

**Behind the screens: The interplay of influencer types and controlling entities on perceived trust, consumer attitudes, and parasocial relationships.**

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## Abstract

The trend of virtual influencers (VI) in the influencer marketing landscape is impacting the content creation, with actual humans or computers/AI acting as controlling entities behind these influencers. This technological development questions the trustworthiness and authenticity of all influencers, especially when the line between human and computer/AI-generated content blurs. This study delves into the impact of influencer types (social media influencers (SMI) and virtual influencers (VI)) and controlling entities (human, computer, or unknown) on trust, consumer attitude, and parasocial relationships. Additionally, this study investigates if source credibility mediates the effect of the controlling entity on the dependent variables. Therefore, the research question is: *“What are the (combined) effects of influencer types and controlling entities, as well as the mediating effect of the source credibility on perceived trust, consumer attitude, and the parasocial relationship?”*

To answer this, the study consists of a 2 (influencer type: social media or virtual) by 3 (controlling entities: human-controlled, computer-controlled, or unknown) between subject’s design among 279 participants, using six manipulated Instagram posts, portraying an influencer in a vacation setting. Findings indicated that the SMI had a more positive effect on all dependent variables and the mediator source credibility than the VI. The controlling entity only affected perceived trust and source credibility. It could not be asserted that knowing the entity is more positive, nor can be stated that a human-controlled entity is perceived more positively than a computer-controlled entity. Also, no interaction effect between the controlling entity and influencer type was found. In general, there was no mediation found for the controlling entity; however, source credibility mediated the effect of the computer-controlled entity on perceived trust. The study reveals dynamics in influencer marketing and contributes to the existing literature on influencer types and controlling entities, providing practical guidelines for marketers and brands.

**Keywords:** *social media influencer, virtual influencer, controlling entity, source credibility, perceived trust, consumer attitude, parasocial relationship, Instagram*

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## 1 Introduction

In today's influencer marketing landscape, the usage of social media is still expanding, paralleled by the rise in influencer adoption as an effective approach to connect with a wider audience (Joshi et al., 2023). According to Belache et al. (2020), social media is utilized to boost and promote the image, to showcase new products, stimulate users' interest, and to motivate users to increase the interactions with social media accounts.

Social media influencers (SMI) are real persons with a significant following on social media, who serve as third-party endorsers and shape individuals opinions (Freberg et al., 2010). SMIs are preferred over traditional advertising methods (e.g. banners or TV commercials) due to their greater credibility and authenticity. These influencers are also valued for their creativity, trustworthiness, personality and ability to have first-hand interactions with the things they promote. As a result, SMIs are seen as trustworthy in terms of both their personal appearance and message they deliver.

In addition to creating their own content, recent developments allow SMIs to also integrate AI/computer-generated content, which is less personal, but saves time and effort (AIContentfy team, 2023). The creators of the content behind the influencers, referred to as controlling entities, create and manage the influencer's content and behavior/personality (Miao et al., 2022; Zhang & Ren, 2022). The controlling entity, responsible for creating the content for the SMI, is either the SMI (human-controlled entity) or an AI/computer (computer-controlled entity). The AI/computer-controlled entity refers to the SMIs usage of AI/computers to create content; it is no longer created by the SMI self. However, the identity, known as controlling entity in this study, behind the influencer is not always clearly defined.

This technological evolution, regarding content creation for SMIs, raises critical questions about how AI/computer-driven content creation will affect the trustworthiness, consumer attitudes towards influencers and the development of parasocial relationships. The parasocial relationships in this study are the enduring, long-term, and one-sided intimacy that users develop with influencers

during repeated interactions; these relationships are typically the result of parasocial interactions between the influencers and their followers (Dibble et al., 2016). The parasocial relationship can positively influence the message acceptance, it can draw individuals back to the influencer's content and drives individuals to spend a longer period of time being engaged with the content and thus the influencer (Lim & Lee, 2023).

In the constantly evolving influencer marketing landscape a new phenomenon has emerged, namely the virtual influencer (VI). VIs, often prominent in the luxury sector, are digitally created personas associated with internet fame. They are brought to life by human or computer/AI-enabled creators, also known as controlling entities, who create and manage the influencers' content and behavior (Miao et al., 2022; Zhang & Ren, 2022). When the influencer's content is created by humans rather than computer/AI-controlled entities, it typically brings forth a sense of personalization, authenticity, and a stronger social presence (Arsenyan & Mirowska, 2021; Moustakas et al., 2020).

When the controlling entity is known, regardless of whether it is a human or computer, it triggers interest and increases the trust and authenticity in the influencer, compared to situations where the controlling entity remains unknown (Koles et al., 2024). This emphasizes the notion that transparency fosters authenticity and strengthens the connection with individuals.

Ethical considerations are becoming more important as the influencer marketing sector grows and adopts new trends, especially in the context of the identity, authenticity, transparency, and credibility of influencers. It is important to understand how individuals react to content generated by AI/computers versus content generated by actual humans. This draws attention to fundamental concerns regarding ethics and the acceptability of influencer marketing practices in an era where technology blurs the lines between human and computer/AI content creation.

To investigate the consequences of various controlling entities (creators) across different influencer types, more research is necessary. This entails assessing the effects on trust, consumer attitude, and parasocial relationships.

This study aims to fill in these gaps in literature by determining which influencer type (social media or virtual influencer) and controlling entity (human, AI/computer controlled or unknown entity) is considered as most trustworthy, shows the most favorable consumer attitudes, and results in the strongest parasocial relationship, as well as how the creator of the content (controlling entity) source's credibility mediates this effect. To guide the investigation, the following research question is formulated:

*“What are the (combined) effects of influencer types and controlling entities, as well as the mediating effect of source credibility on perceived trust, consumer attitude, and the parasocial relationship?”*

In order to answer this research question, the study used a 2x3 between-subject experiment to manipulate the influencer type (social media or virtual influencer) and the controlling entity (human-controlled, computer-controlled or unknown entity).

Overall, this research contributes to the constantly growing influencer marketing landscape by providing insights on the effects of influencer types and controlling entities on consumer responses towards influencers. As the trends of VIs continue to grow, this research provides valuable information for brands and marketers on the most effective influencer types and controlling entities to utilize for fostering a positive influence on trust, attitudes, and building strong parasocial relationships.



## 2 Theoretical framework

### 2.1 Influencer marketing

Influencer marketing is defined as the process through which a brand locates and engages with individuals that have a certain influence over a target audience in order to include them in a campaign in an effort to increase reach, sales, or engagement (Sudha & Sheena, 2017). Currently, social media usage is increasing because it provides a direct approach to communicate/engage with a wider audience (*The Basics of Retail Influencer Marketing: What Is It? And, How Does It Work?*, 2022). Brands use influencers to promote their products in an attempt to reach a wider audience and build positive attitudes toward their influencers, which encourages purchases or other desired behaviors (Joshi et al., 2023). Initially, influencers were celebrities who were utilized in advertisements to recommend services/products; these individuals were referred to as '*celebrity endorsers*' (Gretzel, 2018). Unlike celebrities, who are recognized for outstanding performance within a specific field, influencers these days are known for enhancing their image through social media use.

Influencers according to Belache et al (2020) can be seen as people who: "*use their social media accounts to present new products (e.g. fashion outfits) to encourage users to increase their interaction with their accounts (e.g. number of likes, comments, sharing content and attracting new followers) and users' interest in the promoted products (as a marketing goal)*" (p.39). These type of influencers are appealing to brands because they are perceived as down-to-earth, personal, authentic, and credible sources of information. As opposed to virtual influencers, who are perceived as '*authentically fake*' because of their staged content (Harrigan et al., 2021b).

Social media influencers (SMI) are often seen as more effective than traditional advertising methods (e.g., banner ads or TV commercials) due to their higher credibility and authenticity, resulting in a lower resistance to the message and a more powerful marketing strategy (Sands et al., 2022). Companies are increasingly digitalizing in the influencer market by developing or collaborating with (computer-generated) virtual influencers (VI). Innovative brands strive to either develop their own virtual influencers or collaborate with them (Endeavour, 2023). For instance, Lil Miquela, who

has collaborated with luxury fashion brand like Prada and Calvin Klein alongside social media influencers, is an example of a virtual influencer. So is Shudu, who was the world's first digital model and worked for another luxury brand called Balmain (Conti et al., n.d.).

## **2.2 Social media influencers**

Social media influencers are real human individuals with a high number of followers and reach on social media who can be viewed as third-party endorsers shaping individuals' attitudes (Freberg et al., 2010). These influencers have developed a personal brand, which is described as a distinct and unique identity that comprises values, interest, and an overall image built through online presence on social media. The social media influencers are seen as authentic and are used to attract viewers, but their reach extends beyond their own followers, because they can also engage with followers of their followers through shared content (Kay et al., 2020). Individuals' behavior can be influenced by social media influencers' perceived trustworthiness, expertise, attractiveness, relationships and authority (Kádeková & Holiencinova, 2018). In comparison to virtual influencers, social media influencers are perceived as more genuine, trustworthy, realistic and as a personal source of information in combination with the advantage of an extensive network (Harrigan et al., 2021). Because of the AI capabilities, even social media influencers are using AI tools. These tools can generate content for the social media influencers based on inputs and parameters (AIContentfy team, 2023).

### 2.3 Virtual influencers

Computer or AI-generated influencers, also known as virtual influencers (VI), are generated characters with a large social media presence created by human or AI/computer-enabled agents (Miao et al., 2022). The virtual influencer is defined by Thomas and Fowler (2021) as “*a digitally created artificial human who is associated with internet fame and uses software and algorithms to perform tasks like humans*”. Most virtual influencers are not fully controlled by AI/computers but are still partly controlled by humans (Thomas & Fowler, 2020).

A VI, a type of computer product, has anthropomorphic (human-like) features and is similar to real human beings in terms of characteristics, behavior, personality, and appearance (Moustakas et al., 2020). However, are the virtual influencers authentic and credible enough to be perceived as similar as SMIs? According to Robinson (2020), virtual influencers could be seen as authentic as SMIs if the VIs are transparent about their motivations and identity. As a result of being transparent about the influencers’ identity, individuals will be able to understand what to expect from the influencer and will be more inclined to trust them (Miao et al., 2022). However, most individuals are aware that they are viewing staged content, because virtual influencers are ‘authentically fake’ (Arsenyan & Mirowska, 2021).

Advantages of working with these influencers for a brand are greater control over the VI’s content and behavior, and the fact that the VI doesn’t have an offline life that can negatively affect the brand (Moustakas et al., 2020).

### **2.3.1 Humanized virtual influencers**

The realistic appearance of a virtual influencer could be an important factor affecting the users' abilities and perceptions (Zhang & Ren, 2022). According to research by Seymour et al. (2020), compared to an animated character, like for example Noonoori, a humanized virtual influencer which was highly anthropomorphic, was perceived as more similar, likable, credible, engaging and trustworthy. Shen (2012) argues that when individuals are around anything close to a human being, they feel more comfortable and get more affinity with the VIs; as a result individuals reactions are more empathic and positive (Bartneck et al., 2009). Therefore, VIs will be more accepted if they resemble human beings rather than animated characters (Duffy, 2003).

Research showed that individuals' attitudes, judgements, evaluations and behaviors were affected by the representation of virtual influencers (Seymour et al., 2020). The VIs were most successful when they had an anthropomorphised (human-like) representation, which made them also perceived as more trustworthy (Riedl et al., 2014). When influencers had features that are purposefully altered or a-typical for a human being, they were considered having abnormal/manipulated features (Nowak et al., 2009). Unusual skin tone or exaggerated facial features are two examples of such non-typical features. Avatars (influencers) with abnormal/manipulated features are perceived as less pleasant and realistic, especially when the avatars are highly anthropomorphised (Nowak et al., 2009). This is a result of abnormal/manipulated features that have the ability to make individuals feel uneasy or uncomfortable, particularly combined with a high level of human realism (Nowak et al., 2009). Too realistic and abnormal avatars can fall into the uncanny valley, and can thus be seen as eerie (Nowak et al., 2009).

## 2.4 Perceived trust in influencer

Perceived trust can be defined as the degree in which the audience perceives the sender (e.g., the influencer) as being able to convey a message on the marketing medium in a honest and credible way (Martinez-Lopez et al., 2020). Trusted influencers will develop a more favorable attitude about the message and themselves, which will positively affect consumers' attitudes towards the influencer and the parasocial relationships that exist between the influencer and receiver.

Authenticity and trust are related, as it measures how much individuals believe that the content generated by influencers is genuine, honest and aligning with their true personalities and intentions. This makes individuals more likely to trust influencers. The majority of individuals are aware that influencers receive compensation for using social media to promote brands (Woods, 2016). However, individuals view social media influencers as role models and they are trusted because of their authentic content (Woods, 2016). Successful SMIs, who are honest and show transparency, have established a loyal group of followers who trust them, even their sponsored content is perceived as authentic (Kemec & ve Yüksel, 2021). A reason for this is that social media influencers give a creative and original touch to the content, and of course, their experiences using the products/services are a contributing factor. However, the AI technology advancement is also influencing the influencer marketing (Huh et al., 2023). This makes it possible for the SMIs to generate content with AI tools, such as ChatGPT, which makes it harder to trust the influencers. Individuals are unsure if the SMI they follow makes their own content, and can be trusted for their authenticity, or is made by AI/computers and is thus less authentic. Nonetheless, research of Davenport et al. (2020) suggests that using AI tools as a support tool, in the case of a social media influencer, is perceived as an additional and more effective enhancement. However, when the influencer is entirely created and controlled by AI, as is the case with virtual influencers, it is considered less effective.

The content created by social media influencers is still perceived as more authentic, natural and credible compared to virtual influencers' content (de Brito Silva et al., 2022). Unlike SMIs, the VIs lack personal experiences and emotions, which potentially makes their motivations for content more susceptible. The motivation for profit among the creators of the VIs could affect their authenticity even more than that of the social media influencers, due to the potential prioritization of commercial interests over genuine, relatable content (Moustakas et al., 2020). The more authentic and intimate information the influencer shares on social media, the greater the ability is to attract and influence the individuals.

