

The effects of the visual presentation of an Influencer's Extroversion on perceived credibility and purchase intentions—moderated by personality matching with the audience

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ABSTRACT

Influencers are ordinary individuals who have amassed large followings by demonstrating expertise in various Social media marketing niches on social media sites. We aim to propose (1) the visual presentation of an Influencer's extroversion as an Personality antecedent to source credibility and purchase intentions and (2) personality matching in terms of extroversion between an Influencer and their audience as a moderator of such relationships. We chose the source credibility model and the similarity-attraction model as our theoretical frameworks. In our controlled online experiment (n = 165), the profile of a brand ambassador of a fashion brand was curated to create two levels of extroversion (i.e. low vs. high extroversion). Participants' self-reported extroversion levels were counterbalanced in these two conditions to create a personality match with the Influencer, entitled "extroversion congruence." Our results suggest that the visual presentation of an Influencer's extroversion increases the perceived credibility of the Influencer and subsequent purchase intentions. Additionally, our findings show that these relationships were asymmetrically moderated by extroversion congruence: the positive effects of extroversion increase in the case of high extroversion among both the Influencer and their audience but decrease in the case of low extroversion.

1. Introduction

"Influencers" are ordinary individuals—not celebrities—who have amassed large numbers of followers on social media sites by demonstrating their expertise in various niches (Cotter, 2019). The growth of mobile applications for image-sharing, such as Instagram, has fueled the rise of Influencers (Marwick, 2013). These Influencers have surpassed celebrities as the favorite social media personalities among millennials, who have represented the largest purchasing age group in the US since 2019 (Fry, 2020). Recognizing millennials' purchasing power, brand managers often collaborate with Influencers in the hopes of connecting with large crowds of target consumers (Abidin, 2018). One example of this approach is the beauty brand Glossier, which enlists make-up experts to showcase products on social media sites (Ravi, 2018). Glossier is valued at 1.2 billion USD as of November 2019 (Roof and Chernova, 2019).

Nonetheless, academic research on Influencers is lacking in three intertwined aspects. Firstly, very few empirical studies have investigated how the visual presentation of Influencers' *personality traits* cause them to be perceived as more credible by their audiences (Chae, 2017). Secondly, the role of a personality match in terms of an Influencer's extroversion and their audience's—that is, *extroversion congruence*—in augmenting or diminishing the positive influence of extroversion is not currently known (Montoya and Horton, 2013). Thirdly, a *theoretical mechanism* through which the visual presentation of an Influencer's extroversion affects their credibility (Ohanian, 1990), and subsequent purchase intentions, among their audiences is yet to be fully explicated. The absence of a proper theoretical framework hinders the advancement of knowledge in the field of Influencer marketing.

To close these three gaps in the extant literature, we employ two theories: the source credibility model (SCM; Ohanian, 1990) and the similarity-attraction model (SAM; Byrne et al., 1967). The SCM enables us to fill the first and third gaps as the model illustrates the antecedents and outcomes of credibility (Ohanian, 1990). The SAM allows us to fill in the second gap as this model stipulates that similar personality traits are attractors for interpersonal relationship building (Youyou et al., 2017). Based on these two frameworks, we investigate the main effects of the visual presentation of an Influencer's extroversion on credibility and purchase intentions. We also examine the moderating role of extroversion congruence on this relationship. The extent to which the visual presentation of an Influencer's extroversion affects purchase intentions through credibility depends on the extroversion congruence between an Influencer and their audience.

To achieve these goals, we employed an online experiment. One hundred and sixty-five females who were Instagram users and familiar with our chosen brand were recruited to participate. Our chosen brand was Lululemon

Athletica given its widely known success with Influencer marketing campaigns (Mainwaring, 2018). We chose a Lululemon brand ambassador as an Influencer and curated her profile to create two levels of extroversion. We counterbalanced the participants in the two conditions based on their self-reported extroversion levels to create the extroversion congruence.

The remainder of this paper is organized as follows. In the subsequent section, we identify the gaps in the literature on Influencers, describe the importance of each gap in the retailing research, and justify our primary objectives. The next section integrates findings from the prior studies on the SCM and SAM into the context of Influencer marketing to develop our hypotheses. The following section details our methodology, including unbiased development of stimuli, multiple pilot tests, rigorous sampling, and experimental procedures. Then, we present our hypothesis testing results using moderation, mediation, and moderated mediation analyses, which disclose an unexpected asymmetric effect of extroversion congruence. These findings are discussed in the subsequent section, followed by the limitations of and contributions arising from this study as well as suggestions for future researchers.

1.1. Gaps in the literature and research objectives

Attesting to the rapid increase of Influencer marketing in the past few years, many prior researchers have paid attention to Influencers (such as, Abidin and Thompson, 2012; Casalo et al., 2020; Djafarova and Trofimenko, 2019; Khamis et al., 2016; Ki and Kim, 2019, and Torres et al., 2019). The first strand of existing research focuses on the sociological and anthropological aspects of Influencers (Abidin and Thompson, 2012; Khamis et al., 2016). This aspect examines how Influencers construct their identities, symbolize their fashion and lifestyle choices, and impact young audiences in their identity developments. These studies tend to be qualitative and attempt to define Influencers in the context of contemporary culture.

The second strand of research views Influencers as endorsers of brands and examines how Influencers can improve purchase intentions (Breves et al., 2019; Casalo et al., 2020; Djafarova and Trofimenko, 2019; Ki and Kim, 2019; Torres et al., 2019). Casalo et al. (2020) and Djafarova and Trofimenko (2019) compared the effect of Influencers' messages against mainstream celebrities and have identified the characteristics of Influencers that make viewers perceive them as credible. Giakoumaki and Krepapa (2020) showed that Influencers' messages were more effective in producing brand engagement than actual brand posts. Torres et al. (2019) found positive effects of congruence between a given Influencers and the endorsed brand on purchase intention. Breves et al. (2019) suggested that an Influencer's likability and congruence with a brand improve brand attitude and purchase intention. Ki

and Kim (2019) showed that the perceived taste leadership of Influencers increases the desire to mimic them, which increases purchase intention.

Although these prior studies have provided insightful findings, the following three unexplored areas stand out. Firstly, *personality traits as an antecedent to the perceived credibility of Influencers* are yet to be fully explicated; this is a significant gap because the credibility of a message source determines the effectiveness of a celebrity endorsement (Ohanian, 1990). While Influencers are not celebrities, they nonetheless build a fanbase of followers, and thus the paradigms of celebrity endorsement are applicable to them (Khamis et al., 2016). Some antecedents have been linked to the perceived credibility of Influencers, including the fit between the Influencer and the brand (Breves et al., 2019), the Influencer's disclosure of brand sponsorship (De Jans et al., 2018), the type of Influencer (e.g. mainstream celebrity or a micro-celebrity; Jin et al., 2019), and para-social interactions with an Influencer (PSI); imagined personal relationships with media characters as if they are real individuals; Jin and Ryu, 2020). Social media increases the realness of an Influencer's lifestyle, which in turn increases feelings of benign envy and subsequently purchase intentions (Jin and Ryu, 2020). Despite the extensive literature on antecedents to credibility, how Influencers' extroversion affects their perceived credibility remains less explored. Nonetheless, a source's extroversion is known to prompt positive persuasive outcomes (Matz et al., 2017) and is predictive of communicator effectiveness (Heisel et al., 2003), impression formation (Van Der Heide and Lim, 2016), and audiences' receptiveness to messages (Chen and Lee, 2008). Therefore, identifying a source's extroversion as an antecedent to perceived credibility is important for studying Influencers' effectiveness.

