has demonstrated that the fit between influencers' identity and the products they endorse has a significant bearing on followers' evaluation of endorsed products (Belanche et al., 2020; Kim and Kim, 2020).

Finally, the study finds a significant positive interaction between content volume and domains of interest. This finding suggests that influencers with diverse interests can stimulate greater engagement by sharing more content in their social media accounts. Sharing voluminous content around a single domain of interest could be perceived by followers as repetitive and lacking in novelty (Carmel et al., 2012), which might subsequently diminish their engagement behavior. To our knowledge, ours is the first study to test this relationship in the context of social media influencers.

5.2. Theoretical contributions

The findings make two crucial contributions to the influencer marketing literature. First, the findings contribute to the literature by shedding light on influencers' organic content and engagement strategy. Much of the available studies on influencer marketing examine influencers' product endorsement activities (Belanche et al., 2020; Lou et al., 2019; Kim and Kim, 2020; Sokolova and Kefi, 2020). This focus on influencers' product endorsement contradicts the fact that much of influencers' content is organic, focusing on their lifestyle and domains of interest (Audrezet et al., 2018; De Veirman et al., 2019; Ki et al., 2020). In fact, influencers' organic content forms the bedrock of their product endorsement and brand promotion work (Ki et al., 2020), as the products and brands they endorse are expected to be congruent with their organic content strategy (Belanche et al., 2020; Kim and Kim, 2020). The current findings offer new insight into influencers' organic content and engagement strategy.

Second, the findings contribute to the literature by developing and testing a parsimonious model that links influencers' content and engagement strategy with followers' engagement behavior on Instagram. In so doing, the study measured influencers' content and engagement strategy at the aggregate level (i.e., at the level of influencers) and link those aggregate measures with followers' engagement behavior, which is likewise measured at the aggregate level. The study's focus on aggregate influencer and follower behavior extend previous studies that link influencers' discrete activities, such as the characteristics of individual posts, with followers' discrete engagement behavior, such as followers' liking and commenting on individual posts (Lou and Yuan, 2019; Lou et al., 2019). Because our findings are based on aggregate-level behavior, they are more generalizable relative to those reporting only on discrete level behavior. Overall, our findings offer novel insights into how influencer content and engagement strategy contribute to follower engagement behavior on Instagram.

5.3. Managerial implications

The findings offer useful implications for Instagram influencers as well as brands looking to partner with Instagram influencers.

For influencers, the findings suggest that efforts to increase follower count may not necessarily benefit follower engagement. In fact, our findings indicate that follower count and follower engagement are negatively associated, implying that influencers should rethink some of their efforts aimed exclusively at growing their follower count as a means of driving engagement metrics. Second, following a greater number of users on social media is associated with higher follower engagement. Influencers' acts of following other users on social media might enhance followers' identification with them. Therefore,

influencers may boost their engagement metrics by following more users on social media. Third, the findings highlight the benefit of an organic content strategy that prioritizes quality (e.g., content originality, creativity, etc.) over quantity (i.e., number of posts). As our findings indicate, content volume is negatively associated with influencers' engagement metrics. This may be because as influencers produce large volumes of content they may fail to allocate sufficient resources to produce original and creative content on a consistent basis. Fourth, the interaction between influencers' follower count and domain of interest has significant implications for follower engagement. Specifically, influencers with a large follower base should closely align their content with their domains of interest. Sharing diverse content while having a large follower base might weaken followers' identification with influencers, and subsequently their engagement behavior. Similarly, the interaction between content volume and domains of interest has significant implications. Specifically, influencers who share large volumes of content may need to diversify the themes of their content. Followers might perceive influencers who share large volumes of similar content as lacking in originality and creativity, which might weaken their engagement behavior.

The findings have implications for brands partnering with Instagram influencers as well. All too often, brands place disproportionate weight on follower count when vetting influencers for partnership. However, as our findings indicate, selecting influencers based purely on follower count can be counterproductive. We recommend brands to diversify their vetting criteria by considering influencers' followee count, content volume, and domains of interest. Generally speaking, Instagram influencers who combine a higher follower count with a diverse domain of interest tend to fare worse in terms of generating follower engagement.