As previously stated, VIs are less trusted in comparison to SMIs because the content is not made by the influencers themselves, probably affecting the influencer's authenticity (Robinson, 2020). The incapacity of virtual influencers to test products and provide an honest opinion is namely a huge factor in contributing to their lack of trust (Moustakas et al., 2020). Even though virtual influencers are not real, Robinson (2020) showed that virtual influencers have an identity that appears to exist on social media, which can be perceived just as authentically as social media influencers. When the influencers are transparent and honest about their identity, they may be perceived as somewhat authentic. The perceived authenticity of virtual influencers can be seen as consistency in their digital persona on social media, their unambiguous representation as virtual person, and the transparency of their scripted actions (Kim & Wang, 2023).

## **2.5 Consumer attitude toward the influencer**

Consumers' attitudes can be understood as evaluations that individuals have about other people, objects, and themselves. An attitude can also be defined as the tendency of finding something unfavorable or favorable (Petty & Cacioppo, 1986). Consumer attitude refers to opinions people hold about the various influencer types combined with one of the controlling entities.

Research by Seymour et al. (2020) used a controlled lab experiment to examine the perceived trustworthiness, preference and affinity of users' towards a real human travel agent (social media influencer in this study) appearing via video compared to a very human-realistic avatar (virtual influencer in this study). The study demonstrated that individuals have more affinity with the human agent and rated him as more trustworthy in comparison to the realistic digital avatar. The study demonstrated that individuals' behaviors, beliefs and attitudes towards influencers are influenced by the influencer's representation, particularly when a virtual influencer has a human-like representation. A too human-like (anthropomorphic) VI is viewed by individuals as eerie (Mori et al., 2012). A study that examined the consumer attitudes about virtual influencers in social networking sites found that a SMI generates a more positive attitude than a humanized virtual influencer (Qu & Baek, 2023).

## 2.6 Parasocial relationships with influencers

This section delves into parasocial relationships, which are known as one-sided connections that individuals form with influencers. It is important to note that while parasocial interactions are related to parasocial relationships, they represent distinct concepts. The term 'parasocial interaction' refers to a faux sense of mutual awareness between a viewer and media character (influencer) that only exists during viewing (Dibble et al., 2016). This phenomenon is often considered as a short-term phenomenon that occurs during a single encounter. While a parasocial relationship is a long-term and one-sided intimacy that users may begin to develop with media personas (influencers) during viewing, but also extends beyond the viewing experience (Dibble et al., 2016). After being exposed to the influencer on regular basis, the parasocial interactions often become parasocial relationships developing friendship, intimacy, and identification (Chung & Hichang, 2017).

However, it is also possible to form a long-term association with an influencer (parasocial relationship) when there is no mutual awareness occurring (no parasocial interaction) (Dibble et al., 2016). According to Dibble's (2016) research, this could be the case when the character does not break the fourth wall, which means that the character (fictional) does not directly address the audience. As a result, a parasocial relationship may have developed with these characters based on their representation in the media, but without interactions since the viewer does not feel directly addressed by the character.

Parasocial interactions and relationships are seen as important criteria for determining the effectiveness of the influencers' posts (Stein et al., 2022). Individual's lifestyles, behaviors, and attitudes can be influenced by parasocial interactions. Studies have shown that this experience improves the individuals' overall concentration, their enjoyment of the generated content, and their perceptions of connectedness among individuals on social networking sites (Lim & Lee, 2023). The parasocial relationship, after being exposed to the influencer on a regular basis, drew individuals back to the content, positively influenced message acceptance, and drove them to spend a longer period of time being engaged with the content.



Individuals can also establish parasocial interactions (mutual awareness) with non-human characters (VIs), this can only be done when the VI is designed and driven by creators to interact with individuals in a way that stimulates a real social interaction (Dibble et al., 2016; Stein et al., 2022). The likes, comments, shares and direct communication on social media platforms allow a VI to acknowledge its audience. This interaction raises awareness between the VI and its followers. However, it is essential to note that while these interactions may stimulate mutual awareness, the VI itself doesn't process awareness in the same way as human beings.

Nevertheless, individuals can still feel a connection with a media persona (influencer) even in the absence of direct interaction, so mutual awareness is not perse needed to establish a parasocial relationship (Dibble et al., 2016).

However, in order to create parasocial interactions with nonhuman characters (VIs), they must resemble real human beings because these parasocial responses are perceived to be stronger in comparison to animated media personas (Lim & Lee, 2023; Stein et al., 2022). Individuals' parasocial responses to VIs are influenced not just by their appearance, but probably also by their impression of an AI/computer (non-human) mind behind the VIs, which reduces the attributions of mental human-likeness (Stein et al., 2022). Sharing personal information, which is more difficult for VIs because they aren't authentic and don't have an offline life (Moustakas et al., 2020), with individuals can foster a sense of trust, intimacy, reducing uncertainties and increasing the likelihood of a parasocial relationship (Lim & Lee, 2023).

Individuals can view parasocial relationships with virtual influencers as weaker than those formed with social media influencers, due to the differences in human-likeness and perceived similarity (Stein et al., 2022).

The aim is to determine which influencer types and controlling entity enhance the development of parasocial relationships, implying that individuals want to engage with the influencer in the future.

After discussing influencer marketing in general and the different types of influencers in this research, it is assumed that social media influencers compared to virtual influencers have a more positive effect on the perceived trust, consumer attitude, and will have a stronger parasocial relationship with individuals. Which comes to the following hypotheses:

**H1:** *Social media influencers have a more positive influence on perceived trust (a), consumer attitude (b), and parasocial relationships (c) than virtual influencers.*

## 2.7 Controlling entities

The controlling entities refer to the entities behind the content of the influencers.

Individuals' attitudes will not only be shaped by the appearance of the influencers, but probably also by the awareness of the controlling entities behind the influencers (Seymour et al., 2020). Influencers can either be created and managed by a real human creator or by a computer/AI creator. From an ethical standpoint, it is essential for influencers to reveal their entity as human or computer/AI while creating content on social media platforms. The information presented in the content of the influencer must not cause individuals to feel intentionally or unintentionally misled (Moustakas et al., 2020). Reflecting on the ethical aspect, it is crucial to be transparent with the user about the fact that they are interacting with a human- or computer-controlled entity (creator) since it will help people gain trust and understand what to expect from the VI (Miao et al., 2022).

Most often, social media influencers content is created/managed by themselves (human-controlled), making it more authentic and personal (Labrecque, 2014). However, the fact that they are responsible for the own content tells nothing about the potential use of AI tools (Robinson, 2020). Computers/AI can be used to automate content generation for social media influencers (Nair & Gupta, 2021), which makes it possible to create highly successful marketing content (Saini, 2022). SMIs can utilize AI to tailor their existing customer profiles and better engage new customers. However, utilizing a computer/AI increases the likelihood that the content of the social media influencer's material will be less personal and authentic as when created by the influencers themselves.

Focusing on the virtual influencers, their emergence raises ethical concerns regarding decreased transparency about who is responsible for the content, and which moral values are being espoused (Robinson, 2020). A fundamental question arises: Does it matter if the controlling entity is known, and if the controlling entity is known, does it matter which controlling entity is behind the influencer, for trust, attitudes and parasocial relationships?

Virtual influencers are products of technology and designed with a human-like personality by a team, controlled by AI/computers or humans (Zhang & Ren, 2022), with the latter increasing the influencer's behavioral realism (Miao et al., 2022). The content and personality of VIs created by computer/AI entities results in a decrease in their authenticity and consequent decrease in consumer trust (Lou et al., 2022). As a result, consumers will be less engaged by computer/AI controlled virtual influencers (Labrecque, 2014).

Research from Fox et al. (2015) examined the social influence model in virtual environments assessed whether representations that are controlled by humans (avatars) or those perceived to be controlled by computer (agents) evoke different levels of social influence in virtual environments. According to the findings of this study, human-controlled virtual representations generate more social presence and have more social influence in comparison to computer-controlled virtual representations (Fox et al., 2015). The use of humans behind the VI will provide a layer of humanization, ensuring a positive image of the VI (Fox et al., 2015).

Influencers' human-controlling entities are not always outperforming computer-controlling entities. Yokotani et al. (2018) discovered that when people know they are interacting with humans rather than with computer-controlled avatars, they perform worse on certain tasks and have a negative perception in specific situations (e.g. sharing sensitive information). Reduced automation, socially desirable answers, reduced autonomy perception, and social expectations are the causes of this (Yokotani & Takagi, 2018).

This study examines if perceived trust, consumer attitude, and parasocial relationships are affected by human-controlled entities, computer-controlled entities or unknown entities behind the influencer. In addition, this research hypothesizes that human-controlling entities generate overall more social presence and have more influence on individuals in comparison to computer-controlled entities. Moreover, this study hypothesizes that individuals are more engaged to influencers when the

controlling entities are known, as this can trigger interest and increases trust and authenticity in the influencer (Koles et al., 2024). Based on these assumptions, the following hypotheses are formulated:

**H2:** *Knowing who the controlling entity is, regardless of whether it is a human or computer, will positively affect perceived trust, consumer attitudes, and parasocial relationships, compared to situations where the controlling entity remains unknown.*

**H3:** *The use of human-controlling entities will more positively affect perceived trust, consumer attitudes, and parasocial relationships compared to computer controlled entities.*

## **2.8 The interaction effect of influencer type and controlling entity**

The response towards various influencer types depends not solely on their appearance (SMI or VI) but probably also on the controlling entity (human, computer or unknown) (Seymour et al., 2020). This interaction effect investigates whether the controlling entity compensates for certain characteristics, such as authenticity, credibility, trust and the VI's sense of eeriness, associated with the two influencer types. The controlling entity (creator) could possibly compensate for the lack of trust by being transparent about their identity. Individual's opinions about influencers may differ depending on whether developers reveal the origin of the controlling entity behind the influencer, even individuals' relationships expectations (parasocial interactions/relationships) may be affected by this (Lim & Lee, 2023).

If there is a non-human mind behind the influencer, there is a decreased attribution of mental human-likeness (Stein et al., 2022). Individuals are less inclined to attribute human-like feelings, thoughts, or consciousness to influencers when they are aware that non-human entities (computer/AI-controlled) are responsible for the influencer's actions and content. When people realized that virtual influencers were human-controlled, they felt that they were communicating with a human-like influencer rather than an eerie influencer (Lou et al., 2022). It is possible that the controlling entities compensate for the different characteristics associated with different influencer types, although it is still unclear if and to what extent this applies for the different influencer types. When using human-controlled entities, the influencer type's behavioural realism increases, ensuring more trust and a less eerie impression (Mori, 1970). Therefore, it is assumed that human-controlling entities will generally have a more positive impact on the influencer types, as well as on individuals' attitudes and the parasocial relationships.

The strongest impact of the controlling entity on the influencer type is probably expected in the case of the VI, due to the impact of the controlling entities here on authenticity, source credibility, trust, attitudes, parasocial relationship and the feeling of eeriness. A reveal of a human-controlled entity behind the VI will probably enhance these factors. Individuals will feel more

empathy and trust when they realize they are interacting with human-controlled entities, especially given the diverse perspectives on VIs and their level of eeriness. To increase the humanized VI's credibility, It is essential to identify the controlling entity (Stein et al., 2022).

The impact of the controlling entity on the social media influencer type is probably expected to be less pronounced. These influencers are frequently seen as better influencers than the virtual influencers in terms of agency (think and plan) and experience (feeling), which is the reason why it is expected that this impact will be less. However it is still important to be transparent about the controlling entities. In contrast to human-controlled entities, it is possible that the presence of a computer/AI entity behind a social media influencer will have a less favourable impact on individuals' trust and attitudes toward the influencer as well as on the parasocial relationships.

The following exploratory question has been added: *“Does the perceived trust, consumer attitude and parasocial relationship towards the various influencer types depend on the controlling entities behind them?”*

## 2.9 Source credibility as mediating process

The characteristics of the creators of the content (controlling entities) can transfer to the message, which can influence the followers and their acceptance of the message, according to the source credibility theory (Ohanian, 1991). Individuals are more likely to believe the content of the creator, when the creator is perceived as trustworthy and an expert since credibility has a positive and direct effect on the attitudes of individuals (Bhatt et al., 2013).

Source credibility is viewed as a predecessor of trust, consumer attitudes, and parasocial relationships toward the influencer in this study (Lee & Kim, 2020; Yuan & Lou, 2020). The model claims that the credibility, the results of the message, are affected by perceived trustworthiness, attractiveness and expertise of the source (Ohanian, 1991; Ozdemir et al., 2023). This study will not go into more detail on attractiveness because the creators of the content are not always visible and therefore cannot be judged by individuals.

The dimension trustworthiness is concerned with the source's integrity, honesty, sincerity, truthfulness, and this can change depending on how the audience perceives it (Erdogan, 1999). Similarly, Xiao et al. (2018) define trustworthiness as the source's integrity and the perceivers' trust in the creator of the content (source) to convey valid and honest information. However, computer/AI creators often fall short of expectations due to a lack of understanding of the user's needs (Song et al., 2022). The perceptions and quality of the interaction still differ significantly from human creators' interactions, potentially leading to perceptions of inauthenticity and reduced source credibility (Moustakas et al., 2020). Unlike real human creators, computer/AI creators do not have the ability to physically test products and provide real personal opinions. Shan's (2016) research emphasizes the importance of transparency about (paid) content on social media to inform others about the motives of the content production (Human-Van Eck et al., 2021). Similarly, Miao et al. (2022) emphasizes the importance of informing others about what to expect from the influencer. Therefore, transparency regarding the creator's identity becomes a vital factor for the trustworthiness.



In the context of using computer/AI generated texts for Instagram posts, Moustakas (2020) argues that consumers may not trust this content due to the inherent limitations of computers/AI systems. Content created by human creators, on the other hand, is seen as more positive and trustworthy. Nonetheless, humans should avoid criticism and sarcasm, as these actions may add to customer distrust (Moustakas et al., 2020). Furthermore, the source credibility of the creator of the content is expected to be important for establishing trust with the followers.

