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Virtual influencer (VI):

A computer-generated, AI-driven or digitally created character designed to simulate human appearance and behaviour on social media platforms, used for marketing and brand communication.

Human influencer (HI):

A real individual who builds an online presence and influences audiences through personal experiences, content creation, and social interaction on digital platforms.

Influencer type:

There are different ways to classify influencer types. For this study, the classification of influencers is based on their nature (virtual vs. human), which is used to examine differences in perceived characteristics and persuasive effectiveness.

Influencer characteristics:

Attributes used to evaluate influencers. This study includes trustworthiness, expertise, attractiveness, authenticity, homophily, parasocial interactions (PSI), and influencer–product congruence.

Trustworthiness:

The degree to which an influencer is perceived as honest, reliable, and credible.

Attractiveness:

The perceived physical appeal of an influencer focuses on visual appearance.

Authenticity:

The perception that an influencer is genuine, sincere, and true to their identity.

Homophily:

The perceived similarity between the influencer and the audience in terms of values, lifestyle, or preferences.

Parasocial interactions (PSI):

An illusional, one-sided psychological relationship in which consumers feel emotionally connected to an influencer.

Influencer-product congruence:

The perceived fit between the influencer and the product being endorsed.

Message credibility:

The extent to which the information provided by an influencer is perceived as accurate, reliable, and believable. It reflects content quality within the IAM framework.

Message frame valence:

The tone of the message is classified as positive (highlighting benefits) or negative (highlighting drawbacks or risks).

Product type:

Classification of products as search goods (evaluated before purchase) or experience goods (evaluated after use).

Search goods:

Products whose key attributes can be assessed prior to purchase through available information.

Experience goods:

Products that require direct use or consumption to evaluate quality.

Attitudes towards the product:

Consumers' overall evaluation of the product based on influencer-generated information.

Subjective norms:

Perceived social pressure or social expectations to rely on information and recommendations provided by an influencer or virtual influencer.

Purchase intention:

The likelihood or willingness of a consumer to purchase a product.

Information Adoption Model (IAM):

A theoretical framework explaining how source credibility and information quality influence information adoption.

Theory of Reasoned Action (TRA):

A model explaining how attitudes and subjective norms influence behavioural intention.

Hofstede Cultural Dimensions:

A framework used to analyse cultural differences and their moderating effects, this study focuses on masculinity, long-term orientation and uncertainty avoidance.

Masculinity:

The extent to which a culture values competitiveness, achievement, and performance over care, cooperation, and quality of life.

Long-Term Orientation:

The degree to which a culture emphasises future-oriented values such as perseverance, planning, and long-term rewards, rather than short-term outcomes.

Uncertainty Avoidance:

The extent to which individuals feel uncomfortable with uncertainty and ambiguity leading to a preference for rules, structure, and predictability.

INTRODUCTION

Relevance of the research. Influencer marketing has emerged as a highly effective and strategically valuable promotional instrument over the past several years (Shao, 2024; Ye et al., 2021). Individuals who have leveraged social media platforms to build substantial followings and shape opinions by sharing their interests, knowledge, and experiences within a specific domain are commonly referred to as social media influencers or micro-celebrities (Gaenssle & Budzinski, 2020). The rise of social media has fundamentally transformed the nature of marketing communication, shifting it from a traditional one-way transmission of information to a more dynamic, interactive, and participatory process (Gunawan, 2023). In this environment, consumers are no longer passive recipients of marketing messages; instead, they actively engage with brands, co-create content, and influence the purchasing decisions of others within their networks (Chen et al., 2024). In this sense, influencers represent a hybrid form of communication agent, combining the relatability and accessibility of opinion leaders with the visibility and reach traditionally associated with celebrities (Atiq et al., 2022). The growing importance of influencer marketing is also reflected in its rapid expansion at the global level, with the industry projected to grow significantly in the coming years, reaching tens of billions of US dollars (Fortune Business Insights, 2025; Mordor Intelligence, 2025). As a result, influencer marketing has become an increasingly prominent topic within academic research, particularly in relation to persuasion processes and consumer behaviour (Vrontis et al., 2021).