Secondly, *the moderating impact of the extroversion congruence* between an Influencer and their audience on the Influencer's perceived credibility remains unknown. Broadly speaking, the *congruence* between Influencers and their audiences has been noted as an important moderator, and homophily between a consumer and the Influencer increases the Influencer's credibility and the consumers' purchase intentions (Sokolova and Kefi, 2020). Ladhari et al. (2020) posited that Influencers who look similar to oneself induce a unique emotional attachment and the perception of popularity on social media platforms, both of which in turn increase purchase intentions (Ladhari et al., 2020). Yet the effects of congruence in terms of personality traits are not known, even though personality fit has long been noted in the context of interpersonal relationships. In general, extroverted people prefer to interact with other extroverted people, and vice versa, because having similar personality traits increases the chance of acceptance and reduces the likelihood of social ridicule or rejection (Byrne et al., 1967). What should be noted is that Influencers have many followers and thus can rarely have one-on-one interactions with followers. It is currently undocumented whether only visually presented personality fit construed on digital platforms in the absence of present and prospect personal interactions affects audiences' perceptions of Influencers.

Thirdly, existing studies have not examined a *theoretical mechanism* through which the visual presentation of Influencers' extroversion on social media increases audiences' intentions to purchase the endorsed brand (Barrick et al., 1993; Stewart, 1996). Exploring this topic is important due to the growth of image-sharing social media applications (e.g. Instagram) within young audiences (Perrin and Anderson, 2019). Instagram is the most popular platform for fashion brands and lifestyle marketing (Statista, 2019). Sixty-seven percent of individuals aged 18–29 years old in the US use Instagram (Perrin and Anderson, 2019) and are more likely to make purchases from their phones than any prior age group (Nielson Research, 2019). Recognizing these patterns, Instagram allowed direct purchases from selected Influencers' posts in 2019 (Lorenz, 2019). Instagram differs from other platforms in that interactions occur via visual content (e.g. by exchanges of images) without any text or hashtags (Song et al., 2018). Ki et al.'s (2020) study outlined the impact of Influencers' visual presentation on their audiences. Specifically, they found that the visual aesthetics of the Influencer's profile, the informativeness of the content, and the displayed level of expertise all make audiences inspired and feel related and attached to the Influencer (Ki et al., 2020). When these visual factors fulfill the audiences' desire for ideal self and competence, the adoption of the Influencer's recommendations becomes more likely (Ki et al., 2020). This

study is an expansion of that of Ki and Kim (2019) identifying the three visual factors leading to taste leadership (i.e., physical attractiveness, expertise, and perceived prestigiousness). Despite Ki et al.'s and Ki and Kim's innovative approaches, their visual factors did not include extroversion. Thus, it is pertinent to investigate how the visual presentation of extroversion influences audiences' intentions to purchase the endorsed brand.

In this study, we aim to fill these gaps: (1) extroversion as an antecedent to credibility, (2) the moderating effects of extroversion congruence, and (3) the effects of the visual presentation of an Influencer's extroversion on viewers' purchase intentions. To do so, we investigate how the visual presentation of an Influencer's extroversion (henceforth VPiE) increases credibility and thus has an indirect positive impact on purchase intentions. In addition, we will examine whether extroversion congruence moderates (i) the positive influence of VPiE on credibility and (ii) the extent to which VPiE has indirect effects on purchase intentions through augmenting or diminishing credibility.

1.2. Theoretical framework and hypothesis development

Fig. 1 presents our research model entailing our five hypotheses. We developed these hypotheses based on the SCM (H1, H3, and H4) and SAM (H2 and H5) and expanded both models in doing so. Detailed descriptions of the SCM and SAM and our hypotheses development are provided below.

1.3. Visual presentation of Influencer's Extroversion as an antecedent to credibility

According to the SCM (Ohanian, 1990), a source is evaluated in line with three dimensions: trustworthiness, expertise, and physical attractiveness. While attractiveness refers solely to the perception of physical appearance, expertise and trustworthiness relate to character and are often combined to refer to "credibility" (Rifon et al., 2016). As such, source credibility is defined as a combination of expertise and trustworthiness, namely having skills in a specific area that are trusted (Rifon et al., 2016; Till and Busler 2000). Celebrity endorsement literature has identified several antecedents to source credibility, including being wise and humble (Rifon et al., 2016), a match between the ideal self of the audience and the source's image (Choi and Rifon, 2012), and the alignment between the brand and the sources' public images (Beldad et al., 2010). However, personality traits have not yet been proposed as an antecedent to perceived credibility in research on the effectiveness of celebrity endorsement in general and Influencers' endorsement in particular.

We argue that VPiE is positively associated with increases in audiences' perceptions about the Influencers' credibility. Extroversion is specifically defined in terms of sociality, outgoingness, enthusiasm, or being "the life of a party" (Donnellan et al., 2006). Extroversion facilitates interpersonal relationship building and marketing outcomes. Extroverted individuals are perceived as more approachable and easier to befriend (Eysenck et al., 1985). Extraverts convey human warmth that is linked to the ability to connect with people and make them feel at ease, and people demonstrating high levels of extroversion possess a higher degree of social magnetism (Akert and Panter, 1988). Previous studies indicate a positive association between a source's extroversion and receivers' affect towards that source. For instance, a meta-analysis (Bono and Judge, 2004) discovered extroversion to be the most consistent predictor of charismatic leadership in terms of the ability to inspire followers and motivate peers (Shamir et al., 1993). Especially, source extroversion has more positive effects on a low-involvement persuasion appeal that focuses on the heuristics of the source rather than on the quality of an argument within the appeal (Oreg and Sverdluk, 2014).

For these reasons, extroversion is often associated with trust (Lucas et al., 2008), which overlaps with one of the two aspects of credibility defined above (Rifon et al., 2016). Outgoing individuals are assumed to be more truthful (Thielmann and Hilbig, 2015), and extroverted online retailers are trusted more (Oreg and Sverdluk, 2014). The social approachability of the highly extroverted causes audiences to assume that their communicative excellence extends to a general knowledge of any domain and thus makes them appear trustworthy (Gnamb and Batinic, 2012). It is presumably due to these reasons that extroverted persons on online social networks tend to have higher

numbers of friends or followers and a higher response rate on their posts (Dunbar et al., 2015; Tong et al., 2008). This empirical evidence of the positive effects of extroversion on communicator effectiveness (Heisel et al., 2003), impression formation (Van Der Heide and Lim, 2016), and audiences' receptiveness to messages (Chen and Lee, 2008) supports our assertion of the positive influence of VPIE on Influencers' perceived credibility among their audiences.

However, some may question whether audiences can easily ascertain Influencers' levels of extroversion from images posted on Instagram without interpersonal interactions. Prior research addresses this. Olderbak et al. (2017) argued that extroversion is one of the most accessible personality traits to detect even at zero-acquaintance. Cues for extroversion in an individual are salient: displaying positive facial expressions, laughing and talking, engaging in confident poses, and appearing relaxed in their surroundings (Borkenau et al., 2009). Using these cues, audiences can judge the personality of a source to a reliable degree merely from photographs of the source (Gosling et al., 2011). Accordingly, we expect that audiences are able to judge Influencers' extroversion from their images posted on Instagram and that the perceived extroversion of these Influencers is positively associated with perceived credibility.

H1. The visual presentation of an Influencer's high level of extroversion, as opposed to a low level of extroversion, will increase the perceived credibility of the Influencer among their audience.

1.4. Moderating role of extroversion congruence between influencer and audiences

We argue that the magnitude of the aforementioned effect of VPIE on credibility is contingent on the extent to which audiences' extroversion levels are congruent with Influencers', based on the SAM. The SAM is a long-established paradigm in psychology that states that people are attracted to others who share similar characteristics (Byrne et al., 1967). Initially, this model was applied to studies of interpersonal relationships, but it has since been adopted for organizational communication and computer-mediated communication studies as well (Montoya and Horton, 2013). Personality similarity promotes attraction in interpersonal relationships (Olderbak et al., 2017). In face-to-face transactions, perceived extroversion contributes to the success of sales representatives, and this success is amplified by personality congruence with consumers (Teng et al., 2007). In the celebrity endorsement context, the greatest effects of celebrity endorsement result from a brand-source-audience congruence (Choi and Rifon, 2012). When an audience identifies with the celebrity source who has congruent images with the brand (i.e. audience-source-brand congruence), the audience's positive attitude toward the brand increases (Lee and Thorson, 2008).