In this study, expertise refers to an individual's level of knowledge, understanding and skills (Human-Van Eck et al., 2021). The extent to which the creator of the content (source) is regarded to provide accurate and correct information is known as 'source expertise', and it can be affected by the experiences and knowledge that creators may have about something they recommend (Wiedemann & Mettenheim, 2020). Human-like minds (human creators), according to De Boissieu & Baudier (2023), are viewed as more capable of having feelings, emotions and real experiences that they can share with their followers, resulting in more expertise, than machine-like minds (computer/AI creators). As a result, it is assumed that human creators not only increase the source credibility, but also build higher levels of trust and encourage more positive consumer attitudes (Bhatt et al., 2013). The parasocial relationships with influencers will also be strengthened through the perceived trustworthiness and expertise of the creator of the content. This is due to individuals forming stronger connections with influencers when they trust them and acknowledge the creator's expertise (Ong et al., 2022).

The source credibility in this research is seen as a possible mediator between the controlling entity and the dependent variables; perceived trust, consumer attitude and parasocial relationships. This results in the following mediating hypotheses:

**H4A:** *A computer-controlled creator leads to a lower source credibility, resulting in a negative influence on perceived trust, consumer attitude, and parasocial relationships.*

**H4B:** *A human-controlled creator leads to a higher source credibility, resulting in a positive influence on perceived trust, consumer attitude, and parasocial relationships.*

## 2.10 Conceptual framework

Figure 1 shows the conceptual research model.

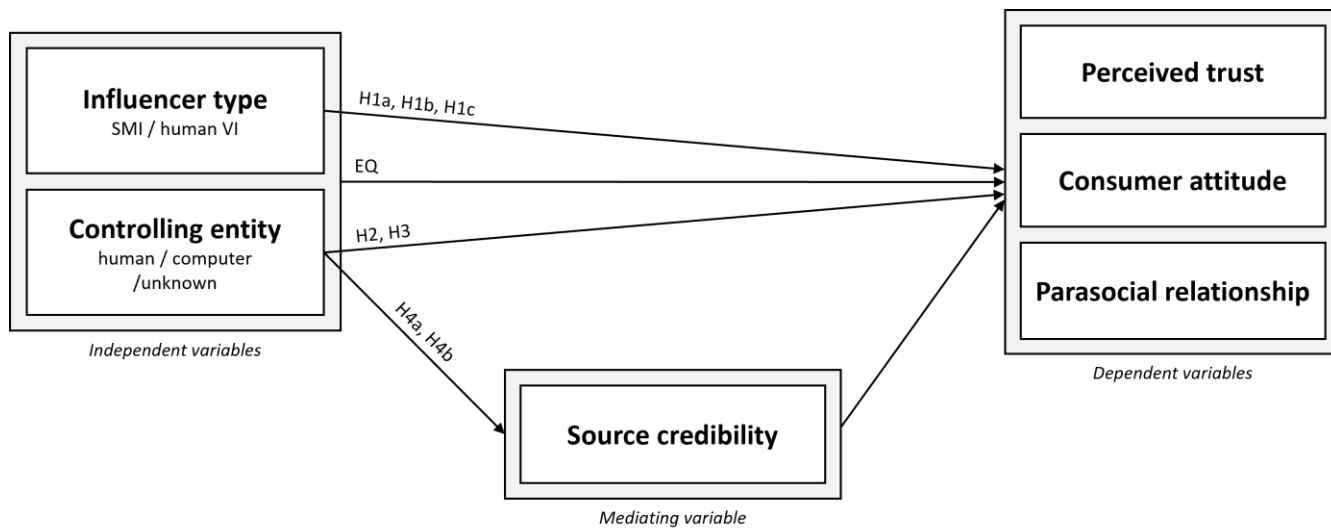


Figure 1 Conceptual research model

### **3 Method**

#### **3.1 Research design**

An online experiment was conducted to investigate the effect of (the combination of) influencers types and controlling entities on perceived trust, consumer attitude, and parasocial relationships. This research approach is applicable for experimental studies in which the presence of cause-and-effect relationships between variables will be examined (Bevans, 2022).

The influencer types and controlling entities were manipulated for the Instagram posts. The study consists of a 2 (influencer type: social media influencer and virtual influencer) by 3 (controlling entity: human, computer or unknown) between-subjects design, with participants randomly assigned to one of the six experimental conditions (see appendix D for the main study stimuli).

To study how controlling entities and influencer types are mediated and affect the dependent variables, an online questionnaire was developed (see Appendix F for the main questionnaire). In total, there were six manipulations and the questionnaire was divided in the following categories: 'perceived trust', 'consumer attitude', 'parasocial relationship', 'source credibility', and 'socio-demographics'. The impact of the conditions on the dependent variables was measured, there were used statements about the mentioned categories after one of the manipulations was shown.

This questionnaire was created and distributed online through [www.qualtrics.com](http://www.qualtrics.com). It allowed the participants to complete the questionnaire on their chosen time and device. The University of Twente's Ethics Committee approved the research request before the questionnaire was circulated (see Appendix B for the approval form).

### 3.2 Procedure

In the introduction of the questionnaire, participants were briefly informed about the purpose of the study, how long the questionnaire would take, that they could withdraw at any moment for any reason (included an informed consent question), and who to contact if they had any questions about this study (Appendix F).

Two filter questions were presented at the beginning of the questionnaire: *'Are you between 18-35 years old'* and *'Do you have an Instagram account?'* to ensure that the participants met the criteria for participation in this study. The filter questions are followed by an additional question, asking if they follow any influencers on Instagram. After posing these questions, participants were shown an Instagram bio and photo of a fictional influencer (SMI or VI) with either a human or computer entity behind the content, or it remained undisclosed (unknown). They were then asked to carefully observe the details of the Instagram photo and text. Each participant was shown one manipulation, and overall the manipulations were randomly distributed among all participants. After seeing the manipulation, there is conducted a manipulation check concerning the influencer type and controlling entity in the Instagram post. Aside from the manipulation-related questions, the participants were also asked several social demographic questions at the end of the questionnaire. After completing the questionnaire, the participants were thanked for their participation. They were asked to not discuss the questions/statements from the research with people who were eligible to also participate in this research, because prior knowledge could invalidate the results of this study (Appendix F).

### **3.3 Participants**

The sampling techniques used to select participants were non-probability techniques, hence, not every member of the target population had an equal chance of being chosen for the study.

Snowball and purposive sampling techniques were used to select participants. The participants were approached by e-mail, face-to-face communication, and on social media channels such as WhatsApp and LinkedIn.

The target group for this research were Instagram users between 18-35 years old. The questionnaire excluded individuals from the research who were not between 18-35 years and/or did not have an Instagram account.

The main study consisted of an online questionnaire with six manipulations. In total there were 240 participants needed (40 per manipulation). A total of 318 individuals participated in this study. Only the surveys that were completed and took longer than 2 minutes are considered as valid, resulting in 279 participants ( $N = 279$ ). The 279 participants consisted of 80 males, 195 females, 3 non-binary/third genders and 1 individual who preferred not to say this/her gender. Individuals took voluntary part in the online experiment and were randomly assigned to one of the six manipulations, as can be seen in Table 1.

Table 1

The six treatment groups (N=279)

		Controlling entity								
		Human (N= 93)			Computer (N= 96)			Unknown (N= 90)		
Influencer type										
Social media Influencer (N=138 )		N= 46			N= 48			N= 44		
Gender	Male	11	Gender	Male	9	Gender	Male	13		
	Female	34		Female	38		Female	31		
	Non-binary / third gender	1		Non-binary / third gender	1		Non-binary / third gender	0		
	Prefer not to say	0		Prefer not to say	0		Prefer not to say	0		
Virtual influencer (N= 141)		N= 47			N= 48			N= 46		
Gender	Male	17	Gender	Male	17	Gender	Male	13		
	Female	29		Female	30		Female	33		
	Non-binary / third gender	1		Non-binary / third gender	0		Non-binary / third gender	0		
	Prefer not to say	0		Prefer not to say	1		Prefer not to say	0		

Note. Representing the 2x3 Factorial Design between subjects, the six conditions

### **3.4 Stimulus material**

#### **3.4.1 Preliminary test**

A pre-test was executed to check the validity of the stimuli and to determine which stimuli should be used for the main study. The components that were tested concerned the influencer types (social media influencers or virtual influencers) and the controlling entities (human-controlled entity, computer-controlled entity or unknown entity) (see Appendix A for the preliminary test manipulations). The findings of the preliminary test can be found in Appendix C. The main stimuli used in the online experiment is presented in figures 2 and 3.

#### **Types of influencers**

The pre-test ensures that the social media influencers are not well-known among the participants, hence only social media influencers with a follower rate below 250.000 followers were included. The test included four different social media influencers from different foreign countries. With the use of Snapchat filters, the photos of the selected social media influencers were turned into two virtual influencer versions. Each selected influencer for the pre-test had a total of three influencer types – social media influencer and two virtual influencer variations. The used filters for the virtual versions were named; beauty cartoon and my avatar. The two versions of humanized virtual influencers were in the same position, environment, and clothing as the original chosen social media influencer.

For this study, five individuals (3 females and 2 males) expressed their opinions on the manipulated stimuli in person. The test questions assessed the influencer's credibility and validity. There were also questions about the perceived humanness of the virtual influencer and the perceived realism of the social media influencers.

After responding to the questions concerning the influencer types, pre-test participants were given more explanation of the terms 'social media influencer', 'virtual influencer', and 'controlling



entities'. Following this explanation there were questions about the mock-ups (including photo of influencer type and the text referring to the controlling entity).

### **Controlling entities**

The participants were asked questions regarding the controlling entities – human, computer or unknown - behind the influencer types. To let the participants know which controlling entities were behind the content of the influencer's post, they were given three disclaiming statements for human-controlled entities and three disclaiming statements for computer-controlled entities. The participants were asked to rank these three disclaimers for human- and computer-controlled entities in terms of how understandable they were to them.


After rating the disclaimer statements, the participants were required to examine various mock-ups to determine whether the text from the Instagram post was clear and realistic. To identify between the controlling entities, one of the three mentioned disclaimers was used beneath the text in all posts, along with hashtags and symbols.

The text for a human-controlled SMI had one of the following disclaimers: *'The content is human-authored, not computer driven'*, *'The content is managed by a real human, not by a computer/AI'*, or *'The content is created and managed by a real human being'*. In addition to the disclaimer, the following hashtags were added: #humancontrolled and #socialmediainfluencer. The symbols were projected above the picture, which was in this case a symbol of a person.

The text for a computer-controlled VI had one of the following disclaimers: *'The content is computer-driven, not human-authored'*, *'The content is managed by a computer/AI, not by a real human'*, or *'The content is created and managed by a computer/AI'*. In addition to the disclaimer, the following hashtags were added: #computercontrolled and #virtualinfluencer. The symbols were projected above the picture, which is in this case a symbol of a computer.

No disclaimer, hashtag or symbol was added when the controlling entity was unknown

← Sophie\_noire 🔔 ...




1573 Posts 223 d. Followers 1.027 Following

**Sophie Noire**  
Digital creator

Paris, France  
24 year-old social media influencer  
Fashion, interior design, travel, food and everything I love  
"Enjoying every sunrise and sunset"  
Currently in Greece

[Follow](#) [Message](#) [Email](#) [+](#)

Sophie\_noire



♥ 💬 ➦ 🚩


@Sophie\_noire: Hi all! I'm Sophie, a social media influencer, and currently in Greece! 🇬🇷

I absolutely love travelling, and Greece holds a special spot in my heart because of the stunning views and amazing local food.

Stay tuned for more Greece adventures and tips! X Sophie

#socialmediainfluencer

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#socialmediainfluencer #humancontrolled

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#socialmediainfluencer #computercontrolled

Figure 2 Main stimuli SMI

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#virtualinfluencer

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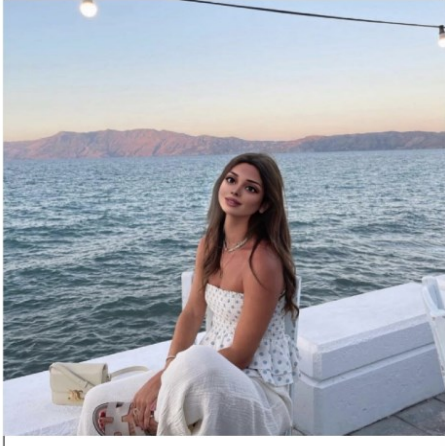


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#virtualinfluencer #humancontrolled

← Sophie\_noire 🔔 ...

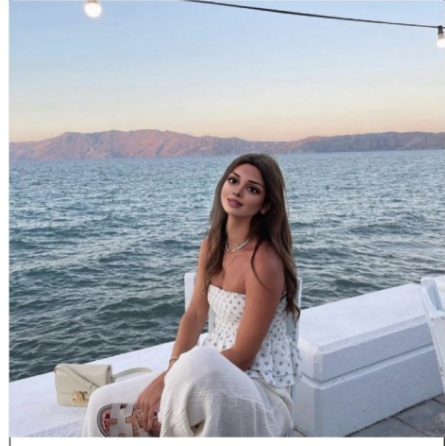


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#virtualinfluencer #computercontrolled

Figure 3 Main stimuli VI

### 3.5 Measures

The online questionnaire included questions about the dependent variables; perceived trust, consumer attitude, and parasocial relationship, as well as the mediating variable; source credibility. Aside from the dependent variables, socio-demographics are also measured. See Appendix E for the measurement statements of the main study.

#### *Perceived trust*

Four statements were used to measure trust. The measurement items were adapted and adjusted from Ohanian (1991) and Laroche et al. (2012). An example statement is: *"I believe influencer X only promotes things she likes and tested"*. A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) is used.

Given that authenticity is regarded as an element of trust, it is assessed using 6 items from Moulard et al. (2015) and Moulard et al. (2016). The statement *"Influencer X is authentic"* is an example of a measurement item. All items were measured with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and can be seen in appendix E. The ten items formed a reliable scale (Cronbach's alpha is .91).