At the same time, recent developments in artificial intelligence (AI) and virtual reality (VR) have enabled the emergence of a new type of influencer—virtual influencers. These are computer-generated agents designed to simulate human-like appearance, behaviour, and communication (Li et al., 2023). Unlike human influencers, virtual influencers are fully controllable by brands and are not subject to many of the risks associated with human endorsers, such as reputational damage or inconsistent behaviour (Zhou et al., 2024; Ying et al., 2025). Through the use of advanced technologies, these digital entities are

able to create highly curated and seemingly authentic content, which allows them to engage audiences and shape consumer perceptions. The growing relevance of virtual influencers is evident not only in their increasing presence on social media platforms but also in consumer awareness and behavioural impact. A large proportion of consumers are now familiar with virtual influencers, many follow them, and a notable share report being influenced by their recommendations (Yoo et al., 2025). The commercial potential of virtual influencers is further reflected in market forecasts, which predict substantial growth in this segment in the coming years (Grand View Research, 2025). High-profile cases such as Lil Miquela illustrate how virtual influencers can achieve levels of popularity and influence comparable to human influencers, collaborating with major global brands and generating significant economic value (Koay et al., 2023). These developments highlight the increasing importance of "digital humans" in contemporary marketing strategies.

The current state of the research. Despite this rapid growth, the current state of academic research remains heavily focused on human influencers. A large body of literature has examined how human influencers affect consumer attitudes, preferences, and purchase intentions. Influencer credibility and message content quality are typically identified as key determinants of persuasion effectiveness (Vrontis et al., 2021). According to the systematic review (Ying & Dikcius, 2023), the seven most-studied characteristics are, namely, credibility, trustworthiness, expertise, attractiveness, homophily, parasocial interactions/parasocial relationships, and congruence. Trustworthiness, expertise, and attractiveness—three dimensions of credibility (Ohanian, 1990)—were analysed individually. Consequently, the broader construct of source credibility was not operationalised as a single higher-order construct; instead, its key dimensions—trustworthiness, expertise, and attractiveness—were examined separately, while message credibility was retained as a distinct message-level construct within the IAM framework.

Research on virtual influencers is still developing and remains relatively fragmented. While the growing popularity of virtual influencers has

led to a notable increase in academic publications in recent years (Sungailaitė et al., 2025; Pujadas-Gómez et al., 2025), existing studies often focus on a limited set of characteristics or adopt a comparative approach between human and virtual influencers with mixed and sometimes contradictory findings (Belanche et al., 2024; Deng et al., 2024). Some studies suggest that virtual influencers can achieve similar levels of effectiveness as human influencers, particularly when they are highly anthropomorphised, while others argue that their lack of authenticity and real experiential capability may reduce trust and lead to less favourable consumer responses (Lee & Ham, 2023; Sands et al., 2022; Moustakas et al., 2020). Furthermore, while human influencer research has examined a broad range of characteristics, studies on virtual influencers tend to focus on a narrower set of attributes, such as attractiveness, credibility, or anthropomorphism (Kim & Park, 2023; Li et al., 2023; Cornelius et al., 2023). As a result, the applicability of many well-established influencer characteristics to virtual influencers remains unclear, highlighting an important gap in the literature.

In addition to source-related factors, content characteristics also play a central role in shaping consumer responses to influencer marketing. Constructs such as information quality and message credibility have been widely linked to attitudes and behavioural intentions (Jiang et al., 2021; Khan et al., 2024). Message valence, in particular, represents a key dimension of communication in social media environments. Prior research suggests that positive messages are generally perceived as more credible and persuasive than negative ones (Balaji et al., 2021; Purnawirawan et al., 2015), while some studies indicate that positive evaluations are more influential regardless of whether the source is human or AI (Wang et al., 2020), there is still limited research examining how message framing operates in the context of virtual influencers. In particular, the interaction between influencer type and message valence has not been sufficiently explored, representing a further gap in the literature.