In social media, people also follow others who are like them in terms of interests and preferences (Aiello et al., 2012). Followers usually share similar

post was high in openness as well (Chen et al., 2015). This result indicates that a perceived personality similarity with the post originator increased the audiences' engagement with the post. A field experiment on Facebook displayed that sending congruent high-extroverted or low-extroverted advertisements to individuals with corresponding levels of extroversion increased their click-through rates and purchase intentions (Matz et al., 2017). Based on this finding, Matz et al. (2017) proposed matching message personality with that of the target audience to increase followers' engagement and conversion rates.

In sum, both the SAM and the prior studies in the relevant fields described above (albeit not directly on Influencer marketing) provide potential support for the positive effects of VPIE. Accordingly, we argue that the extroversion congruence between an Influencer and their audience will augment the positive influence of VPIE on credibility, thereby causing audiences to perceive the Influencer as more credible.

We therefore argue the following:

H2. The visual presentation of an Influencer's high level of extroversion, as opposed to a low level of extroversion, will increase the Influencer's perceived credibility when the Influencer's and their audience's extroversion levels are congruent rather than incongruent. *1.5. Influence of credibility on intentions to purchase the endorsed brand*

Brands' goals from Influencer marketing are to ultimately increase their sales (Alalwan et al., 2017); as such, it is essential to understand the effects that Influencer marketing has on audiences' purchase intentions. To this end, we assert that the credibility of an Influencer will lead to an increase in the audience's intentions to purchase the brand endorsed by the Influencer.

The source credibility model (Ohanian, 1990) provides theoretical support for the positive effects of source credibility on purchase intentions. When audiences perceive the message source as credible, they become more inclined to purchase the brand that the source endorses (Pornpitakpan, 2004). When consumers believe that an endorser is credible, they feel that the brand they are endorsing has similarly positive qualities (Spry et al., 2011). As a result, credibility of the source transfers to the brand (Lafferty et al., 2002), and audiences' adoption of their word-of-mouth and product choices increases (Lee and Thorson, 2008). When celebrities associate themselves with a product or a brand, audiences assume that the celebrity genuinely likes and trusts the brand; if the celebrity seems to be sincere, consumers are more likely to be persuaded by their endorsement even if it is motivated by financial incentives from the brand (Boerman et al., 2017).

Audiences believe that a credible Influencer would only accept sponsorship deals from equally reputable brands. This partly explains why Influencers are effective in increasing purchase intentions even when their followers know that they are being sponsored by brands. Even with sponsorship disclosures, consumers react to endorsements with increased purchase intentions as long

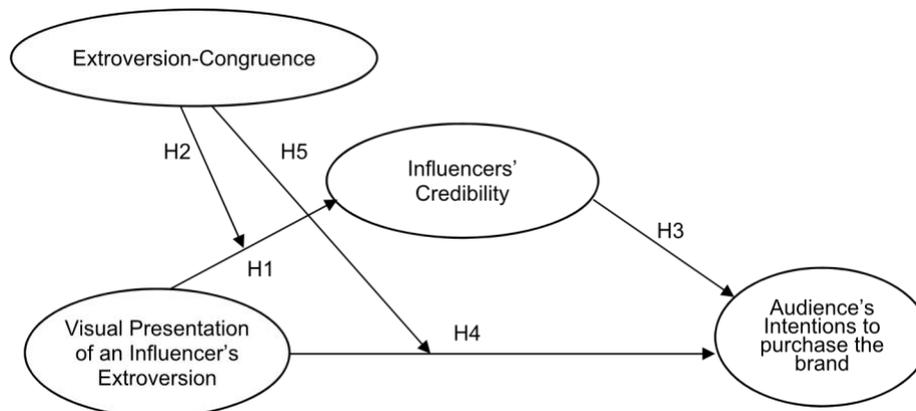


Fig. 1. Research model.

personality traits with the popular accounts they follow (Youyou et al., 2017). A field experiment on Twitter discovered that users with higher openness to experience responded more positively to promotional posts if the tone of the

as they perceive the endorser to be credible (Boerman et al., 2012). This association can also explain why Instagram Influencers are sometimes more effective than mainstream celebrities in fostering positive attitudes towards

products because Influencers are perceived more genuine and credible than celebrities (Jin et al., 2019). Based on the tenets of the SCM and empirical support from earlier studies, we argue that Influencers' credibility will increase their audiences' intentions to purchase the endorsed brand.

H3. Perceived credibility of an Influencer will increase their audiences' intentions to purchase the brand endorsed by the Influencer.

Indirect Influence of the Visual Presentation of an Influencer's Extroversion on Purchase Intentions through Credibility.

We assert that there are indirect positive effects of VPIE on audiences' purchase intentions through credibility. Namely, we suggest that credibility mediates the influence of VPIE on purchase intentions: the audience must perceive the Influencer as credible in order to be inclined to purchase the endorsed brand. Although credibility is often depicted as a direct predictor of outcomes such as purchase intentions, credibility also transfers the effects of other antecedents onto these outcomes. Therefore, we anticipate that extroversion—a factor that we claim enhances credibility—will also have an indirect effect on purchase intentions by positively influencing credibility.

Although none of the literature has demonstrated the mediating role of credibility on a source's extroversion and consumers' purchase intentions, past research supports the mediating function of credibility between communication strategies and persuasive outcomes. For example, perceived credibility of the message source mediates the effect of message quality on consumers' attitude change towards the product (Slater and Rouner, 1996). Winterich et al. (2018) investigated the mediating role of source credibility between an advertisement and its persuasive outcomes while controlling for source attractiveness. They indicated that the persuasive effect of an advertisement on brand attitude was greater when perceived credibility was high, even if attractiveness was unchanged (Winterich et al., 2018). Even in enhancing brand reputation, a spokesperson's perceived credibility mediates the impact of crisis communication strategies on audiences' trust in the brand (Van Zoonen and Van Der Meer, 2015). The credibility of a source mediates the effect of product placement on audiences' purchase intentions (Russell and Rasolofoarison, 2017). Applying this tenet to Influencer marketing, proper and strategic curation of social media posts can enhance the perceived credibility of a source, which mediates the effects of the posts on consumers' acceptance of Influencers' product endorsements (Luo et al., 2013). These results from prior studies imply that desired persuasive outcomes can be achieved through improving the perceived credibility of a message source.

Based on empirical support for the mediating functionality of source credibility with regard to various persuasive and marketing outcomes, we argue that VPIE affects audiences' purchase intentions through perceived credibility. As such, we propose the following:

H4. The visual presentation of an Influencer's high-level extroversion, as opposed to a low level of extroversion, will have indirect positive effects on their audience's purchase intentions towards the brand via the perceived credibility of the Influencer.

Note that we have hypothesized the moderation effects (H2) and the mediation effects (H4) above. Based on our logic for developing both H2 and H4, we argue that moderated mediation effects, namely the indirect effects of VPIE on purchase intentions, are contingent upon extroversion congruence between the Influencer and their audience. We propose that the indirect effects of VPIE on audience purchase intentions due to perceived credibility will increase when there is extroversion congruence to a greater degree than when there is extroversion incongruence. In other words, the extent to which VPIE increases purchase intentions through increased credibility will be greater when an Influencer's and their audiences' extroversion levels match rather than mismatch.

H5. The mediation effect of credibility will be stronger when the Influencer and their audience's extroversion levels are congruent rather than incongruent.

2. Method

2.1. Experiment design

The brand we selected for this study is Lululemon Athletica (Nasdaq: LULU), which specializes in high-end activewear and particularly yoga and fitness apparel. The company reported revenues of 3.3 billion USD in 2018, which represents a 27% growth from their 2.6 billion USD revenue in 2017 (Yahoo! Finance). Lululemon is a brand that was established during the digital age, and it flourishes by relying on digital marketing techniques (John et al., 2017). Lululemon has been noted for its effective use of Influencers, including its official brand ambassadors program that was created to popularize the brand (The Economist, 2018). We chose to study an Influencer who is a Lululemon brand ambassador because fashion and fitness are among prominent niches for Influencer marketing (Djafarova and Rushworth, 2017). The official list of brand ambassadors on Lululemon's webpage allowed us to easily compile a selection of suitable Influencers. These Influencers primarily consist of yoga trainers and professional athletes who have large numbers of Instagram followers.