#### *Consumer attitude*

Four statements were used to assess customer attitudes toward the influencer. The individuals' judgements about influencers were measured using a scale developed by Beltramini (1988). Participants were asked to indicate if the influencer was; believable, convincing, reasonable, and questionable. All items were measured with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and can be seen in appendix E. The four items formed a reliable scale (Cronbach's alpha is .81).

### *Parasocial relationship*

To measure parasocial relationships (PSR), 14 items are included. This scale is a response to criticism of existing measures (such as parasocial interaction scale (PSI)) that combines items of the PSI and PSR into one scale (Dibble et al., 2016). The focus in this PSR scale is on the para-friendship subscale measures, which measures the imagined support and intimacy if the influencer was a real person (Dibble et al., 2016).

This scale has already been utilized in a variety of contexts, and has been adapted and supplemented in this study in the context of influencers. Two examples of items are; *“I feel like influencer X is someone I could talk to about anything”*, or *“I would like to meet influencer x in person”*. In addition to these items, 2 items have been added that are adjusted from Gong & Li (2018) and one item from Pellizzaro & Gimbal, (2018). All items were measured with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and can be seen in appendix E. The 14 items for parasocial relationships formed a reliable scale (Cronbach’s alpha is .94).

### *Source credibility*

Source credibility was measured with trustworthiness and expertise, attractiveness was not applicable in this study. These variables were measured with a scale adapted from Ohanian (1991), with three items per component (Appendix E). The items were measured using a bipolar Likert scale. Examples of items are *“Dishonest – Honest”* and *“Unexperienced – Experienced”*. The six items formed a reliable scale (Cronbach’s alpha is .86).

## 4 Results

This chapter presents the results derived from the online experiment. Statistical analyses of the main and interaction effects, as well as the mediator source credibility, are all examined to explore the hypotheses. To conclude, an overview of all hypotheses is provided in Table 10.

The distribution of responses to the manipulation question regarding the creator of the content does not correspond with the randomization employed in this study. According to the randomizer, the breakdown is as follows: there are 93 human creators, 96 computer creators and 90 unknown creators. Notably, the computer-controlled creator had a higher proportion of responses to the manipulation question than anticipated, with a total of 149 computer-controlled creators. On the other hand, the human creator gathered 86 responses, while the unspecified category (referred to as unknown creator) only accounted for 24 responses. Furthermore, 20 individuals were unable to recall the creator behind the Instagram post in this study.

In contrast, the distribution of the influencer type shows a relative evenness compared to that of the creators. According to the randomizer, the breakdown is as follows: 138 SMI and 141 VI. Specifically in this experiment, there were 142 social media influencers, 130 virtual influencers, and only 7 participants who couldn't recall the influencer type. Despite the balanced situation among influencer types, the discussion will address the notable disparity in the distribution of the creators of the content.

#### 4.1 Multivariate analysis of variance (MANOVA)

A multivariate analysis of variance (MANOVA) was used to examine the effects of influencer type and controlling entity on perceived trust, consumer attitude, parasocial relationship, and the mediator source credibility. A Wilk's Lambda test is performed to examine the general effects between the independent and combined dependent variables. Table 2 displays the results of the multivariate analysis.

*Table 2 Multivariate tests*

	Independent variable	<i>F</i>	<i>p</i>
Wilk's Lambda	Influencer type	8.69	<.001
	Controlling entity	2.27	.02
	Influencer type*Controlling entity	1.13	.34

The Wilk's Lambda test shows that there is a significant main effect of influencer type ( $\Lambda = 0.89$ ,  $F(4,270) = 8.69$ ,  $p < .001$ ,  $\eta = .11$ ). There was also a significant main effect found for controlling entity ( $\Lambda = 0.94$ ,  $F(8,540) = 2.27$ ,  $p = .022$ ,  $\eta = .03$ ) at an alpha level of 5%. Moreover, there was no significant interaction effect found between the two independent variables ( $\Lambda = 0.97$ ,  $F(8,540) = 1.13$ ,  $p = .34$ ).

#### 4.1.1 Main effects of influencer type on dependent variables

Table 3 shows that there was a significant main effect of influencer type on perceived trust, consumer attitudes, parasocial relationships and source credibility. A summary of the means and standard deviations of the dependent variables can be found in Table 4.

Table 3 Test of between subject design effect

Independent variable	Dependent variable	<i>F</i>	<i>p</i>
<i>Influencer type: Social media</i> influencer/ virtual influencer	Perceived trust	28.34	<.001
	Consumer attitude	31.87	<.001
	Parasocial relationships	10.00	.002
	Source credibility	17.45	<.001

A MANOVA analysis showed that influencer type had a significant main effect on perceived trust ( $F(1,273) = 28.34, p = <.001, \eta = .09$ ) at an alpha level of 5%. The social media influencer type ( $M = 3.02, SD = 0.69$ ) is perceived as more trustworthy compared to the virtual influencer type ( $M = 2.57, SD = 0.73$ ).

Moreover, influencer type had a significant main effect on consumer attitude towards the influencer ( $F(1,273) = 31.87, p = <.001, \eta = .011$ ) at an alpha level of 5%. The social media influencer type ( $M = 3.04, SD = 0.70$ ) has a more positive effect on consumer's attitudes compared to the virtual influencer type ( $M = 2.52, SD = 0.83$ ).

Furthermore, influencer type had a significant main effect on parasocial relationships ( $F(1,273) = 10.00, p = .002, \eta = .035$ ) at an alpha level of 5%. Respondents were more engaged to a relationship with a social media influencer type ( $M = 2.45, SD = 0.74$ ) than with a virtual influencer type ( $M = 2.16, SD = 0.79$ ).



Additionally, influencer type had a significant main effect on source credibility ( $F(1,273) = 17.45, p = <.001, \eta^2 = .06$ ) at an alpha level of 5%. The social media influencer type was found to be a more credible source ( $M = 3.12, SD = 0.72$ ) than the virtual influencer type ( $M = 2.78, SD = 0.71$ ).

*Table 4 Summary influencer type means (M) and standard deviations (SD)*

	Social media influencer		Virtual influencer	
	N = 138		N = 141	
	M	SD	M	SD
Perceived trust	3.02	0.69	2.57	0.73
Consumer attitude	3.04	0.70	2.52	0.83
Parasocial relationships	2.45	0.74	2.16	0.79
Source credibility	3.12	0.72	2.78	0.71

#### 4.1.2 Main effects of controlling entity on dependent variables

The analyses of Table 5 show that there were significant main effects of controlling entity found on the mediator source credibility and on one of the dependent variables. A summary of the means and standard deviations of the dependent variables can be found in Table 6.

Table 5 Test of between subject design effect

Independent variable	Dependent variable	<i>F</i>	<i>p</i>
<i>Controlling entity:</i> Human entity, computer entity, unknown entity	Perceived trust	3.57	.03
	Consumer attitude	.91	.41
	Parasocial relationships	1.46	.23
	Source credibility	3.47	.03

The MANOVA analysis showed that controlling entity had a significant main effect on perceived trust ( $F(2,273) = 3.57, p = .03, \eta = .026$ ) at an alpha level of 5%. The pairwise comparisons table showed that the computer-controlled entity differs significantly from the unknown entity ( $p = .03$ ), but the human-controlled entity did not differ significantly from the unknown entity ( $p = 1.0$ ). Besides this there was also no significant difference between the human-controlled entity and the computer-controlled entity ( $p = .16$ ). So, table 8 indicates that the participants show more trust towards the unknown entity ( $M = 2.90, SD = 0.73$ ) in comparison to the computer-controlled entity ( $M = 2.64, SD = 0.74$ ).

Furthermore, the analysis also showed that controlling entity had a significant effect on source credibility ( $F(2,273) = 3.47, p = .03, \eta = .025$ ) with an alpha level of 5%. The pairwise comparisons table showed that the computer-controlled entity differs significantly from the human-controlled entity ( $p = .05$ ), but the computer-controlled entity does not differ significantly from the unknown entity ( $p = .12$ ). Besides this, the human-controlled entity does not differ significantly from

the unknown entity ( $p = 1.0$ ). Table 8 indicates that the human-controlled entity ( $M = 3.05$ ,  $SD = 0.68$ ) is seen as more credible than the computer-controlled entity ( $M = 2.80$ ,  $SD = 0.75$ ).

*Table 6 Summary of controlling entity means (M) and standard deviations (SD)*

	Human entity		Computer entity		Unknown entity	
	<i>N</i> = 93		<i>N</i> = 96		<i>N</i> = 90	
	M	SD	M	SD	M	SD
Perceived trust	2.84	0.75	2.64	0.74	2.90	0.73
Consumer attitude	2.78	0.82	2.70	0.78	2.85	0.83
Parasocial relationships	2.23	0.83	2.27	0.73	2.41	0.77
Source credibility	3.05	0.68	2.80	0.75	3.01	0.75

#### 4.1.3 Interaction effect influencer type and controlling entity

In Table 7 it is shown that there was no interaction effect. Tables 8 and 9 summarize the dependent variables' means and standard deviations.

*Table 7 Test of between subject design effect*

Independent variable	Dependent variable	<i>F</i>	<i>p</i>
<i>Influencer type * Controlling entity</i>	Perceived trust	1.03	.36
	Consumer attitude	2.21	.11
	Parasocial relationships	1.35	.26
	Source credibility	1.51	.22

The analysis of the interaction between the independent variables influencer type and controlling entity on the dependent variables is presented in table 9. The findings reveal that there is no significant interaction effect of the influencer type and controlling entity on the dependent variables, at an alpha level of 5%. So, the effect that an influencer type has on the dependent variables is not stronger or weaker based on the controlling entities behind them.

Table 8 Summary controlling entity and influencer type means and standard deviations part 1

		Human entity		Computer entity		Unknown entity	
		N = 93		N = 96		N = 90	
		M	SD	M	SD	M	SD
Social media	Perceived trust	3.12	0.65	2.78	0.70	3.16	0.67
influencer							
N = 138							
	Consumer	3.13	0.69	2.83	0.72	3.17	0.64
	attitude						
	Parasocial	2.43	0.80	2.31	0.70	2.61	0.70
	relationship						
	Source credibility	3.20	0.69	2.90	0.79	3.29	0.61

Table 9 Summary controlling entity and influencer type means and standard deviations part 2

		Human entity		Computer entity		Unknown entity	
		N = 93		N = 96		N = 90	
		M	SD	M	SD	M	SD
Virtual influencer	Perceived trust	2.56	0.74	2.50	0.75	2.65	0.71
N = 141							
	Consumer	2.44	0.81	2.58	0.83	2.55	0.87
	attitude						
	Parasocial	2.03	0.83	2.23	0.76	2.22	0.80
	relationship						
	Source credibility	2.90	0.64	2.69	0.71	2.74	0.77

## 4.2 Mediation effect of source credibility

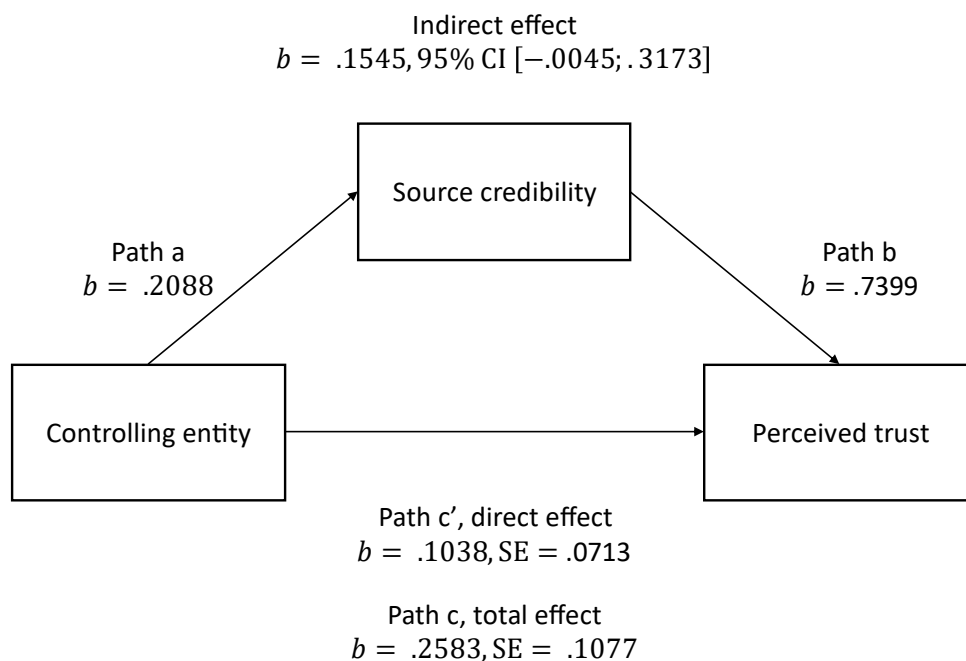
The mediation effect of source credibility was tested in addition to the direct main and interaction effects of the independent variables on the dependent variables. In this study source credibility act as a mediator between the independent variable controlling entity and the dependent variables. Table 5 from the MANOVA analysis '*Test of between subject design effect*' is examined for significant effects of the controlling entity on the dependent variables. Significant effects were found for perceived trust and source credibility, pointing towards a potential mediation. For perceived trust, a significant difference was identified between a computer-controlled entity and an unknown entity. Based on this information, a mediation effect could occur between the controlling entity and the dependent variable perceived trust. A mediation analysis was performed by Model 4 of the PROCESS macro for SPSS, by F. Hayes (2018). And as a result from the MANOVA analysis, the PROCESS model by Hayes dummy coded the computer and unknown entities for the independent variable (variable x) instead of using the three controlling entity variables.

### Perceived trust

A mediation analysis (Figure 4) was carried out to find out whether source credibility mediates the effect of the multicategorical independent variable controlling entity on perceived trust.