Similarly, the interaction between influencer type and product type can also be important because consumers may evaluate virtual and human

influencers differently depending on how the promoted product can be assessed. Search goods can be evaluated through objective and verifiable information before purchase, whereas experience goods require direct use, sensory evaluation, or personal experience (Weathers et al., 2007). This distinction is especially relevant for virtual influencers, as they may be effective in communicating factual or observable product attributes, but may be perceived as less capable of evaluating products that depend on real sensory experience (Li et al., 2023; Zeng et al., 2025). Therefore, the effectiveness of virtual versus human influencers should not be treated as universal, but as contingent on the fit between the nature of the influencer and the evaluability of the product. Examining this interaction helps clarify when virtual influencers can function as persuasive information sources and when human influencers may retain an advantage due to perceived real consumption experience.

Another important yet underexplored dimension is the role of cultural context. Marketing effectiveness is not universal, as cultural values influence how individuals process information and respond to persuasive messages (De Mooij & Hofstede, 2002; Briley & Aaker, 2006). Previous research has shown that cultural differences affect responses to electronic word-of-mouth, influencer marketing, and technology adoption (Lee et al., 2018; Nath et al., 2018; Metallo et al., 2022). Given that virtual influencers are closely linked to technological innovation, cultural factors may play an especially important role in shaping their acceptance and effectiveness (Rizzo et al., 2025; Byun & Ahn, 2023). Moreover, inconsistent findings in prior research on virtual influencers may be partly explained by differences in cultural context and individual-level cultural traits (Sands et al., 2022; Koles et al., 2024). However, empirical studies that explicitly incorporate cultural dimensions into the analysis of virtual influencer effectiveness remain limited.

Overall, despite growing research on virtual influencers, existing studies **have not yet sufficiently explained** where, how, and under what conditions virtual and human influencers differ within the persuasion process. Prior research often compares influencer types through isolated characteristics

or overall effectiveness but provides a limited understanding of how perceived influencer characteristics are translated into purchase intention. In particular, it remains unclear how contextual conditions shape the persuasion mechanisms through which virtual and human influencers affect consumer responses, particularly when influencer type interacts with message-related and product-related factors. In addition, the role of cultural dimensions in shaping consumers' evaluations of virtual versus human influencers remains underexplored. Therefore, the **research gap** addressed in this dissertation lies in exploring how virtual and human influencers impact perceived characteristics and purchase intention, while clarifying how message frame valence, product type, and cultural values condition the persuasion mechanisms.

Against this background, the present study seeks to address these gaps by providing a comprehensive analysis of both influencer characteristics and content-related factors in the context of human and virtual influencers. Specifically, the study **aims** to investigate the differences between virtual and human influencers in terms of perceived influencer characteristics and their influence on consumer persuasion, and to determine how message frame valence, product type, and cultural values condition these relationships.

Accordingly, the study addresses the following **research questions**: (1) What influencer characteristics are most important in the context of human and virtual influencers? (2) How does influencer type (virtual vs. human) affect the perception of influencer characteristics? (3) To what extent do cultural dimensions influence the perceived characteristics of virtual vs. human influencers? (4) How does the interaction between influencer type, message framing, and product type affect the mechanisms forming attitudes and purchase intention?

To achieve the intended aim, the following **objectives** need to be implemented:

1. To systematically review and synthesise existing literature on influencer marketing to identify, categorise, and conceptualise key influencer characteristics relevant to both human and virtual influencers.

2. Review the literature related to content quality, message valence, product types, theories related to information adoption, consumer behaviour and cultural values.

3. To establish a theoretical foundation by integrating the Information Adoption Model (IAM), the Theory of Reasoned Action (TRA), and Hofstede's cultural framework to explain how influencer characteristics affect consumer attitudes and behavioural intentions across cultures.

4. To compare virtual and human influencers across perceived characteristics, and the moderating role of cultural dimensions.

5. To examine the impact of influencer characteristics on message credibility, attitudes towards the product, and purchase intention, and the mediating role of specific influencer characteristics in the mechanism.