5.4. Limitations and future research

Finally, the limitations of this study point to multiple avenues for future research. First, although our study is one of the first to investigate hundreds of social media influencers, the actual sample size is still relatively small and only represents a single geographic region. Given this, the findings may not generalize to other contexts. Future research may want to extend our work to different geographic and cultural contexts. Second, some of our measures do not fully capture the nuances of influencers' dynamic content and engagement strategies. For instance, our measure of content volume (i.e., the total number of posts) does not consider (1) the rate of content production (how much content influencers produce in a given time), (2) the number of deleted posts, and (3) content types (i.e., photos versus videos). Therefore, there is potential to develop a more robust measure of content volume in future research. Likewise, influencers' domains of interest could be more precisely operationalized. Some influencers may not commit to some of their publicly declared domains of interest, while others may share content not publicly acknowledged in their domains of interest, and hence counts of influencers' publicly stated domains of interest may not capture finer nuances. Although time-consuming and prone to human bias, manual labeling of content might provide a more accurate measure of influencers' domains of interest. Finally, some intervening mechanisms appear to be relevant in the influencer-follower relationship, such as followers' identification with influencers and followers' perception of content novelty. Although followers' identification with influencers has been studied under different rubrics, such as likeability (De Veirman et al., 2017), parasocial interaction (Sokolova and Kefi, 2020), and perceived similarity (Schouten et al., 2020), we are not aware of studies that examined followers' perception of influencers' content novelty. As such, this mechanism might be considered in future research to further enrich the influencer-follower relationship.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.

org/10.1016/j.jretconser.2020.102303.

References

Aral, S., 2011. Commentary—identifying social influence: a comment on opinion leadership and social contagion in new product diffusion. Market. Sci. 30 (2), 217–223. https://doi.org/10.1287/mksc.1100.0596.

Arora, A., Bansal, S., Kandpal, C., Aswani, R., Dwivedi, Y., 2019. Measuring social media influencer index-insights from Facebook, Twitter and Instagram. J. Retailing Consum. Serv. 49, 86–101. https://doi.org/10.1016/j.jretconser.2019.03.012.

Audrezet, A., De Kerviler, G., Moulard, J.G., 2018. Authenticity under threat: when social media influencers need to go beyond self-presentation. J. Bus. Res. https://doi.org/10.1016/J.JBUSRES.2018.07.008 (in press).

Beckers, S.F., Van Doorn, J., Verhoef, P.C., 2018. Good, better, engaged? The effect of company-initiated customer engagement behavior on shareholder value. J. Acad. Market. Sci. 46 (3), 366–383. https://doi.org/10.1007/s11747-017-0539-4.

Belanche, D., Flavián, M., Ibáñez-Sánchez, S., 2020. Followers' reactions to influencers' Instagram posts. Span. J. Market.-ESIC 1–17. https://doi.org/10.1108/SJME-11-2019-0100" \o "10.1108/SJME-11-2019-0100"10.1108/SJME-11-2019-0100 (in press).

Carmel, D., Roitman, H., Yom-Tov, E., 2012. On the relationship between novelty and popularity of user-generated content. ACM Trans. Intell. Syst. Technol. 3 (4), 1–19. https://doi.org/10.1145/2337542.2337554.

Casaló, L.V., Flavián, C., Ibáñez-Sánchez, S., 2020. Influencers on Instagram: antecedents and consequences of opinion leadership. J. Bus. Res. https://doi.org/10.1016/j.jbusres.2018.07.005 (in press).

Childers, C.C., Lemon, L.L., Hoy, M.G., 2019. # sponsored# ad: agency perspective on influencer marketing campaigns. J. Curr. Issues Res. Advert. 40 (3), 258–274. https://doi.org/10.1080/10641734.2018.1521113.

Colliander, J., Marder, B., 2018. Snap happy brands: increasing publicity effectiveness through a snapshot aesthetic when marketing a brand on Instagram. Comput. Hum. Behav. 78, 34–43. https://doi.org/10.1016/j.chb.2017.09.015.

De Veirman, M., Cauberghe, V., Hudders, L., 2017. Marketing through Instagram influencers: the impact of number of followers and product divergence on brand attitude. Int. J. Advert. 36 (5), 798–828. https://doi.org/10.1080/02650487.2017.1348035" \o "10.1080/02650487.2017.1348035"10.1080/02650487.2017.1348035.