The direct effect of controlling entity on perceived trust, ignoring the mediator (source credibility), showed that the controlling entity is not a significant predictor of perceived trust ( $b = .1038$ ,  $SE = .0713$ ,  $p = .1472$ ) at an alpha level of 5%. Secondly, the effect of controlling entity on the mediator source credibility is found to be not significant ( $b = .2088$ ,  $SE = .1100$ ,  $p = .0593$ ) at an alpha level of 5%, meaning that there is overall no mediation. However, it could be stated that there is an marginal effect, at an alpha level of 10%. Third, the mediation analysis showed that the effect of the mediator (source credibility), controlling for the controlling entity, was significant ( $b = .7399$ ,  $SE = .0473$ ,  $p = .000$ ) at an alpha level of 5%. This underlines the importance of source credibility as a predictor of perceived trust. Further, when controlling for the mediator (source credibility), the

controlling entity was found to be a significant predictor of perceived trust ( $b = .2583$ ,  $SE = .1077$ ,  $p = .0174$ ) at an alpha level of 5%. The indirect effect was tested using non-parametric bootstrapping. The indirect effect is not significant:  $b = .1545$ , 95% CI  $[-.0045; .3173]$ , indicating that there is no mediation effect in this study, contrary to the MANOVA analysis, which pointed in the direction of mediation.



*Figure 4 Mediation model for perceived trust with source credibility as mediator*

The independent variable controlling entity, which can be seen as a multicategorical independent variable, has three options in this study (human, computer, and unknown entity). These three options are discussed below and shown in Figures 5, 6, and 7.

In Figure 5, the direct effect of a computer-controlled entity on perceived trust, ignoring the mediator (source credibility), showed that the computer-controlling entity is not a significant predictor of trust ( $b = -.0692$ ,  $SE = .0692$ ,  $p = .3184$ ) at an alpha level of 5%. Secondly, the effect of a computer-controlled entity on the mediator source credibility is found significant ( $b = -.2287$ ,  $SE = .0915$ ,  $p = .0130$ ) at an alpha level of 5%. Third, the mediation analysis showed that the effect of the mediator (source credibility), controlling for computer-controlled entity, was significant ( $b = .6908$ ,  $SE =$

= .0449,  $p = .000$ ) at an alpha level of 5%. Lastly, when controlling for the mediator (source credibility), the computer-controlled entity was found to be a significant predictor of trust ( $b = .2272$ ,  $SE = .0931$ ,  $p = .0153$ ) at an alpha level of 5%. The indirect effect was tested using non-parametric bootstrapping. The indirect effect is significant:  $b = -.1580$ , 95% CI [-.2897; -.0293], indicating that there is a mediation effect of source credibility, but only for the computer-controlled entity. This is consistent with full mediation, due to there being no direct effect.

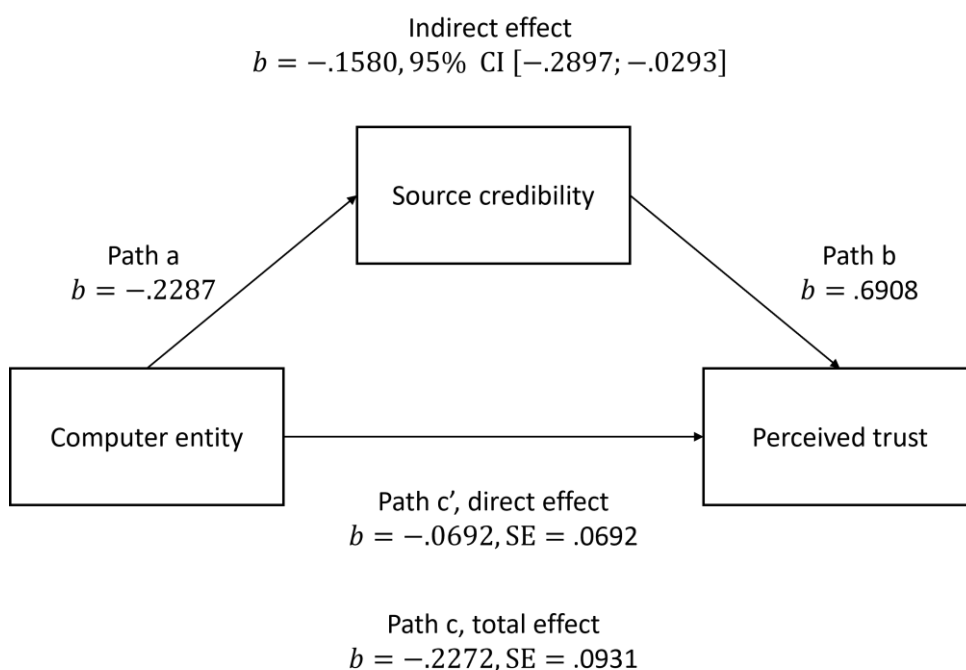


Figure 5 Mediation model computer entity towards perceived trust with source credibility as mediator

In figure 6, the direct effect of human-controlled entity on perceived trust, ignoring the mediator (source credibility), showed that human-controlled entity is not a significant predictor of perceived trust ( $b = -.307$ ,  $SE = .0694$ ,  $p = .6583$ ). Secondly, the effect of a human-controlled entity on the mediator source credibility is not found significant ( $b = .1470$ ,  $SE = .0928$ ,  $p = .1146$ ) at a 5% alpha level, indicating the absence of a mediation.

In Figure 7, the direct effect of unknown entity on perceived trust, ignoring the mediator (source credibility), showed that unknown entity is not a significant predictor of perceived trust

( $b = .1012$ ,  $SE = .0695$ ,  $p = .1468$ ). Secondly, the effect of a unknown entity on the mediator source credibility is not found significant ( $b = .0868$ ,  $SE = .0939$ ,  $p = .3563$ ) at a 5% alpha level, indicating no mediation effect for this entity as well.

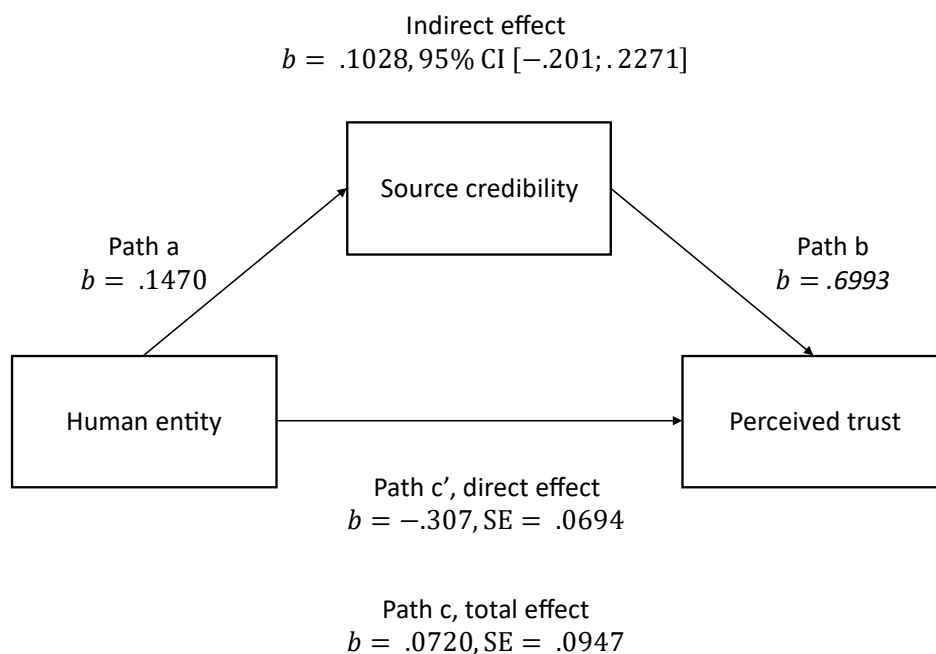


Figure 6 Mediation model human entity towards perceived trust with source credibility as mediator

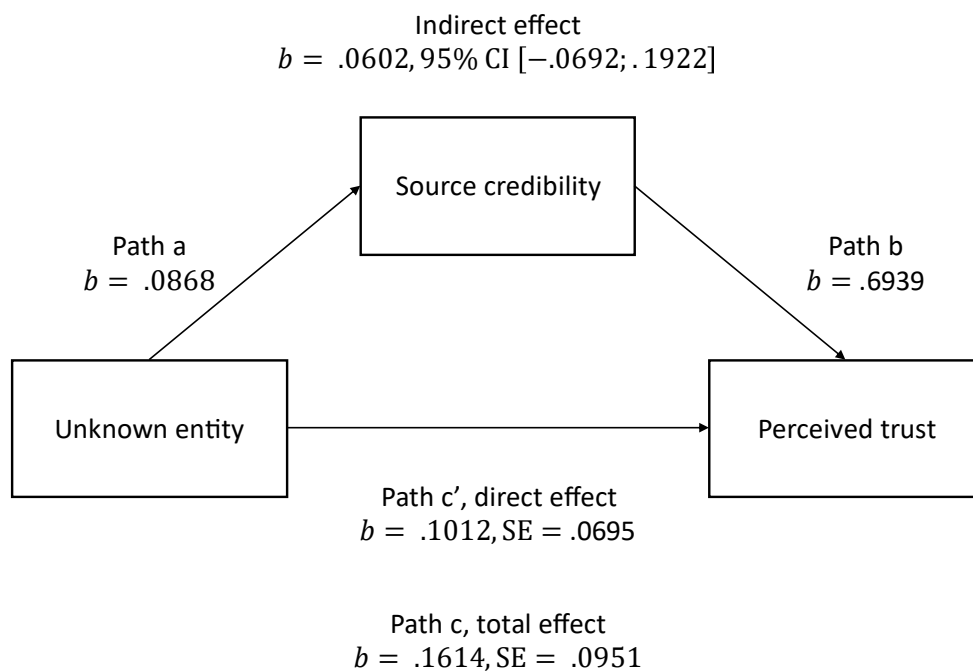


Figure 7 Mediation model unknown entity towards perceived trust with source credibility as mediator



## Hypotheses overview

Table 10 shows the study's hypotheses and exploratory question, as well as the extent to which they were supported by the statistical analyses.

	Hypotheses	Result
H1a	Social media influencers have a more positive influence on perceived trust than virtual influencers.	Supported
H1b	Social media influencer have a more positive influence on consumer attitude than virtual influencers.	Supported
H1c	Social media influencer have a more positive influence on parasocial relationships than virtual influencers.	Supported
H2	Knowing who the controlling entity is, regardless of whether it is a human or computer, will positively affect perceived trust, consumer attitudes, and parasocial relationships compared to situations where the controlling entity remains unknown.	Rejected
H3	The use of human-controlled entities will more positively affect perceived trust, consumer attitudes, and parasocial relationships compared to a computer-controlled entity.	rejected
H4a	A computer-controlled creator leads to a lower source credibility resulting in a negative influence on perceived trust, consumer attitude and parasocial relationships.	Partly supported
H4b	A human-controlled creator leads to a higher source credibility, resulting in a positive influence on perceived trust, consumer attitude, and parasocial relationships.	Rejected
EQ	Does the perceived trust, consumer attitude, and parasocial relationship towards various influencer types depend on the controlling entities behind them?	No

*Table 10 Overview of the results of hypotheses*

## 5 Discussion

This study provides insights into the impact of influencer types (SMI and VI) and the controlling entities (computer, human or unknown entity) on perceived trust, consumer attitude, and parasocial relationships. Additionally, the mediating effect of source credibility is examined.

In this study, both the influencer type and controlling entity had a main impact on the combined dependent variables. Influencer type had an influence on perceived trust, consumer attitude, parasocial relationship, as well as on the mediator source credibility. SMIs demonstrated a more positive impact on these variables compared to VIs. On the other hand, the controlling entity had only an impact on perceived trust and source credibility. Surprisingly, the unknown entity is more trusted than the computer-controlled entity, indicating a higher level of trust when the entity remains unknown. Furthermore, it cannot be stated that the human-controlled entity has a more positive impact on the dependent variables compared to the computer-controlled entity. Moreover, the study indicated that there is no interaction effect. An influencer type's impact on dependent variables is not stronger or weaker based on the controlling entities. The mediator source credibility exhibits a mediating effect solely between the computer-controlled entity and the dependent variable perceived trust.

The findings of influencer type, controlling entity and the interaction effect between these two are discussed in the following section. Additionally, the mediator source credibility is examined. Furthermore, this chapter addresses additional points that were not originally hypothesized. Toward the conclusion of this chapter, the discussion encompasses the limitations & future research, and implications.

**Influencer type**

Hypothesis 1, which predicted that SMIs have a more positive influence on perceived trust, consumer attitude, and parasocial relationships in comparison to virtual influencers, is supported.

To begin, the influencer type had an impact on all dependent variables. There was an effect on perceived trust, with the SMI being perceived as more trustworthy than the VI, supporting hypothesis 1a. Additionally, influencer type affected consumer attitudes, showing that the SMI had a more positive influence on consumer attitudes than VIs, supporting hypothesis 1b. Lastly, influencer type had an effect on parasocial relationships, indicating that the participants showed a greater preference to connect with a SMI over a VI. This implies that SMIs evoke a more positive response from participants, supporting hypothesis 1c.

This is consistent with existing literature, which suggests that SMIs are perceived as more genuine and trustworthy due to their real life experiences and opinions compared to VIs (Harrigan et al., 2021; Woods, 2016). Further support comes from a study suggesting that SMIs generate more positive attitudes than (humanized) VIs (Qu & Beak, 2023), which could be explained by the greater sense of authenticity and relatability of SMIs. Moreover, it is consistent with literature stating that sharing personal information, which is more difficult for VIs than SMIs, with individuals can foster trust, reducing uncertainties, but also increase the likelihood of a parasocial relationship (Lim & Lee, 2023). Therefore, individuals perceive relationships with VIs to be weaker than those formed with SMIs, eliciting a preference for relationships with SMIs (Stein et al., 2022).

### **Controlling entity**

Hypothesis 2 stated that knowing the controlling entity, regardless whether it is a human or computer, will positively affect perceived trust, consumer attitude, and parasocial relationships compared to situations where the controlling entity remains unknown. Contrary to the expectations, hypothesis 2 is rejected.