We conducted an online experiment to test our hypotheses while controlling for other extraneous variables, such as the number of followers, followings, and comments and direct messaging that could easily confound the results in a field study. We aimed to identify only the effects of extroversion visualized in photos, and it was thus essential to keep other interactions consistent between the conditions while maintaining ecological validity. We employed a 2 x 2 full factorial design with two between-subject factors: Influencer's extroversion (low and high) and respondents' self-extroversion (low and high). Fig. 2 presents our experiment design. Nine posts (i.e., images posted by the Influencer), in addition to the common profile picture, were shown to the participants in each condition. Thus, the participants in each condition saw 10 photographs posted by the Influencer.

Manipulation (i.e., Stimuli Development) of the Influencer's Extroversion.

The two levels of Influencer's extroversion were developed as follows. Firstly, two undergraduate students at a large public university in the Midwest reviewed the Lululemon brand ambassadors' Instagram profiles to identify one that could be presented as either high or low in extroversion. They were not aware of the research objectives or hypotheses. The Instagram personality that was selected was @Lizletchford, who had 8700 followers on Instagram at the time of this study. For categorization of images into higher or lower visualized extroversion, we instructed the two coders about the characteristics of extroversion. Extroversion cues are sociability (being with friends), facial positivity (i.e. smiling and laughing), having direct eye contact with the viewers, and demonstrating confident poses (La France et al., 2004; Matz et al., 2017; Mehdi-zadeh, 2020). Conversely, cues associated with lower extroversion are downward gaze, being alone, and neutral facial expression. Based on these guidelines, the independent coders categorized a random sample of pictures from the Lululemon Influencer, producing nine pictures per category. Photos in the higher-extroversion condition had images with the Influencer smiling, looking directly at the camera, and with friends around, while photos in the lower-extroversion condition portrayed the Influencer looking away from the camera, alone, and without showing sociable expressions. All of the 18 images included the Influencer wearing clothing by Lululemon.

Subsequently, an independent panel of 15 other undergraduate students, also unaware of the research hypotheses, coded each of the 18 screenshots from @Lizletchford's account using the following coding scheme: 1 = high extroversion, 2 = low extroversion, 0 = no personality cue. We employed these wordings instead of "extroversion" and "introversion" to avoid the negative connotation of "introversion." The coding panel came to a high degree of agreement. Cohen's Kappa square indicated an acceptable level of inter-coder reliability (0.81). We thus created two conditions for Influencer's extroversion: nine Instagram posts for high extroversion and nine posts for low extroversion. All undergraduate research participants were rewarded with course credit.

Manipulation (i.e., Participant Assignment) of the Audience's Extroversion Levels.

In order to create two levels of the participants' extroversion, we conducted a pilot study (n = 49) the participants whose demographic factors

were similar to those in the main experiment. The main purpose of this pilot test was to obtain an average score for respondents' self-reported extroversion, which we would use later as the threshold to assign them into either the low or the high level of extroversion. The mean score for self-extroversion among respondents was 2.9 out of 5.0 (where 5 = highly extroverted and 1 = not at all extroverted). This score is identical to what was found in a previous national survey (Furnham and Cheng, 2018). Other national samples have found mean scores for extroversion ranging between 16 and 22 out of 30, which are equivalent to 2.66 to 3.66 on a five-point scale (Lynn and Martin, 1995). As such, we used 2.9 as the threshold to assign respondents to either a low or a high level of audience extroversion.

2.2. Sample and procedures for the main experiment

The main experiment's participants were 165 females ($M_{Age} = 28.43$) recruited from Qualtrics, an online panel service provider. We employed Qualtrics to avoid the limitations associated with using a student pool (Peterson and Merunka, 2014). Each participant received a monetary reward based on their contract with Qualtrics. All the participants were U.S.-based to avoid vast differences in Instagram use and cultural values. Table 1 demonstrates the demographic factors of our respondents.

Those who consented to participate in the experiment were asked to indicate if they were familiar with Instagram and Lululemon. Only those who were familiar with both were recruited to proceed. Participants then undertook a pre-test on their own extroversion scale, which we used to assign them to the two levels of self-extroversion. The threshold for categorization into the two levels was 2.9/5.0, as described above. Depending on their extroversion levels, participants were counterbalanced according to the two conditions of the Influencer's extroversion to create the extroversion congruence (Fig. 2). Specifically, the cases wherein participants were assigned to the matching Influencer's extroversion condition constituted extroversion congruence. The cases wherein participants were assigned to the non-matching level of the Influencer's extroversion constituted extroversion-incongruence.

(Whelan and Davies, 2006). The extroversion subscale, as an individual-difference variable, has been used in retailing research to predict subjective consumer tendencies such as impulsive buying (Badgaiyan and Verma, 2014) and information sharing (Dixit et al., 2019). The scale has also been used to measure brand personality (Geuens et al., 2009) and to estimate how a brand's perceived personality affects brand attachment (Dwivedi et al., 2018). Additionally, it has been used to measure the perceived personality traits of endorsers and representatives online and offline (Echchakoui, 2017; Gosling et al., 2011). Examples of statements on the subscale are as follows: "She is a sociable, talkative person" and "She is easy to get to know."

Perceived credibility was measured using Ohanian's (1990) 10-item scale measuring trustworthiness and expertise on a 7-point Likert scale (Ohanian, 1990). The scale used semantic-bipolar statements to assert credibility; examples of these statements are "I find the source to be untrustworthy/trustworthy; insincere/sincere; unknowledgeable/knowledgeable." Ohanian's (1990) scale has been commonly used in prior research covering the effects of celebrity endorsements. It has also been used to measure the acceptance of online recommendations (Senecal et al., 2002), purchase intention (Pei et al., 2014), and attachment to a celebrity (Saldanha et al., 2018).

Purchase intentions were measured on a 7-point Likert scale using the four items from Jamieson and Bass (1989). The scale asked, "How confident are you that you are going to buy a product from Lululemon in the near future?" with responses including probably not/probably, definitely not/definitely, and unlikely/likely (Jamieson and Bass, 1989). Although purchase intention does not equate to actual purchase, the scale for intentions can measure the state or concurrent effectiveness of brand or product presentation in the e-commerce environment (Kim, 2018). The current scale gives a range of possible answers that can capture the effectiveness of ads across different respondents (Bergkvist and Rossiter, 2008).

For control variables, participants were asked to indicate their demographic factors for age, education, ethnicity, and marital status. Participants were also asked to rate the perceived attractiveness of the Influencer. We included this question to ensure that perceptions of the Influencer's

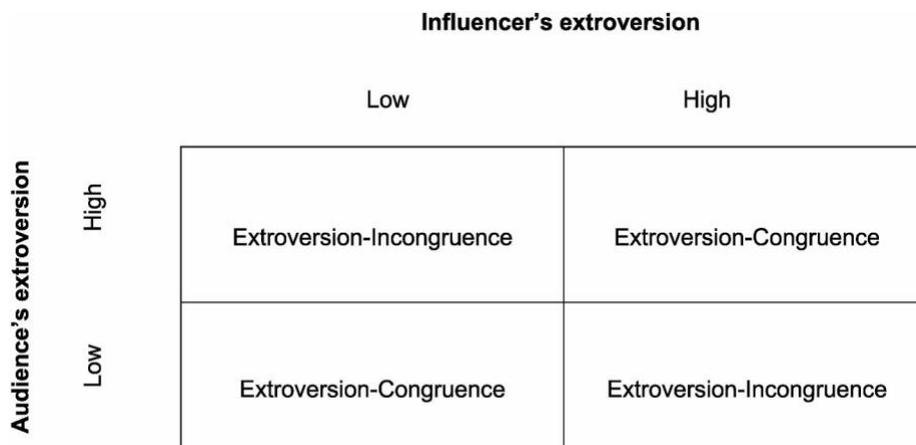


Fig. 2. Experiment design and operationalization of extroversion-congruence.