6. To test the moderating role of the interaction of influencer type and message frame valence on the mechanism to form attitudes towards the product.

7. To test the moderating role of the interaction of influencer type and product type on the mechanism to form purchase intention.

8. To provide theoretical contributions and practical implications for future research and for businesses seeking to utilise influencer marketing strategies across different cultural contexts effectively.

Research and data analysis methods. The theoretical part of this study is based on the analysis of existing literature, employing methods such as comparative analysis, logical analysis, synthesis of information, and generalisation of theoretical findings. These approaches enable the identification, integration, and critical evaluation of key concepts related to influencer marketing, particularly in the context of both human and virtual influencers. The development of the research framework is grounded in established theoretical models. Specifically, the Information Adoption Model (IAM) (Sussman & Siegal, 2003) serves as the primary theoretical foundation for explaining how information characteristics influence consumer responses. The Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) is incorporated to account for the role of subjective norms in shaping attitudes

and behavioural intentions. In addition, Hofstede's cultural dimensions theory (Hofstede, 1980) is employed to analyse cross-cultural differences and their moderating effects within the proposed model.

The empirical part of the study adopts a quantitative research approach using an online survey method. Data are collected from respondents in three countries—Lithuania, Spain, and China—to enable cross-cultural comparison. A between-subjects factorial experimental design is employed, incorporating three independent variables: influencer type (virtual vs. human), product type (search vs. experience goods), and message frame valence (positive vs. negative). Participants are randomly assigned to one of eight experimental groups, ensuring control over potential biases and allowing for the examination of interaction effects between variables. The primary objective of the empirical study is to test the proposed hypotheses and validate the research model. Although 960 valid responses were initially targeted, 927 valid responses remained after data cleaning and were used for the final analysis. The collected data are analysed using appropriate quantitative techniques to examine relationships between variables, as well as mediating and moderating effects within the model.

The scientific novelty of the research and its contribution to science. This study contributes to influencer marketing literature by clarifying where virtual and human influencers may differ and under what conditions these differences affect consumer persuasion. First, it shows that differences between human and virtual influencers are attribute-specific, moving beyond treating influencer type as a general source cue and instead identifying the specific characteristics on which their persuasive potential differs. Second, it incorporates cultural values as potential moderators, recognising that consumers' acceptance and evaluation of virtual influencers may vary across cultural contexts. Third, it investigates how contextual conditions, particularly message frame valence and product type, may shape the persuasion mechanisms through which virtual and human influencers affect consumer responses, rather than assuming that influencer type has a uniform effect across all message and product contexts. Thus, the expected novelty of the

dissertation lies in clarifying how influencer type, cultural values, and contextual conditions jointly shape the persuasion process in virtual and human influencer marketing, thereby providing a more precise explanation of when and why virtual influencers may function similarly to or differently from human influencers.

The practical significance of the research. This study also offers important practical implications for businesses and marketing practitioners operating in an increasingly digital and competitive environment. As influencer marketing continues to expand and virtual influencers are increasingly used alongside human influencers in promotional campaigns, companies face growing challenges in selecting appropriate influencer types and designing effective communication strategies. The emergence of virtual influencers introduces additional complexity, as firms must evaluate not only traditional influencer characteristics but also how audiences perceive artificial, technology-driven endorsers. The findings of this study are expected to provide valuable insights into how different influencer characteristics shape message credibility, consumer attitudes, and purchase intentions. By identifying the key attributes that drive consumer responses, the research can assist marketers in making more informed decisions when selecting influencers and developing campaign strategies. In particular, the study contributes to a better understanding of the underlying mechanisms through which influencer marketing operates, enabling firms to design communication that aligns more closely with consumer expectations and enhances persuasive effectiveness. Furthermore, by examining the interaction between influencer type, message frame valence, and product type, the study is expected to offer practical guidance on how marketing messages can be tailored to different contexts. This is particularly relevant for practitioners seeking to optimise message design, as the effectiveness of communication strategies may depend on the alignment between the type of influencer, the framing of the message, and the nature of the promoted product. Finally, the cross-cultural perspective of the research provides additional practical value for companies operating in international markets. As cultural differences influence how consumers

perceive influencers and process marketing messages, understanding these variations is essential for the successful adaptation of global marketing strategies. The study is therefore expected to help firms better align their influencer marketing approaches with the cultural characteristics of target audiences, thereby improving the effectiveness of campaigns across diverse markets.