The controlling entity has no effect on consumer attitude and parasocial relationships, however, it has an impact on perceived trust. The computer-controlled entity differs enough from the unknown entity, but surprisingly, the unknown entity is trusted more than the computer-controlled entity. This indicates that there is a higher level of trust when the entity remains unknown, but only when the known entity is the computer controlled-entity. This outcome contradicts with the hypothesis and existing literature suggesting that knowing the entity behind the influencer elicits interest and increases trust and authenticity in the influencer (Koles et al., 2024). One possible explanation for the unexpected outcome could be associated with the transparency of the controlling entity, which can impact trust. When individuals have a comprehensive understanding of the factors influencing the influencer, it can elicit interest and increases trust, but it may also elicit suspicion and/or skepticism about the influencer's authenticity or motives. On the other side, when the controlling entity remains unknown, it could create an environment where individuals feel more secure due to the lack of knowledge about the hidden controlling entities. This suggest that having limited knowledge about the entity results in having more trust, as opposed to when the entity is known.

Another possible explanation for this unexpected outcome could be a lack of clarity regarding the unknown entity in this research. This is apparent from the manipulation question about controlling entities, as nearly all participants in the unknown condition provided incorrect answers. This likely stems from the lack of disclosure regarding the unknown entity in the experiment; there were no disclaimers or hastags indicating that the entity is unknown. As a result, the participants

might not have been aware or considered that a controlling entity, human or computer, was involved. The absence of cues for the unknown entity may have led participants to focus on influencer types rather than on the controlling entities, leaving them with only the influencer type to say something about. As a result, questions about the entities behind the influencers may have been answered with the influencer type in mind rather than the unknown entity, resulting in a distorted result. So apparently, participants trusted the influencer type more than they did the computer-controlled entity.

Future research could delve deeper into the lack of clarity regarding the controlling entities. It is important to give the participants a definition of the controlling entity, specifically necessary for the unknown entity. This will help to get a better understanding and to explore whether the results of this study would be the same as in future research. To implement this, a brief explanation about controlling entities should be provided before the real experiment starts. Also adding a disclaimer and hastag for the unknown entity can be useful.

Hypothesis 3, which assumed that the use of a human-controlled entity will more positively affect perceived trust, consumer attitude, and parasocial relationship, compared to a computer-controlled entity is rejected.

To begin, it is found that the controlling entity has an effect on perceived trust, however, it was not possible to compare human and computer-controlled entities because the observed differences were not large enough. Therefore, the found differences can only be attributed to random change. So, it cannot be stated that the human-controlled entity will have a more positive effect on perceived trust compared to a computer-controlled entity. This outcome is not consistent with the existing literature suggesting that a human-controlled entity will have an increased authenticity, which will increase trust in the influencers (Labrecque, 2014; Fox et al., 2015).

No effect is observed for the controlling entity on the other two dependent variables; consumer attitude and parasocial relationship. So, it cannot be stated that the use of human-controlled entities will more positively affect consumer attitudes and parasocial relationships compared to a computer-controlled entity. These outcomes are also contrary to the existing literature, initially proposing that a human-controlled entity would add a layer of humanization and give a more authentic and personal attitude toward the influencer, resulting in a positive image towards the influencer in comparison to a computer-controlled entity (Fox et al., 2015). Furthermore, this contradicts literature asserting that a human-controlled entity is perceived as more personal, which may foster a sense of trust, intimacy, and increase the likelihood of a parasocial relationship with the influencer (Lim & Lee, 2023).

A possible explanation for the absence of differences between human-controlled entities and computer-controlled entities could be caused by the contextual information but also by what individuals personally prefer. So, depending on the context and preferences, the need for an entity may vary. A computer-controlled entity might be preferred because it is good at giving us facts, even if it lacks a personal touch. But in other contexts, like politics, mental health, and ethical problems,

individuals might prefer a human-controlled entity, someone who understands things, shows empathy, and can make ethical decisions. Due to the wide contextual influences, it cannot be easily said that one entity is always better. Individual preferences further enhance this complexity, due to diverse tastes, values, experiences, and familiarity with influencers. These individual facts collectively contribute to the explanation of the observed absence of a clear distinction between the human and computer entities.

Future research should delve deeper into contextual factors and preferences of specific user groups to understand how this shapes preferences and responses toward human- or computer-controlled entities, research can explore things like users's values, taste and familiarity with influencers and controlling entities. Understanding the interaction between the controlling entities behind the influencers and users could provide valuable insights.

### **Interaction effect**

It was stated that the effect between influencer type and perceived trust, consumer attitude, and parasocial relationships will vary based on the different controlling entities behind them, indicating an interaction effect. However, the findings indicate that there is no interaction effect between influencer type and controlling entity on the dependent variables. In other words, the impact of influencer type on responses of individuals remained consistent, regardless of the controlling entity. So, the effect that an influencer type has on the dependent variables is not stronger or weaker based on the controlling entities behind them. To summarize, the answer to the exploratory question is no.

This outcome contradicts with existing literature, which suggests that responses to different influencer types do not only depend on their appearance, but also on the controlling entity behind them (Seymour et al., 2020). The findings suggest that, in this case, the controlling entity had no effect on the impact of influencer types on individual responses. Furthermore, in this study, the assumption was that the controlling entity would have the strongest impact on the virtual influencer, as disclosing the controlling entity would have the greatest effect, unlike social media influencers where the impact is assumed to be less pronounced. Contrary to this assumption, since there is no interaction effect, it cannot be stated that the controlling entity would have a stronger impact on VIs compared to SMIs.

The absence of an interaction effect may be attributed to the relative dominance of certain factors over others. It is possible that the influencer type overshadows the influence of the controlling entity, thus playing a substantial role in shaping consumer responses. In essence, regardless of the controlling entity behind an influencer, individuals' responses may be primarily shaped by the characteristics of the influencer type, as these are the first aspects noticed by the participants. This could be a reason why there is no notable interaction effect between influencer type and controlling entity in shaping the responses of individuals.



Another possible explanation for the absence of an interaction effect in this study could be the undisclosed entity behind the influencers (unknown entity), creating a situation where participants are unaware of external influences. In these manipulations, the potential existence of a controlling entity (human or computer) behind the influencer is not acknowledged. As a result, participants unconsciously neglect the influence due to the lack of information. This could be the reason why the participants' attention leaned more toward the visible aspects of the Instagram post, the influencer types. This results in a consistent response regardless of the controlling entity.

Future research should delve deeper into understanding the factors that contribute to the absence of the interaction effect. It should also be investigated if there could be an interaction effect between influencer type and controlling entity when clear information about the controlling entities is provided.

**Source credibility (mediator)**

In addition to examining the direct effects of the independent variables and the interaction effect between the independent variables on the dependent variables, this study also delves into the exploration of the mediating variable source credibility.

This study expected that the computer-controlled entity would reduce the source credibility, resulting in a negative influence on the dependent variables (hypothesis 4a). This hypothesis is partly supported. In contrast, hypothesis 4b posited that a human-controlled entity increases source credibility, thereby positively impacting the dependent variables, but it is rejected.

To begin, an effect is identified between the controlling entity and perceived trust, as well as with source credibility, suggesting the presence of a potential mediator. Following these results, a mediation analysis was conducted, focusing solely on perceived trust as the dependent variable. For this mediation analysis, a dummy coded controlling entity was utilized. The dummy coded variable for the mediation analysis included the computer and unknown entity, since there was enough difference between them. The results of this analysis indicated that the controlling entity did not have an effect on the source credibility, suggesting no mediation. Nevertheless, it is noteworthy to mention that there is a marginal effect on source credibility, thus indicating an influence that might be worth further exploration. In summary, these findings contradict with earlier results, which indicated an effect of the controlling entity on source credibility. Additionally, the mediation analysis explored the impact of source credibility on perceived trust. The findings reveal an effect of source credibility on perceived trust, which indicates that source credibility is an important predictor of perceived trust for controlling entity in this study.

Due to the marginal effect on source credibility and the multicategorical nature of the controlling entity, each of the three entities are separately examined. The computer-controlled entity shows an effect on source credibility, which indicates a negative influence of a computer-controlled entity towards the source credibility. Additionally, it is found that the source credibility has a positive

effect on the perceived trust while controlling for the computer-controlled entity. As mentioned before, it can be stated that source credibility is a predictor of perceived trust. So, based on both effects, it can be stated that there is a negative indirect effect. This indicates that the computer-controlled entity presence leads to a lower source credibility, and resulting in a negative effect on the perceived trust. Since this effect is only observed for the independent variable perceived trust, hypothesis 4b is partly supported.

This is consistent with existing literature that emphasizes how computer creators often fall short of expectations due to a lack of understanding of users' needs (Song et al., 2022). The computer-controlled entities lack personal experiences and have limited ability to provide an honest opinion. Consequently, this may result in a decreased level of trustworthiness, a key component of source credibility (Moustakas et al., 2020). Additionally, the reduced expertise of computer-controlled entities, arising from their inability to experience emotions or genuine feelings, also negatively impact source credibility (De Boissieu & Baudier, 2023). As a consequence, it results in a negative influence on the dependent variables.

The study found no effect of the human-controlled entity on source credibility, ruling out the impact of mediation. Consequently, it cannot be stated that a human-controlled entity leads to higher source credibility, resulting in a positive influence on all dependent variables. This leads to a rejection of hypothesis 4b. Similarly, the unknown entity indicated no effect on source credibility, indicating an absence of mediation in this aspect as well.

This is not consistent with existing literature suggesting that human-controlled entities are seen as more positive and trustworthy (Moustakas et al., 2020). Moreover, this is also inconsistent with the statement that human-like minds are more capable of having emotions and real experiences, consequently resulting in more expertise – which is a key component of source credibility.

A possible explanation for observing mediation solely with the computer-controlled entity, as opposed to the human and unknown entities, is likely attributable to the distinct perceived limitations and specific characteristics associated with each controlling entity. Individuals tend to see computer-controlled entities as less trustworthy and less expert due to their limitations, negatively impacting source credibility and leading to a decrease in perceived trust. It seems like that computer-controlled entities play a more prominent role in influencing source credibility compared to the other entities. In contrast, there was no mediation observed for the human- and unknown entities. This might be because individuals don't perceive these entities facing the same challenges in source credibility. Individuals might find it hard to form strong opinions about unknown entities because it is unclear whether it is a human or computer entity. The human-controlled entities in comparison to computer-controlled entities, in particular, are viewed as more expert and trustworthy, potentially avoiding the credibility issues observed with computer-controlled entities.

### **Additional findings**

In addition to the hypotheses, there were some other findings investigated in this study.

Findings demonstrated that the influencer type had an effect on the mediator source credibility, where the social media influencer type was found to be a more credible source than the virtual influencer. This suggests that the type of influencer has an effect on the source credibility, which could possibly function as a mediator between the influencer type and the dependent variables. This outcome is consistent with the existing literature on influencer types, where social media influencers exert a greater influence on individuals due to their trustworthiness, expertise and attractiveness compared to virtual influencers (Kádeková & Holienčinová, 2018). These results can be explained by understanding that individuals are seen as a personal source of information (Harrigan et al., 2021). Additionally, the participants in this study may relate more to human influencers, because these types of influencer are typically seen on Instagram.

Future research should delve deeper into the noteworthy impacts of influencer types on the mediator source credibility. Additionally, exploring the impact of visual elements of the influencers could provide valuable insights. Another possible option to investigate is the influence of various influencer types on source credibility and consumer behavior, ensuring alignment with ongoing technological advancements and societal shifts.

Another interesting finding was the difference in effect for the influencer type and the controlling entity on the mediator source credibility. The effect of the influencer type was way stronger than the effect of controlling entity on the mediator source credibility. This may be attributed to the immediate visibility and relatability of the influencer type. The influencer type in this study is the visible face, where participants can attribute credibility more directly, in comparison to the less visible controlling entities. It can be concluded that the influencer type overshadows the more abstract controlling entity.

Future research should explore alternative explanations for the stronger impact of influencer types in contrast to the controlling entities. This investigation should look at the nuances of varying levels of visibility of controlling entities and their impact on source credibility, with the goal of determining the best balance for maintaining influence while not being overshadowed by influencer types. Also, in order to get the individuals to take the controlling entities into consideration, it is critical to be more transparent and clear about the term controlling entities.

Finally, an additional observation highlights the consistent low averages in the results for both influencer types and controlling entities. It is possible that the SMI type might not have been perceived convincingly, potentially failing to generate excitement among the participants in this study, despite the conducted pre-test. This perceived lack of convincing presentation may have contributed to the low averages for the SMI. The lower averages for the VI may be attributed to the uncanny valley effect. It could be possible that participants perceived the VI as very realistic, but falling short of experiencing them as genuinely authentic and human-like. This disparity could make individuals feel eerie and uncomfortable, affecting the averages of trust, attitudes, parasocial relationships and credibility towards influencers. Additionally, perceptions of inauthenticity and difficulty in identification with influencers might also contribute to the overall lower average scores. Beyond the observed low averages for influencer types, similarly low averages are evident for the controlling entities behind these influencers. This may be attributed to inadequate transparency regarding the roles and influence of these controlling entities. General factors such as insufficient visibility or reliability, combined with the impersonal nature of controlling entities, likely contribute to lower average scores.

Future research should prioritize efforts to enhance the authenticity and relatability of influencer types, aiming to address low average scores. Additionally, investigating strategies to improve transparency among controlling entities had the potential to positively contribute to users' trust, attitudes, parasocial relationships and credibility towards influencers.

## 5.1 Limitations and future research

The uneven distribution of responses to the manipulation question about controlling entities indicates a possible issue in the study's design and/or in the participants understanding. The high selection of computer-controlled entities in comparison to unknown entities suggests a possible misunderstanding of the unknown entities used in this research. Participants may have answered the manipulation questions and questions about the source credibility, which were about the controlling entity, based on the influencer type instead of the intended controlling entity, causing distorted results. The intentional withholding of information about the unknown entity in the study to prevent bias, may have contributed to participants' confusion. In future research participants should be provided with clear information about the unknown entity. This pro-active approach ensures that participants have a better understanding and will contribute to more reliable study results. The clarification about the unknown entity could involve a brief introduction before the start of the experiment or a disclosure about the characteristics and nature of the unknown entity.