Participants were instructed to review their assigned experimental stimuli for at least 30 s (with no maximum length imposed). Subsequently, they were asked to complete a questionnaire about the Influencer's extroversion and the dependent variables.

2.3. Measures

We used measures that were validated in prior studies (Table 2). The levels of participants' extroversion and the perceived Influencer's extroversion were measured on a 5-point Likert scale with the extroversion subscale from the shortened Big-Five personality scale (Gosling et al., 2011). The Big-Five measures have been widely employed in marketing and retailing research for consumer psychographic analysis as well as to measure consumers' preferences and predispositions towards brands and product categories

attractiveness did not differ greatly across the two conditions of the Influencer's extroversion despite utilizing only one Influencer. The Influencer's attractiveness was measured using Ohanian's (1990) 7-point Likert scale, including indicators such as unattractive/attractive, ugly/beautiful, and not classy/classy. In addition, we added the respondents' own body satisfaction because it may have affected their perceptions about this study's Influencer, who is a physically fit yoga enthusiast. The measure for body satisfaction was evaluated using Garner, Olmstead, and Policy's (1983) 8-item body satisfaction index on a 7-point Likert scale, which included the statements "satisfied with the shape of my body" and "my thighs are just the right size." This scale (Garner et al., 1983) has been used in communication and media research to assess the effects of media exposure on eating disorder and exercise habits (Harrison and Cantor, 1997).

3. Results

3.1. Manipulation check

Our manipulation check indicated a significant difference between the two conditions of the Influencer's extroversion ($t(163) = -3.78; p < .001$), supporting that our manipulation of the Influencer's extroversion was successful. In addition, we ensured that the two conditions of the Influencer's extroversion were equal in all other variables by conducting a series of t-tests on the perceived attractiveness of the Influencer, demographic factors, respondents' extroversion, and body satisfaction index (Table 3). The results demonstrated that there was no significant difference in other variables between the two conditions of the Influencer's extroversion.

We also ran the same t-tests for the two conditions of the respondents' self-reported extroversion. The respondents' extroversion was significantly different ($t(163) = -19.047, p < .001$) between the two groups, which indicates that our manipulation of the respondents' extroversion level was successful. Moreover, the median score was 2.9 (Standard deviation [SD] = 0.97), consistent with our pilot test result and the national survey results, as described above. All other variables displayed non-significant differences between the two groups, with the exception of the body satisfaction index. In general, highly extroverted people tend to be more satisfied with their bodies than their introverted counterparts (Frederick et al., 2016). Accordingly, the participants in the high extroversion condition indicated higher levels of body satisfaction than those in the low extroversion condition ($t = -5.383, p < .001$). Therefore, in the subsequent analyses, we controlled body satisfaction index to prevent this variable from confounding our hypothesis testing results.

3.2. Instrument validations

The means, SDs, and correlations of the constructs used for hypotheses testing are presented in Table 4. We examined the convergent and discriminant validity and reliability of the four multi-item constructs (i.e. body satisfaction index, Influencer's extroversion and credibility, and purchase intentions). As demonstrated in Table 5, all of the Cronbach's alphas and composite reliabilities are above 0.85, with the majority being higher than 0.90, indicating that the measurements are reliable and internally consistent (Chin, 1998). For discriminant validity, all items are loaded into their intended constructs only, and the item-to-total correlation scores are above 0.65, indicating that all items converge cleanly on their intended constructs (Table 4). Moreover, the square roots of the average extracted variance of all four variables are above 0.50 and are at least 0.10 greater than the intercorrelations with other variables (Table 5).

3.3. Hypothesis testing

Models were estimated using ordinary least squares hypothesis testing. Because errors do not propagate across equations in single-equation models (e.g., ordinary least squares estimations), single-equation estimates are more robust than systems estimation for sample sizes less than 200 (Gefen et al., 2000). Hence, we chose ordinary least squares and then applied a systems estimation (i.e., Hayes' PROCESS) as a robustness check.

Hypothesis tests were accompanied with a battery of model diagnostics, including Shapiro-Wilk W , Cameron and Trivedi's IM tests of normality (2013) and independence of regression errors, and White's (1980) test for heteroskedasticity. Most models resulted in non-normal errors based on the Shapiro-Wilk W test. Visual inspection of normality was hence further assessed using Q-Q plots, kernel density plots, and scatter plots of predicted values and residuals. Visual inspection displayed approximal normality in errors and revealed no evident structural breaks or influential outliers. To further test model validity, variance inflation factors (VIFs) were calculated; mean VIF values remained under 3 with the exception of models with interaction terms, where VIF values are expected to be high due to multicollinearity between the

base variables and their interactions. These results confirm that our data met the assumptions for conducting regression analyses.

Our first hypothesis, H1, states that an Influencer's extroversion (IE) will lead to an increase in their credibility (IC) as perceived by the audience. The results are presented in Table 6. Model 1 is our base model and includes only the control variable of body satisfaction. Meanwhile, Model 2 includes the independent variable, namely the Influencer's extroversion, and indicates a positive significant coefficient of the Influencer's extroversion (0.684, $p < .001$). This has a pronounced effect on the model fit over that of the body satisfaction index alone because Influencer's extroversion explains 88% of the model's predicted variation. Therefore, our hypothesis H1 is supported.

Our second hypothesis, H2, states that the positive influence of an Influencer's extroversion on the audience's perception of their credibility will be moderated by extroversion congruence (EC). To test the moderation effects, we followed the procedure proposed by Muller et al. (2005). Model 3 in Table 6 includes the base term (i.e. extroversion congruence) and the interaction term (i.e. EC * IE). The results display a significant co-efficient for the moderator ($-1.405, p < .05$) and the interaction term (0.360, $p < .005$). These results support the moderation effects of extroversion congruence on the impact that the Influencer's extroversion has on her perceived credibility. However, given that the F-statistic declined from Model 2 to Model 3 (despite the R^2 measure of model fit increasing), we used the likelihood-ratio (LR) test to ensure the significance of the moderator. The LR test of model restrictions is robust to non-normality of error terms (Kennedy, 2003) and is hence preferred over a standard F joint coefficient test of significance. The test result demonstrates that the moderator is significant at the 10% level (LR $\chi^2(2) = 4.65, p < .10$).

It is important to note that the co-efficient of the base term EC is negative ($-1.405, p < .05$), while that of the interaction term (EC * IE) is positive (0.360, $p < .005$). These seemingly counterintuitive results have the following implications (Fig. 3). The line chart in Fig. 3 illustrates the predicted values of the Influencer's credibility at different values of the Influencer's extroversion (x-axis). The estimated moderator and interaction coefficients cause the baseline prediction to shift in two ways. Firstly, the extroversion congruence coefficient shifts the blue line downwards (as indicated by the blue arrows). This conveys that congruence has the effect of shifting perceived credibility down, holding constant the interactive effect. This is counterintuitive until considered in relation to the second effect. The interactive effect increases the slope of the relationship (as indicated by the orange arrows) in accordance with the IE * EC coefficient. It is hence evident that congruence increases the predicted credibility of the Influencer when her extroversion is perceived as high and matches the high extroversion level of the audience. Simultaneously, congruence decreases credibility when the Influencer's extroversion is perceived as low and matches with her audience's low extroversion level. When analyzed together, these two results suggest that congruence has asymmetric effects on credibility that are contingent upon the valence of the congruency: a congruence of high extroversion vs. that of low extroversion. Only when both the Influencer and her audience have high extroversion levels does the congruence induce an increase in the Influencer's perceived credibility among her audience. When both the Influencer and her audience have low extroversion levels, however, the audience's perceived credibility of the Influencer decreases.