De Veirman, M., Hudders, L., Nelson, M.R., 2019. What is influencer marketing and how does it target children? A review and direction for future research. Front. Psychol. 10, 26–85. https://doi.org/10.3389/fpsyg.2019.02685.

De Vries, L., Gensler, S., Leeflang, P.S., 2017. Effects of traditional advertising and social messages on brand-building metrics and customer acquisition. J. Market. 81 (5), 1–15. https://doi.org/10.1509/jm.15.0178.

Djafarova, E., Rushworth, C., 2017. Exploring the credibility of online celebrities' Instagram profiles in influencing the purchase decisions of young female users. Comput. Hum. Behav. 68, 1–7. https://doi.org/10.1016/j.chb.2016.11.009.

Gomez-Rodriguez, M., Gummadi, K., Schoelkopf, B., 2014. Quantifying information overload on social media and its impact on social contagions. Eighth International AAAI Conference on Weblogs and Social Media 1, 1–10. June – 4 June, Michigan, MN.

Harmeling, C.M., Moffett, J.W., Arnold, M.J., Carlson, B.D., 2017. Toward a theory of customer engagement marketing. J. Acad. Market. Sci. 45 (3), 312–335. https://doi.org/10.1007/s11747-016-0509-2.

Iyengar, R., Van den Bulte, C., Valente, T.W., 2011. Opinion leadership and social contagion in new product diffusion. Market. Sci. 30 (2), 195–212. https://doi.org/10.1287/mksc.1100.0566.

Jacobson, J., Gruzd, A., Hernández-García, Á., 2020. Social media marketing: who is watching the watchers? J. Retailing Consum. Serv. 53, 1–12. https://doi.org/10.1016/j.jretconser.2019.03.001.

Jin, S.V., Muqaddam, A., Ryu, E., 2019. Instafamous and social media influencer marketing. Market. Intell. Plann. 37 (5), 567–579. https://doi.org/10.1108/MIP-09-2018-0375.

Kapitan, S., Silvera, D.H., 2016. From digital media influencers to celebrity endorsers: attributions drive endorser effectiveness. Market. Lett. 27 (3), 553–567. https://doi.org/10.1007/s11002-015-9363-0" \o "10.1007/s11002-015-9363-0"10.1007/s11002-015-9363-0.

Kaplan, A.M., Haenlein, M., 2010. Users of the world, unite! the challenges and opportunities of Social Media. Bus. Horiz. 53 (1), 59–68. https://doi.org/10.1016/j.bushor.2009.09.003.

Kelman, H.C., 1961. Processes of opinion change. Publ. Opin. Q. 25, 57–78. https://doi.org/10.1086/266996. Spring.

Kelman, H.C., 1974. Further thoughts on the processes of compliance, identification, and internalization,. In: Tedeschi, J.T. (Ed.), Social Power and Political Influence. Aldine, Chicago, pp. 126–171.

Kelman, H.C., 2006. Interests, relationships, identities: three central issues for individuals and groups in negotiating their social environment. Annu. Rev. Psychol. 57, 1–26. https://doi.org/10.1146/annurev.psych.57.102904.190156.

Khamis, S., Ang, L., Welling, R., 2017. Self-branding, 'micro-celebrity' and the rise of social media influencers. Celebr. Stud. 8 (2), 191–208. https://doi.org/10.1080/19392397.2016.1218292" \o "10.1080/19392397.2016.1218292"10.1080/19392397.2016.1218292.

Ki, C., Cuevas, L.M., Chong, S.M., Lim, H., 2020. Influencer marketing: social media influencers as human brands attaching to followers and yielding positive marketing results by fulfilling needs. J. Retailing Consum. Serv. 55, 1–11. https://doi.org/10.1016/j.jretconser.2020.102133" \o "10.1016/j.jretconser.2020.102133"10.1016/j.jretconser.2020.102133.

Kietzmann, J.H., Hermkens, K., McCarthy, I.P., Silvestre, B.S., 2011. Social media? Get serious! Understanding the functional building blocks of social media. Bus. Horiz. 54 (3), 241–251. https://doi.org/10.1016/j.bushor.2011.01.005.