The extent to which the participants have attentively read and understand the captions of the Instagram post (or not) is another noteworthy limitation. The uneven distribution of responses, as mentioned above, suggests potential misunderstanding of the questions/content. The misunderstanding could also be linked to individual reading habits and varying levels of engagement with the content, as some participants may have paid more attention, while others did not. The freedom to quickly scan the texts without time constraints could explain why the content, such as disclaimers and hashtags, were not uniformly read and understood. Future research should implement strategies to ensure attentive reading, such as waiting time periods during the manipulations or utilizing eye-tracking technologies to observe participants' focus. These strategies aim to promote more attentive reading and could contribute to a more consistent and reliable participant response.

Another limitation lies in the fact that the Instagram profile did not accurately reflect a realistic scenario. In a real life scenario, participants would typically have the opportunity to explore an influencer's profile more extensively. However, the participants in this study may not have had enough information to form an opinion, as the participants were only provided with a single Instagram picture and a bio containing limited details about the influencer. This minimal manipulation may have affected the individual's ability to develop trust, a parasocial relation, opinion or a comprehensive understanding of the influencer and their content, likely contributing to the low averages scores. To provide a more authentic and dynamic representation, future research should allow participants to navigate through the Instagram profile, explore stories, highlights, comments, and engage more with the content. Conducting such an analysis can further refine understanding by examining the perceptions of participants of the influencers' Instagram page. This approach enhances the validity of the findings, ensuring that the findings will be more generalizable and applicable to real-life.

Furthermore, this study did not explore the long-term effects on perceived trust, consumer attitude, and parasocial relationship by introducing the influencer's Instagram post only once in the experimental setting. This limitation constrained the examination to immediate participants responses. Consequently, conclusions about the long-term effects cannot be drawn. Future research should investigate how individuals with increased exposure interpret the influencer type and controlling entities, and what for effect this could have on individuals' attitudes, trust, and parasocial relationships. Repeated exposure in an experiment could namely potentially influence and shape perceptions and attitudes of individuals, fostering a deeper engagement, and a more nuanced understanding of the content. This eventual familiarity may affect how individuals interpret the influencer type and controlling entities, where individuals may develop preferences and/or relationships.



The participants of this study fell within the age range of 18-35 years, indicating that the findings are relevant for companies targeting this specific age group. It is important to note that these findings may not be generalizable to all age groups, due to possible uncaptured behaviors and responses of individuals outside this group. For future research, additional age groups could be explored to enhance the generalizability of the results. The other age groups may react differently, due to various factors such as communication styles, preferences, and technological familiarity. Understanding how these factors interact across different age groups will not only contribute to more general applicable findings, but will also provide insights into the different perspectives on technological developments in the influencer marketing field.

Conducting this research in 2023/2024 on virtual influencers and computer/AI controlling entities is limited by the constantly changing dynamics in this fields. The continuously evolving landscape needs future research to understand how individuals' awareness and attitudes concerning these subjects change over time. Conducting a similar study at a later moment, perhaps 1-2 years from now, where AI and VIs are more common, may provide valuable insights due to increased familiarity with these now emerging technologies. In the following years, there will probably be changes in how individuals perceive and engage with these technologies, influenced by the evolving nature of technologies, the authenticity of VIs, and the ongoing societal conversations about ethics surrounding AI. Exploring these factors in future research enhances the understanding of how individuals perceive and interact with these technological trends, providing insights into the dynamic nature of technology's impact over time.

A final limitation concerns the choice of both the influencer and context for this study, which might have potentially led individuals to form biased opinions based on factors such as the context, appearance, and interests, even after pretesting these elements. To mitigate this bias, exploring different contexts and influencer types, including well-known (famous) social media/virtual influencers, with diverse hobbies and interests, could provide nuanced insights. For future research it

is thus interesting to explore a variety of SMI/VI influencers and contexts to understand the audience responses. Individuals might react differently to a well-known influencer or serious context due to factors like trust, familiarity and pre-existing perceptions. These variations could result in different outcomes regarding trust, consumer attitudes and the formation of parasocial relationships.

## 5.2 Implications

Previous studies on influencer marketing were mainly focused on advertisement and on the effects of social media influencers on consumer responses. To the best of the researchers' knowledge, the combination of influencer types and controlling entities on perceived trust, consumer attitudes, and parasocial relationships has not been properly investigated. This study broadens the knowledge about the effects of influencer type and the effects of controlling entities on trust, attitudes and parasocial relationships. Besides the individual effects of both influencer type and controlling entity, no interaction effect is found between these two variables, meaning that this study does not provide information about the combined effect of these variables. Moreover, the study did reveal a mediation impact of source credibility, but only for the computer-controlled entity on perceived trust.

As a result, the study expands knowledge about the impact of both influencer type and controlling entities on the dependent variables, but not about the interaction effect. The absence of an interaction effect prompts a call for a more nuanced exploration. Furthermore, this study provides insights into the mediating role of source credibility, in the context of computer-controlled entities. Identifying this mediating role only for computer-controlled entity prompts opportunities for further investigation and theoretical development in understanding the nuances of credibility dynamics in influencer marketing.

Furthermore, the findings of the current study can be applied practically by brands/marketers. This study gives valuable insights in the consumer responses toward influencer types and controlling entities. Social media influencers were more positively received by individuals in this study. However, the influencer type overshadowed the controlling entity, leading to a predominant focus on the influencer type, which contributed to a distortion in the results. Brands/marketers should therefore explore if the influencer type always overshadows the controlling entity, even when there is more information provided about the controlling entities. When this is still the case, it is important for brands/marketers to concentrate on the more positively perceived

influencer type in their strategy rather than overemphasizing on controlling entities. Due to the most positive effect of SMIs, there is no immediate need to incorporate VIs into a brand's influencer marketing strategy, despite current trends. Furthermore, while disclosure of the controlling entity does not enhance positive effects on trust, attitudes and parasocial relationships, transparency remains crucial for brands/marketers from an ethical standpoint.

In addition, the influencer type exerts influence on the mediator source credibility, suggesting a potential mediation effect that is worthy of investigation. Moreover, the study indicates that source credibility serves as a predictor of trust. This variable could be interesting for brands/marketers to use in a pre-test to see how the participants will respond to the credibility of various influencer types and controlling entities.

## 6 Conclusion

The aim of this study was to explore the effects of influencer types and controlling entities, as well as the mediating effect of source credibility, on perceived trust, consumer attitude, and the parasocial relationship. In addition to this, an exploratory question was posed to address the interaction effect, namely: *“Does the perceived trust, consumer attitude, and parasocial relationship towards various influencer types depend on the controlling entities behind them?”*

To answer the research and exploratory question, this study’s findings reveal that both independent variables have their own effects on the dependent variables. The SMI influencer type had an overall more positive effect on perceived trust, consumer attitude, and parasocial relationships compared to the VIs. Surprisingly, knowledge about the controlling entity behind the influencer, when it is a computer-controlled entity, did not prove to be more positive than not knowing the entity. Furthermore, the study could not establish a preference for a controlling entity (human or computer) with regard to the dependent variables. Additionally, no interaction effect was found between influencer type and controlling entity, indicating that the influencer types are independent of the controlling entities behind the influencers. Consequently, the answer to the exploratory question is no. Lastly, it is found that source credibility serves as a mediator between a computer-controlled entity and perceived trust, suggesting a negative mediation effect.

Based on the study insights, marketers and brands can refine their influencer marketing strategies by understanding the impact of influencer types and controlling entities on trust, attitudes and parasocial relationships. Notably, the study emphasizes that, presently, the influencer type plays a more prominent role compared to the controlling entity. Consequently, the current suggestion is to prioritize influencer types, with a focus on social media influencers, due to their perceived effectiveness. Besides this, it is important to enhance clarity regarding the unknown entities, to ensure a more comprehensive understanding in future research endeavors. Future research could investigate whether the role of controlling entities is genuinely less important or arises from potential limitations in this study design.

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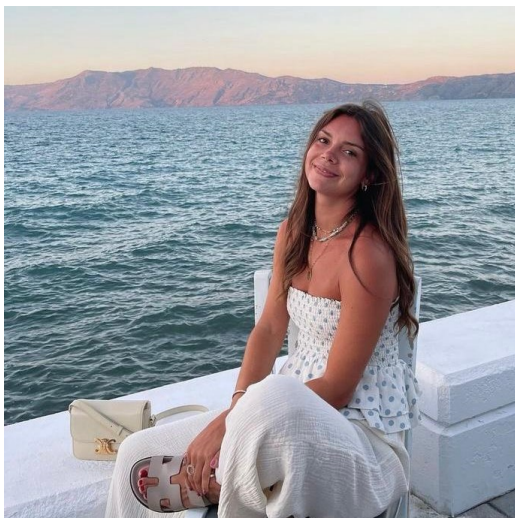


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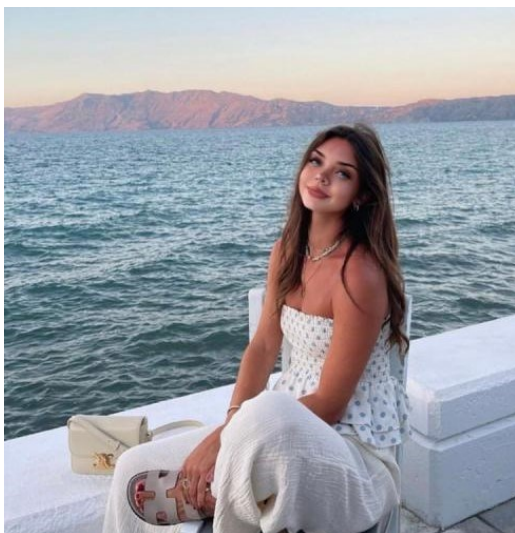
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## Appendix A: Preliminary test manipulations stimuli

1A



1B



1C



2A



2B



2C



3A



3B



3C



4A



4B



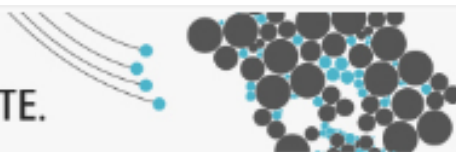
4C





## Appendix B: Ethics Committee approval

UNIVERSITY OF TWENTE.



### APPROVED BMS EC RESEARCH PROJECT REQUEST

Dear researcher,

This is a notification from the BMS Ethics Committee concerning the web application form for the ethical review of research projects.

Requestnr. : 231239  
 Title : The effects of influencer types and controlling entities on trust, attitudes, parasocial relations  
 Date of application : 2023-10-11  
 Researcher : Witte, M.  
 Supervisor : Galetzka, M.  
 Commission : Zeeuw, A. van der  
 Usage of SONA : Y

Your research has been approved by the Ethics Committee.

The BMS ethical committee / Domain Humanities & Social Sciences has assessed the ethical aspects of your research project. On the basis of the information you provided, the committee does not have any ethical concerns regarding this research project.

It is your responsibility to ensure that the research is carried out in line with the information provided in the application you submitted for ethical review. If you make changes to the proposal that affect the approach to research on humans, you must resubmit the changed project or grant agreement to the ethical committee with these changes highlighted.

Moreover, novel ethical issues may emerge while carrying out your research. It is important that you re-consider and discuss the ethical aspects and implications of your research regularly, and that you proceed as a responsible scientist.

Finally, your research is subject to regulations such as the EU General Data Protection Regulation (GDPR), the Code of Conduct for the use of personal data in Scientific Research by VSNU (the Association of Universities in the Netherlands), further codes of conduct that are applicable in your field, and the obligation to report a security incident (data breach or otherwise) at the UT.



## **Appendix C: Findings preliminary test**

The pre-test started with an introduction of the researcher and the study. The participants were given some information about the study aims during the introduction. Additionally, it was explained that the participants had to test the influencer types and controlling entities (creators) for the final measurement instruments in the questionnaire. The duration of the pre-test is clarified as well, as is the fact that participation could withdraw at every moment without any reason during this pre-test.

The pre-test starts with two general questions about the terms 'influencer' and 'virtual influencer', to which the respondents had to react. The outcome to the question "*Do you know the term influencer?*" came down to a person with a significant social media following who actively creates content and post messages, promotes items, and reaching and influencing a broad audience. The answer to the second question "*Do you know the term virtual influencer?*" was not as widespread. Only a few respondents could provide a detailed explanation, with the majority expressing unfamiliarity with the concept virtual influencer.

### **Testing the influencer type**

The four chosen influencers were presented one after the other (version SMI + 2 versions of VIs). The question "*What is your first impression of this influencer?*" appeared before all the other questions of influencer type. Each of the four influencers' photos was rated by the participants from most human to most virtual. All four influencers were ranked the same way by the participants, with photo A (SMI) being the most human and photo C (one of the virtual options) being the most virtual. The response to the question of whether the difference between the two images (A&C) were significant enough to distinguish between the SMI and VI, the answer was yes. According to the participants, the influencer in photo C resembled a doll, Barbie, and a Disney princess, implying that the influencer's appearance is too perfect and not real. While picture B, a virtual influencer, looks to be a person with a lot of make-up, botox, or filters, participants indicated that she may still be viewed as a genuine human rather than a VI. The participants didn't get that impression from photo C, she was definitely virtual.

The participants noticed that all of the four pictures of the influencers were typically social media influencers. All four influencers were attractive, according to the participant, with influencer 1 being the most appealing. They assumed that this was a genuine vacation photo of the influencer and nothing was stated. Influencer 1 is ranked after influencer 3 in terms of trustworthiness because influencer 3 resembles the girl next door. Influencer 2 had the lowest level of trust; participants perceived her to be arrogant and disconnected from her.

The influencer's trustworthiness and authenticity were also rated. Influencer 2 received the lowest credibility score; the reason for this was because of her looks. She appeared arrogant and believed that she was better than others according to the participants. In contrast, influencer 1 had the greatest trustworthiness score, followed by influencer 4; both influencers made the participants feel good. Influencer 1 received the highest grade for authenticity, followed by influencer 3. Their appearances were the reason for this; they appeared to be honest and sincere since they just appear to be friends sharing vacation pictures. Because of the general appearance and mood, influencer 2 obtained the lowest authenticity rating.