Hypothesis 3 states that credibility is positively associated with an increase in the audience's purchase intentions. These results are presented in Table 7. Model 1 is our base model and includes a control variable. Model 2 incorporates the Influencer's credibility, which has a positive and significant coefficient of credibility (0.892, $p < .001$); an addition of this factor accounted for 64.3% of the overall model variation. Therefore, H3 is supported.

Hypothesis 4 states that credibility mediates the impact of the Influencer’s extroversion on audiences’ intentions to purchase the endorsed brand. Our hypothesis testing results are presented in Table 8. As Baron and Kenny (1986) assert, there are four steps to be met in establishing full mediation:

- Step 1: The Influencer’s extroversion affects purchase intentions in the absence of credibility (Model 1).
- Step 2: The Influencer’s extroversion is associated with credibility (Model 2).
- Step 3: Credibility affects purchase intentions in the presence of the Influencer’s extroversion (Model 3).
- Step 4: The Influencer’s extroversion no longer affects purchase intentions in the presence of credibility (Model 3).

If the four steps above are all fulfilled, the Influencer’s credibility fully mediates the effect of the Influencer’s extroversion on purchase intentions. Step 1 is met given that the coefficient of extroversion (in the absence of the Influencer’s extroversion) is significant and positive (0.693, $p < .01$ in Model 1). Step 2 is also met as the coefficient of the Influencer’s extroversion is significant and positive (0.684, $p < .001$ in Model 2). The coefficient of credibility in the presence of the Influencer’s extroversion is positive and significant (0.844, $p < .001$ in Model 3), thus providing robust evidence for Step 3. The addition of credibility to the model makes the effect of the Influencer’s extroversion non- significant, therefore supporting Step 4. Altogether, the

4. Both β_6 (Model 5) and β_{14} (Model 6) are significant AND/OR 4.1. Both β_8 (Model 5) and β_{13} (Model 6) are significant

The satisfaction of only one condition (either 2.1 or 2.2) demonstrates that either the effect from X to Me depends on the moderator or the partial effect of Me on Y depends on the moderator for the moderated mediation to be supported.

Hypothesis 5 states that the indirect effect of extroversion on purchase intentions through credibility is contingent upon the extroversion congruence. The analyses are presented in Table 8 (Models 4, 5, and 6). The analysis displays a significant main effect of the Influencer’s extroversion on purchase intentions in Model 4 at the 10% level (0.470, $p < .10$), while the interaction effect between extroversion congruence and the Influencer’s extroversion is not significant for purchase intentions in Model 4 (0.458, $p > .10$). Step 1 is thus satisfied. Furthermore, the coefficient of extroversion in Model 5 is positive and significant (0.483, $p < .01$), but that of extroversion congruence * credibility is not significant in Model 6 ($- 0.141$, $p > .10$). Step 2.1 is therefore not supported. However, the interaction effect between extroversion congruence and the Influencer’s extroversion on credibility is significant in Model 5 (0.364, $p < .05$), and the effect of credibility on purchase intentions is significant in Model 6 (0.884, $p < .01$). Thus, Step 2.2 is satisfied. Muller et al. (2005) state that meeting either Step 2.1 or 2.2 is sufficient for the moderated

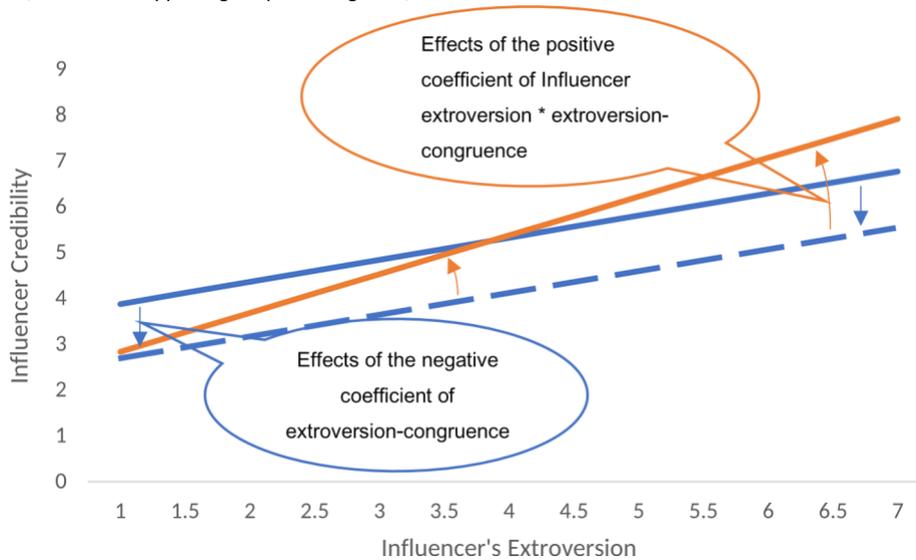


Fig. 3. Descriptions of the negative coefficient of the moderator term.

results support H4.

To test the moderated mediation effect proposed in H5, we followed the procedure proposed by Muller et al. (2005). According to Muller et al. moderated mediation can be tested following the two steps below.

$$Y = \beta_1 + \beta_2X + \beta_3Mo + \beta_4XMo + \varepsilon_1 \text{ Model 4.}$$

$$Me = \beta_5 + \beta_6X + \beta_7Mo + \beta_8XMo + \varepsilon_2 \text{ Model 5. } Y = \beta_9 + \beta_{10}X + \beta_{11}Mo +$$

$$\beta_{12}XMo + \beta_{13}Me + \beta_{14}MeMo + \varepsilon_3,$$

Model 6. where Y denotes the dependent variable (i.e. purchase intention), X the independent variable (i.e. extroversion), Mo the moderator (i.e. congruence) and Me the mediator (i.e. credibility).

- Step 1: β_2 is significant while β_4 is not (Model 4). The requirement that β_4 is not significant in Step 1 implies that no overall moderation effect on the dependent variable should exist.
- Step 2: Either or both of the following conditions should be met:

mediation effect. The satisfaction of Step 2.2 but not Step 2.1 in our dataset implies that our moderated mediation effect is predominantly achieved by the significant moderation effect of congruence between the Influencer’s extroversion and credibility, not between credibility and purchase intentions. This result is therefore consistent with our reasoning for H2, which states that extroversion congruence moderates the influence of Influencer’s extroversion on credibility. When examined together, these results provide support for the moderated mediation effects proposed in H5. The indirect effect of extroversion on purchase intentions through credibility is contingent upon the congruence of the Influencer’s and her audience’s extroversion levels.

We triangulated these results by applying an equation-system approach, specifically Hayes’ PROCESS model (Hayes, 2012). We used a parametric bootstrap estimation approach with 1000 samples via the SPSS macros PROCESS (Model 8). The results of significance testing are identical to the results obtained from single-equation estimates (Tables 9a and 9b). This demonstrates that our hypothesis testing results are robust.

5. Discussion and conclusion

5.1. Summary of the findings

This study's experimental manipulation relied only on the visual presentation of an Influencer's Instagram photographs without any interactions or familiarity with the Influencer. Even so, participants formed impressions and made judgments about the Influencer's extroversion and credibility. This credibility transfers the positive impact of VPIE to consumers' purchase intentions. Notably, this study demonstrates that when both the Influencer and her audience have matching levels of high extroversion, the extent to which her audience perceives her as credible increases. In contrast, where both the Influencer and her audience have similar levels of low extroversion, the extent to which her audience perceives her as credible decreases. These results suggest that encouraging the main target audience to visualize the Influencer's personality as similar to their own—especially in terms of a socially desirable trait, such as high extroversion—is effective for augmenting persuasive outcomes. However, the congruence of a personality trait that is not considered socially desirable (i.e. low extroversion) decreases the effectiveness of Influencer marketing.