Kim, D.Y., Kim, H.Y., 2020. Influencer advertising on social media: the multiple inference model on influencer-product congruence and sponsorship disclosure. J. Bus. Res. https://doi.org/10.1016/j.jbusres.2020.02.020 (in press).

Knoll, J., Matthes, J., 2017. The effectiveness of celebrity endorsements: a meta- analysis. J. Acad. Market. Sci. 45 (1), 55–75. https://doi.org/10.1007/s11747-016-0503-8.

Ladhari, R., Massa, E., Skandrani, H., 2020. YouTube vloggers' popularity and influence: the roles of homophily, emotional attachment, and expertise. J. Retailing Consum. Serv. 54 https://doi.org/10.1016/j.jretconser.2019.102027, 102-027.

Lou, C., Yuan, S., 2019. Influencer marketing: how message value and credibility affect consumer trust of branded content on social media. J. Interact. Advert. 19 (1), 58–73. https://doi.org/10.1080/15252019.2018.1533501.

Lou, C., Tan, S.S., Chen, X., 2019. Investigating consumer engagement with influencer- vs. brand-promoted ads: the roles of source and disclosure. J. Interact. Advert. 19 (3), 1–18. https://doi.org/10.1080/15252019.2019.1667928.

McCormick, K., 2016. Celebrity endorsements: influence of a product-endorser match on Millennials attitudes and purchase intentions. J. Retailing Consum. Serv. 32, 39–45. https://doi.org/10.1016/j.jretconser.2016.05.012.

Pansari, A., Kumar, V., 2017. Customer engagement: the construct, antecedents, and consequences. J. Acad. Market. Sci. 45 (3), 294–311. https://doi.org/10.1007/s11747-016-0485-6.

Roetzel, P.G., 2018. Information overload in the information age: a review of the literature from business administration, business psychology, and related disciplines with a bibliometric approach and framework development. Bus. Res. 1–44. https://doi.org/10.1007/s40685-018-0069-z.

Schouten, A.P., Janssen, L., Verspaget, M., 2020. Celebrity vs. Influencer endorsements in advertising: the role of identification, credibility, and Product-Endorser fit. Int. J. Advert. 39 (2), 258–281. https://doi.org/10.1080/02650487.2019.1634898" \o "10.1080/02650487.2019.1634898"10.1080/02650487.2019.1634898.

Sokolova, K., Kefi, H., 2020. Instagram and YouTube bloggers promote it, why should I buy? How credibility and parasocial interaction influence purchase intentions. J. Retailing Consum. Serv. 53, 1–9. https://doi.org/10.1016/j.jretconser.2019.01.011.

Tafesse, W., 2020. YouTube Marketing: How Marketers' Video Optimization Practices Influence Video Views. Internet Research, pp. 1–19. https://doi.org/10.1108/INTR-10-2019-0406 (in press).

Tafesse, W., 2015. Content strategies and audience response on Facebook brand pages. Market. Intell. Plann. 33 (6), 927–943. https://doi.org/10.1108/MIP-07-2014-0135.

Tafesse, W., 2016. An experiential model of consumer engagement in social media. J. Prod. Brand Manag. 25 (5), 424–434. https://doi.org/10.1108/JPBM-05-2015-0879.

Tafesse, W., Wien, A., 2018. Implementing social media marketing strategically: an empirical investigation. J. Market. Manag. 34 (9–10), 732–749. https://doi.org/10.1080/0267257X.2018.1482365.

Tokunaga, R.S., 2013. Engagement with novel virtual environments: the role of perceived novelty and flow in the development of the deficient self-regulation of Internet use and media habits. Hum. Commun. Res. 39 (3), 365–393. https://doi.org/10.1111/hcre.12008" \o "10.1111/hcre.12008"10.1111/hcre.12008.

Van Doorn, J., Lemon, K.N., Mittal, V., Nass, S., Pick, D., Pirner, P., Verhoef, P.C., 2010. Customer engagement behavior: theoretical foundations and research directions. J. Serv. Res. 13 (3), 253–266. https://doi.org/10.1177/1094670510375599.

White, W., 1980. A heteroscedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity. Econometrica 48 (8), 817–838.