When participants were asked which influencer they preferred overall after rating and testing all four influencers' photographs, almost all chose influencer 1. Besides influencer 1, influencer 3 received great overall scores, although some participants found the virtual influencer version 3c of number 3 eerie/unsettling. As a result, it was chosen to use influencer 1 in the main study of this research. Influencer 1 is regarded as the most credible influencer, in addition to her attractiveness; participants stated that she looked to be a genuine girl on vacation. Because she is recognized as one of the most honest and genuine influencers, the participants would believe her.

### **Testing the controlling entities**

To test the controlling entities, disclaimers were utilized to reveal the identity behind the influencer (post). Participants were asked to select their top 3 choices from a list of disclaimers for human- and computer-controlled entities. All participants chose the same disclaimer for human-controlled as number one, which states: *“The content is managed by a real human, not by a computer/AI”*. All participants chose also the same disclaimer for computer-controlled, which states: *“The content is managed by a computer/AI, not by a real human”*. After selecting the top three for each entity, participants were asked if they would make any changes or additions to their selected disclaimer. The majority of participants recommended adding ‘created’ to the chosen disclaimer so it would be: *“The content is created and managed by a real human, not by a computer/AI”* and *“The content is created and managed by a computer/AI, not by a real human”*.


### **Testing the total mock-ups**

The final mock-up, an Instagram post, will be examined after selecting the influencer type and including a disclaimer and hashtag for the controlling entity. The text provided alongside the photo was considered realistic, interesting, and trustworthy by all respondents. The disclaimer, hashtags and symbols were also questioned to determine whether they provided enough information about the entities behind the content. According all participants, the disclaimer provides adequate details about who or what is responsible for the content of the Instagram post. Using hashtags alone is insufficient since they are too abstract on their own; however, it will give more information when combined with the disclaimer. Participants generally think that the symbol above the image is the least evident, since they have no idea what it represents. One participant even inquired whether it was uploaded from a computer. *“If you had to leave something out of these three aspect, what would it be?”* was asked. All of the participants pointed to the symbol above the photo, which makes sense only if it is a commonly used Instagram sign that everyone recognizes.

## Appendix D: Main study stimuli

### The social media influencer

← Sophie\_noire 🔔 ...




1573 Posts 223 d. 1.027 Followers Following

**Sophie Noire**  
Digital creator

Paris, France  
24 year-old social media influencer  
Fashion, interior design, travel, food and everything I love  
"Enjoying every sunrise and sunset"  
Currently in Greece

Follow Message Email +

← Sophie\_noire 🔔 ...




1573 Posts 223 d. 1.027 Followers Following

**Sophie Noire**  
Digital creator

Paris, France  
24 year-old social media influencer  
Fashion, interior design, travel, food and everything I love  
"Enjoying every sunrise and sunset"  
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Follow Message Email +

← Sophie\_noire 🔔 ...




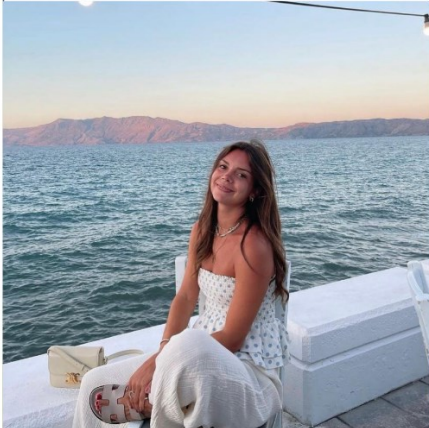
1573 Posts 223 d. 1.027 Followers Following

**Sophie Noire**  
Digital creator

Paris, France  
24 year-old social media influencer  
Fashion, interior design, travel, food and everything I love  
"Enjoying every sunrise and sunset"  
Currently in Greece

Follow Message Email +

 Sophie\_noire




♥️ 💬 ➦ 📌

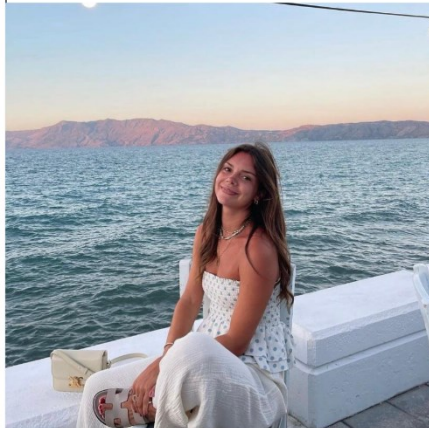
@Sophie\_noire: Hi all! I'm Sophie, a social media influencer, and currently in Greece! 🇬🇷

I absolutely love travelling, and Greece holds a special spot in my heart because of the stunning views and amazing local food.

Stay tuned for more Greece adventures and tips! X Sophie

#socialmediainfluencer

 Sophie\_noire



♥️ 💬 ➦ 📌


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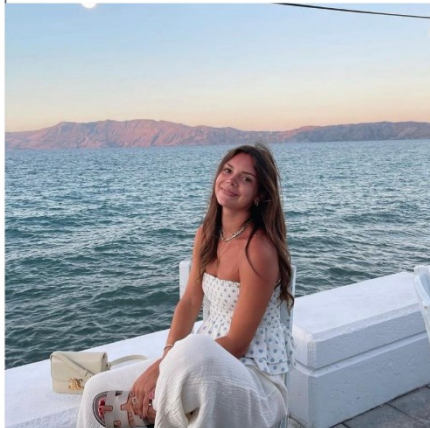
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Disclaimer: The content is created and managed by a real human, not by a computer/AI

#socialmediainfluencer #humancontrolled

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#socialmediainfluencer #computercontrolled

The virtual influencer

← Sophie\_noire 🔔 ...



1573 Posts 223 d. 1.027 Followers Following


**Sophie Noire**  
Digital creator

Paris, France  
24 year-old virtual influencer  
Fashion, interior design, travel, food and everything I love  
"Enjoying every sunrise and sunset"  
Currently in Greece

Follow Message Email +

---

Sophie\_noire



👍 💬 ↻ 🚩


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#virtualinfluencer

← Sophie\_noire 🔔 ...



1573 Posts 223 d. 1.027 Followers Following

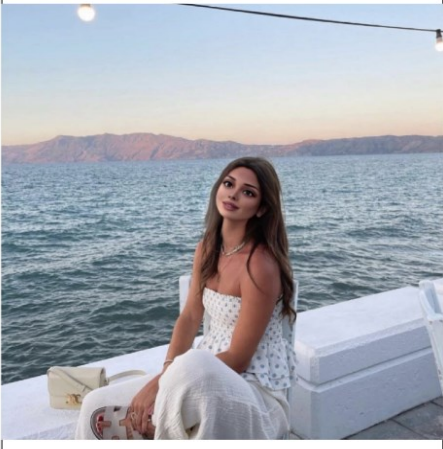
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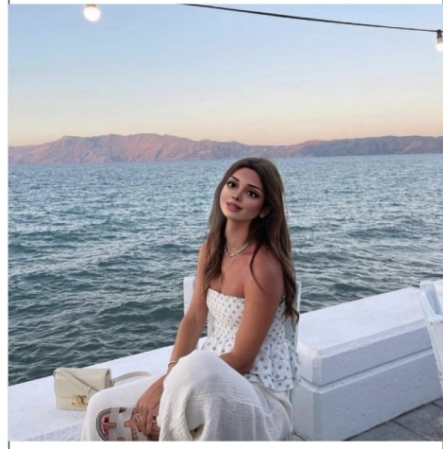
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## Appendix E: Measurement statements main survey

**Table A1**

*Variable Measurement Statements Overview*

Variable	Items
Trust	<ul style="list-style-type: none"> <li>- If problems arise, I can expect Sophie to be honest to her followers</li> <li>- I believe Sophie only promotes things she likes and tested</li> <li>- I believe that the communication of Sophie is honest</li> <li>- I can rely on the opinion of Sophie</li> <li>- Sophie has a true passion for her business</li> <li>- Sophie does her best to share her experiences</li> <li>- Sophie is genuine</li> <li>- Sophie is real to me</li> <li>- Sophie is authentic</li> </ul>
Consumer attitude	<ul style="list-style-type: none"> <li>- Sophie is believable</li> <li>- Sophie is convincing</li> <li>- Sophie is reasonable</li> <li>- Sophie is questionable</li> </ul>
Parasocial relationship	<ul style="list-style-type: none"> <li>- I think Sophie is like an old friend</li> <li>- Sophie made me feel comfortable, as if I am with my friends</li> <li>- I feel like Sophie is someone I could talk to about anything</li> <li>- I feel like Sophie could be a true friend to me</li> <li>- I feel that I know Sophie very well</li> <li>- I find Sophie to be likable</li> <li>- I would like to meet Sophie in person</li> </ul>

- 
- I mostly agree with the actions of Sophie
  - If there was a news story about Sophie on Instagram, I would watch or read it
  - If Sophie appeared on another program/social media platform, I would watch that program/platform
  - I will keep reading, commenting, and/or liking Instagram posts from Sophie in the future
  - I will look forward to the Instagram posts of Sophie everyday
  - I will keep following Sophie for her life and experiences
  - I will maintain a sense of loyalty to Sophie

---

Source credibility: Trustworthiness

- Dishonest/honest
- Unreliable/reliable
- Untrustworthy/trustworthy

---

Source credibility: Expertise

- Unexperienced/Experienced
  - Unknowledgeable/Knowledgeable
  - Unqualified/Qualified
-

## Appendix F: Main questionnaire Qualtrics



Dear respondent,

Thank you for your interest in this master's thesis research. You are invited to participate in a study about the impact of influencers and the creators of the content on consumer responses.

This study is intended for people between 18-35 years with an Instagram account. This survey is expected to take 6 to 10 minutes to complete. The gathered data will be used for this master's thesis in Communication Science.

Please be informed that your participation is completely voluntary and you are able to stop at any time without giving any reasons.

To the best of the researcher's abilities, your response will be kept private. All data will be safely stored offline, and responses will be anonymized in order to further reduce risks. If you have any questions or need more information, study contact details:  
[m.witte@student.utwente.nl](mailto:m.witte@student.utwente.nl)

If you have any concerns about this study or questions about your rights as a participant in this research, and would want to speak with someone other than the researcher, please get in touch with the Ethics Committee of the Faculty of Behavioral, Management, and Social Sciences at the University of Twente by: [ethicscommittee-bms@utwente.nl](mailto:ethicscommittee-bms@utwente.nl)

Kind regards,  
Marée Witte

MSc Communication Science  
University of Twente

I have read the information stated above, and I agree to participate in this research study

- Yes
- No





Welcome to this survey.  
First, you have to answer some (filter) questions.

---

Are you between 18 and 35 years old?

- Yes  
 No
- 

Do you have an Instagram account?

- Yes  
 No
- 

An influencer is someone who has a high number of followers on social media and can persuade or guide people's opinions and choices through their online posts and suggestions.

*(You can still continue this questionnaire if you do not follow influencers)*

Do you follow influencers on Instagram?

- Yes  
 No
- 



An Instagram post of a fictitious influencer is shown below. Imagine looking at this Instagram post on your smartphone.

**Please take your time observing the details of the influencer's Instagram picture as well as the text of the post presented, and keep this in mind when answering the questions.**



To what extent do you agree with the following statements based on the Instagram post?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
If problems arise, I can expect Sophie to be honest with her followers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe Sophie only promotes things she likes and tested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that the communication of Sophie is honest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can depend on the opinion of Sophie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what extent do you agree with the following statements based on the Instagram post?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Sophie has a true passion for the business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie does her best to share her experiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie loves what she is doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie is genuine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie is real to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie is authentic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



To what extent do you agree with the following statements based on the Instagram post?

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Sophie is believable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie is convincing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie is reasonable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie is questionable/doubtful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



To what extent do you agree with the following statements based on the Instagram post?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I think Sophie is like an old friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sophie made me feel comfortable, as if I am with my friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like Sophie is someone I could talk to about anything	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like Sophie could be a true friend to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I know Sophie very well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find Sophie to be likable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to meet Sophie in person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will mostly agree with the actions of Sophie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If there was a news story about Sophie on Instagram, I would watch or read it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Sophie appeared on another program/social media platform, I would watch that program/platform	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



I will keep reading, commenting, and/or liking Instagram posts from Sophie in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will look forward to watch the Instagram posts of Sophie everyday	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will keep following Sophie for her life and experiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
I will maintain a sense of loyalty to Sophie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



I find the creator of the content of this Instagram post...

	1	2	3	4	5	
Dishonest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Honest (not lying/transparent)
Unreliable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Reliable (can be counted on and is consistent)
Untrustworthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Trustworthy (can be given responsibility)

I find the creator of the content of this Instagram post...

	1	2	3	4	5	
Unexperienced	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Experienced (having skills/knowledge)
Unknowledgeable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Knowledgeable (intelligent & well informed)
Unqualified	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Qualified (meeting the abilities/requirements)



How old are you? (e.g. 25)

What is your gender?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

What is your country of residence?

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate
- Bachelor's degree in secondary vocational education (MBO)
- Bachelor's degree in college (HBO)
- Bachelor's degree in University (WO)
- Master's degree in University (WO)
- Doctoral degree (PhD)
- Professional doctoral degree (JD, MD)



The Instagram post in this questionnaire was created by:

- A human creator
- An computer/AI creator
- Not specified
- Do not remember

---

The influencer Sophie in this questionnaire was a:

- Social media influencer
- Virtual influencer
- Do not remember



End of questionnaire

**Thank you for participating in this questionnaire**

Thank you for taking the time to complete this questionnaire. The information provided is genuinely valued and will contribute to my master's thesis.

If you wish to withdraw your initial consent for participating in this experiment or have any additional questions, please send an e-mail to the researcher: [m.witte@student.utwente.nl](mailto:m.witte@student.utwente.nl).

*The Instagram post shown in the online experiment were fictitious and only created for the purpose of this study.*