5.2. Theoretical contributions

The study fills in the three gaps in the literature as noted in the earlier section, Gaps in the Prior Literature and Research Objectives. Firstly, we have demonstrated that VPIE is an antecedent to source credibility, hence expanding the SCM. Secondly, we have advanced the SAM by asserting that a personality match does not universally augment celebrity endorsement effects, but each personality trait may have asymmetric effects depending on the idiosyncrasies of each trait. Thirdly, we have further expanded the SCM by disclosing the underlying mechanism—that is, increased credibility as a full mediator—through which VPIE augments purchase intentions. Our expansion of the SCM and SAM will in turn facilitate the advancement of knowledge in the rapidly growing application areas of Influencer marketing, social media marketing, celebrity endorsement, and personality matching in retailing research.

Furthermore, we have shown that visual features of social technologies can be used to affect audiences' purchase intentions. This finding suggests substantial potential for visual features of social technologies in creating and disseminating the *social influence* of the source. Social influence refers to the influences that individuals exert on the ways in which others anticipate a product's utilities (Godes et al., 2005) by propagating ideas and economic behaviors throughout social networks (Aral and Walker, 2014). Social influence maximization has received much attention with the growth of the practice of "virality marketing" (Aral and Walker, 2014; Richardson and Domingos, 2002; Singer, 2016; Stoica et al., 2018). Thus far, the literature on social influence maximization has focused on the identifications of influential "nodes" or "actors" in the social networks (Aral and Dhillon, 2018; Roelens et al., 2016), while neglecting the actors' visual presentations of themselves. In contrast, our results have demonstrated that as visual congruence increases perceived credibility of a source among the receiving audiences, the source's social influence on the audiences' purchase intentions increases. This shows that visual presentations enable sources to accrue and augment their social influence on the audiences via the digital platform. Thus, we have filled in an important gap in the social influence maximization gap by contextualizing the SAM and SCM in the social influence literature and spanning the boundaries across multiple theories.

Last but not least, we discovered a new boundary condition of the SAM, namely the identifications of contexts where extroversion congruence is not effective while extroversion divergence is. Specifically, extroversion congruence augments the positive impact of VPIE when both parties converge on high extroversion, but it mitigates that positive impact when both parties converge on low extroversion. We narrowed the conditions under which extroversion congruence can augment the positive impact of VPIE. These findings have not been reported in any of the prior studies that applied the SAM. Furthermore, these findings suggest that the effects of congruence in

social media marketing contexts should differ from those in interpersonal retailing settings where congruence was generally effective regardless of the levels of extroversion (Wilson et al., 2016). Setting this boundary condition for extroversion congruence in social media marketing is important with the growth of psychological targeting in which messages are tailored to audiences' personality traits (Matz et al., 2017). Our results show that psychological targeting must calibrate the extroversion levels of Influencers not only to match the audiences' extroversion levels but also to reflect the social desirability of personality traits. This clearly sets a different boundary condition for the SAM in social media marketing than in interpersonal retailing settings.

5.3. Practical implications

The implications that this study provides to retailing and marketing professionals relate to (1) curation of social media profiles, (2) the feasibility of deep-learning algorithms for advertising, and (3) consumer conversions on social media. Firstly, practitioners in social media marketing are recommended to consider visual extroversion congruence because it can increase Influencers' perceived credibility among their audiences. Thus far, much attention has been paid to such visual factors as the aesthetics of the images and the visibility of the endorsed brand in the content. All of these are useful, but social media content featuring Influencers who exhibit personality traits similar to the target consumers' and which are socially desirable may also be considered equally credible, if not more. Influencers can create extroversion congruence by posing with others, engaging with social activities, and looking confident and outgoing in the photographs they post, although posting lone selfies is a common practice on image-sharing social applications (Jin and Muqaddam, 2018).

The second implication is related to the feasibility of deep-learning algorithms in enabling cost-efficient tailoring of Influencers' visual presentations of their personality traits to the audiences'. In order to take advantage of the positive impact of VPIE as shown in this study, marketing professionals need to alter content to match a wide spectrum of the personality traits of individual consumers, which can be costly and challenging. Deep-learning algorithms represent a viable option that lowers the costs and time necessary to match VPIE to the audiences' extroversion levels (He et al., 2016; LeCun et al., 2015). Deep-learning algorithms, such as the convolutional neural network (CNN), allow for the automatic detection of visual features—which can be used to construe personality traits—without human supervision (Lowe, 2004). There are several open-source CNN models, such as VGG 19 (Yosinski et al., 2014), ResNet 50 (Razavian et al., 2014), and Inception V3 (Simonyan and Zisserman, 2014). These models provide highly accurate yet cost-efficient means for automatically analyzing individual customer's personality traits and then matching them with posts exhibiting similar traits (Argyris et al., 2020).

Thirdly, employing Influencers with high levels of extroversion could facilitate consumer conversions on social media sites as our results illustrate the positive impact of VPIE on the audience's purchase intentions. The congruence among the three parties—the brand, the source, and the audience—is known to increase the credibility of the source and the messages (Choi and Rifon, 2012; Rifon et al., 2004). This triadic congruence could pose a challenge to brands that are associated with product categories perceived to be low in extroversion. Examples of such product categories are meditation products, herbal remedies, reading/researching, and personal retreats. In their attempts to create triadic personality congruence, these brands may employ brand representatives (e.g., Influencers) who also appear to be low in extroversion. As a result, audiences may become less likely to convert to paying consumers because they do not find the brand representatives credible due to their low levels of extroversion presented. Instead, a brand should feature representatives who exhibit extroverted traits, regardless of the product category that the brand is associated with, to increase conversion rates even among audiences low in extroversion.

5.4. Limitations and future research

This study has some limitations that must be addressed, and we have suggestions for future studies that can fill these gaps. Firstly, the experiment only studied one personality dimension (i.e. extroversion). However, our goal was to identify the effects of extroversion, rather than broadly encompassing all personality traits. To achieve this goal, we had to control all other potentially extraneous factors, such as an Influencer's attractiveness. It was practically infeasible to identify multiple Influencers who have similar levels between these factors and whose profiles could be curated across multiple Big Five personality types. Secondly, the current experiment only examined one Influencer and one brand. However, we ensured through a pilot test that our participants' personal dislikes of the Influencer or the brand would not interfere with our hypothesis testing. Lastly, we conducted only one cross-sectional experiment and thus could not investigate the results of prolonged exposure to the Influencer on purchase behaviors. A longitudinal study that tracks the behavior of followers is merited but faces the challenge of participant attrition.

The authors encourage future researchers to examine the effects of visual characteristics that form personality impressions among audiences. For available due to privacy or ethical restrictions.

instance, attributes of photographs or videos that contribute to perceptions of different personality traits could be noteworthy. The emerging deep-learning algorithms (Adamopoulos et al., 2018) could be considered because they enable future researchers to analyze large volumes of pictures, categorize them into common themes, and link those themes to specific personality traits. Future researchers can then test if those personality traits correlate to the amount of engagement that Influencers harness. The results from our own formative research can spawn many future studies on this important topic.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly

Declaration of competing interest

Authors do not have any conflict of interest to report.

Appendices.

Table 1
Demographic factors of respondents.

Variable	Levels	Frequency	Percent
Education level	High school	40	24.2
	Associate degree or some college	57	34.5
	College degree	48	29.1
	Graduate Degree	20	12.1
Ethnicity/race	White	120	72.7
	African American	21	12.7
	Asian	13	7.9
	Other or mixed race	11	6.6
Marital status	Married with children	49	29.7
	Married without children	28	17
	Divorced or separated	2	1.2
	Never married	86	52.1
Income level	Less than \$25,000	24	14.5
	\$25,000 to \$49,999	49	29.7
	\$50,000 to \$74,999	34	20.6
	\$75,000 to \$99,999	27	16.4
	\$100,000 to \$149,999	18	10.9
	\$150,000 to \$199,999	8	4.8
	\$200,000 or more	5	3.0
Total		165	100%

Table 2
A list of the scales used with a rationale for using them.

Scale chosen for this study	Justification for using the scale	Previous applications of the scale in retailing research
Source credibility (Ohanian, 1990)	There are scales that measure news credibility or corporate credibility, but this is one of the very few scales used for an endorser's credibility.	Consumer brand preferences (Whelan and Davies, 2006), impulsive-buying tendency (Badgaiyan and Verma, 2014), and online-reviewing intentions (Dixit et al., 2019)
Extroversion subscale (Gosling et al., 2011)	This is a validated short version scale of the big-five personality inventory (John et al., 1991), which has 10 items per personality dimension. This scale is also conventionally used for non-clinical purposes (Goldsmith, 2016).	Acceptance of online recommendations (Senecal et al., 2002), purchase intentions (Pei et al., 2014) and attachment to the celebrity (Saldanha et al., 2018).
Purchase intention (Jamieson and Bass, 1989)	The scale measures purchase intentions in terms of intent and probability, instead of using a single item measurement. This approach has been shown more precise than a single item measurement (Bergkvist and Rossiter, 2008).	Effectiveness of product presentation in e-commerce (Kim, 2018), adoption of new technology (Park et al., 2015) and customer-loyalty effects (Kumar et al., 2013)

Table 3
T-test results for control variables.

Construct	Conditions for Influencer's Extroversion		Conditions for Participant's Own Extroversion	
	t-value	Significance	t-value	Significance
Respondents' extroversion	.633	.528	-19.047	.000***
Education Level	-.297	.767	-.818	.415
Ethnicity	.275	.784	-.567	.571
Marital status	.434	.665	.517	.606
Income	.680	.248	-1.923	.056
Influencer's attractiveness	-.403	.687	-1.897	.060
Body satisfaction	.558	.578	-5.383	.000***

Note: N = 165, The degree of freedom of all t-tests is 163. ***p < .001.

Table 4
Intercorrelations and descriptive statistics of the variables.

Variable	M	SD	1	2	3	4
1. Body satisfaction	3.74	1.50	0.74[†]			
2. Influencer's extroversion	3.77	0.77	-.022	0.72		
3. Influencer's credibility	5.19	1.01	.187	.520	0.72	
4. Purchase intentions	4.28	2.00	.328	.261	.496	0.94

Note: N = 165. [†] On the right side of the double line in the table, the diagonal cells denote the square root of Average Variance Extracted (AVEs) and the rest of cells refer to inter-construct correlations.

Table 5
Loadings of the indicator variables.

Construct	Cronbach's α	Composite Reliability	Indicator	Loading	Item-to-total correlation
Influencers' extroversion (IE)	.920	.921	EXTRA_INF_1	.736	.770***
			EXTRA_INF_2	.792	.807***
			EXTRA_INF_3	.723	.758***
			EXTRA_INF_4	.625	.677***
			EXTRA_INF_5	.836	.843***
			EXTRA_INF_6	.758	.781***
			EXTRA_INF_7	.706	.747***
			EXTRA_INF_8	.715	.750***
			EXTRA_INF_9	.722	.754***
			EXTRA_INF_10	.722	.752***
Influencers' credibility (IC)	.937	.940	INF_CRED_1	.671	.693***

			INF_CRED_2	.685	.714***
			INF_CRED_3	.643	.667***
			INF_CRED_4	.714	.751***
			INF_CRED_5	.612	.650***
			INF_CRED_6	.693	.719***
			INF_CRED_7	.703	.721***
			INF_CRED_8	.770	.778***
			INF_CRED_9	.750	.761***
			INF_CRED_10	.759	.761***
			INF_CRED_11	.719	.740***
			INF_CRED_12	.698	.711***
			INF_CRED_13	.779	.783***
			INF_CRED_14	.785	.789***
			INF_CRED_15	.720	.736***
Purchase intentions (PI)	.965	.965	PURCH_1	.963	.965***
			PURCH_2	.961	.965***
			PURCH_3	.847	.906***
			PURCH_4	.964	.971***
Body satisfaction index	.851	.874	BDIDISSATIS_1 [†]	.731	.770***
			BDIDISSATIS_2	.740	.785***
			BDIDISSATIS_3	.729	.732***
			BDIDISSATIS_4	.759	.792***
			BDIDISSATIS_6	.636	.708***
			BDIDISSATIS_8	.698	.761***

Note: N = 165. *** $p < .001$.

†: Items 5 and 7 for body satisfaction index were reversed items, and the inclusion of them contributed to a low Cronbach's alpha, hence eliminated from the further analyses. The above shows the finally selected items.

Table 6
Regression analyses for H1 and H2.

	<u>Dependent variable:</u>		
	Influencers' Credibility		
	Model 1	Model 2	Model 3
Step 1			
Body Satisfaction Index	0.126 ^a (.052)	.133** (.043)	.123*** (.044)
Step 2			
Visual Presentation of Influencer's extroversion (VPIE)		.684*** (.085)	.483*** (.126)
Step 3			
Extroversion-Congruence (EC)			– 1.405a (.659)
IE*EC			.360a (.171)

Equation F R ²	5.92 ^a	36.40***	19.63***
	0.035	0.310	0.329
Df	1	2	4

Note: N = 165. Standard errors in parentheses. ^ap < 0.05, **p < .01, ***p < .001.

Table 7
Regression analyses for H3.

	Dependent variable:	
	Purchase Intentions	
	Model 1	Model 2
Step 1		
Body Satisfaction Index	.436*** (.098)	.324*** (.088)
Step 2		
Influencers' Credibility		.892*** (.132)
Equation F R²	19.64***	35.28***
	.108	.303
Df	1	2

Note: N = 165. Standard errors in parentheses. *p < .05, **p < .01, ***p < .001.

Table 8
Regression analyses for H4 (mediation) and H5 (moderated mediation).

Variable	Mediation Analysis			Moderated Mediation Analysis		
	Model 1 [†]	Model 2 [†]	Model 3 [†]	Model 4 [†]	Model 5 [†]	Model 6 [†]
Body satisfaction index	.444*** (.095)	.133** (.044)	.331*** (.089)	.437*** (.094)	.123** (.044)	.331*** (.089)
VPIE	.693*** (.184)	.684*** (.085)	.116 (.200)	.470+ (.272)	.483*** (.126)	.045 (.268)
Influencer credibility (IC)			.844*** (.156)			.884*** (.190)
EC				- 1.149 (1.419)	- 1.405* (.659)	.369 (1.554)
VPIE * EC				.458 (.367)	.364* (.171)	.256 (.423)
IC * EC						-.141 (.331)
Equation F R²	17.73*** .179	36.40*** .310	23.53*** .305	10.52*** .208	19.63*** .329	12.93*** .329
df	2	2	3	4	4	5

Note: [†]Dependent Variables: Purchase Intention. [‡]Dependent Variables: Influencer credibility. Standard errors in parentheses; *p < .05, **p < .01, ***p < .001.

Table 9a
Hayes' PROCESS results—moderated mediation model.

Predictors	DV	Type	Estimate (SE)	LCI	UCI	P
VPIE*EC	IC	Component	1.034 (0.187)	0.648	1.196	<.001
IC*EC	PI	Component	0.814 (0.233)	0.327	1.242	<.001
VPIE*EC → IC	PI	Indirect	0.714 (0.193)	0.331	1.088	<.001
VPIE*EC	PI	Direct	0.021 (0.470)	0.872	0.971	0.96
VPIE*EC	PI	Total	0.863 (0.392)	0.094	1.632	0.03

Note: Upper (UCI) and lower (LCI) 95% confidence intervals. PI: Purchase Intention.

Predictors	DV	Type	Estimate (SE)	LCI	UCI	P
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VPIE	IC	Component	0.919 (0.140)	0.648	1.196	<.001
IC	PI	Component	0.777 (0.168)	0.441	1.099	<.001
VPIE → IC	PI	Indirect	0.714 (0.193)	0.331	1.088	<.001
VPIE	PI	Direct	0.398 (0.309)	- 0.212	1.000	0.199
VPIE	PI	Total	1.116 (0.273)	0.580	1.651	<.001

Hayes' PROCESS results–non-moderated model.

Table 9b Note: Upper (UCI) and lower

(LCI) 95% confidence intervals. PI: Purchase Intention.

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