Structure of the dissertation. The doctoral thesis is structured into five main parts: the introduction, the theoretical analysis, the methodological part, the empirical research, and the conclusions.

The introduction outlines the relevance of the research, defines the research problem, objectives, and questions, and presents the scientific novelty and practical significance of the study. It also introduces the overall structure of the dissertation.

The theoretical part provides a comprehensive review and synthesis of the relevant literature. It begins by defining different types of influencers and analysing key influencer characteristics applicable to both human and virtual influencers. It then examines content-related factors within the framework of the Information Adoption Model. Subsequently, the underlying theoretical foundations of the study, including the Information Adoption Model, the Theory of Reasoned Action, and related theories of information adoption, attitudes, and behaviour, are discussed. The section further explores cultural dimensions and their influence on the effectiveness of influencer marketing across different contexts. Finally, the concept of product type, particularly the distinction between search and experience goods, is introduced and analysed.

The methodological part presents the research design and the development of the proposed research model. It includes the formulation of hypotheses, the operationalisation of variables, and the justification of measurement scales. In addition, this section describes the sampling procedure, data collection methods, and the overall research design.

The empirical part reports the results of the quantitative study. It presents the data analysis procedures and findings, including hypothesis

testing and the examination of relationships, mediating effects, and moderating effects within the proposed model.

Finally, the concluding part discusses the research findings in relation to the research objectives and theoretical framework. It outlines the theoretical contributions and practical implications of the study, acknowledges the limitations, and provides directions for future research.

1. LITERATURE REVIEW OF CONTEMPORARY ISSUES ON INFLUENCER MARKETING AND VIRTUAL INFLUENCERS

1.1 The concept of influencer

The concept of social media influencers can be traced back to the earlier notion of opinion leaders, which has long been studied in communication and marketing research. Opinion leaders are individuals who influence the opinions, attitudes, beliefs, motivations, and behaviours of others within their social networks (Valente & Pumpuang, 2007). Their influence extends across various domains, including business, politics, economics, public health, and social issues. In the field of marketing, opinion leaders are often described as individuals who exert a strong influence on consumers' attitudes and behaviours (Godey et al., 2016), primarily through word-of-mouth communication (Moldovan et al., 2017). Their influence typically derives from their perceived expertise, social prestige, credibility, or personal appeal within a specific social group (Lin et al., 2018; Xiong et al., 2018).

The foundation of the concept of opinion leadership originates from a seminal study conducted by Lazarsfeld and his colleagues in 1948, which examined voting behaviour during the 1940 U.S. presidential election. The study found that mass media did not directly influence audiences; instead, its influence was mediated through opinion leaders who interpreted and transmitted information to less active members of society. This phenomenon became known as the two-step flow model of communication. Katz and Lazarsfeld (1955) further developed this theory, arguing that consumers' responses to mass media messages are mediated by interpersonal communication with opinion leaders. Consequently, consumers' purchasing decisions are shaped by both mass media and interpersonal influence, with interpersonal communication often exerting a stronger impact on consumer behaviour (Casaló et al., 2018).

As communication technologies have evolved, the role of opinion leaders has expanded significantly. Influential individuals have extended their reach from traditional media channels such as newspapers, radio programmes,

and television to digital platforms and online communities. With the rapid development of social media platforms, opinion leaders have increasingly emerged within digital environments, where they influence large audiences through online interactions and content sharing.

The development of touch-screen smartphones and mobile internet technologies has further intensified social media usage (Cano et al., 2017). Consumers can now access platforms such as Instagram, Facebook, YouTube, and Twitter almost anytime and anywhere. In this context, the term "influencer" has become widely used in social media marketing. Influencers can be defined as individuals who inspire, encourage, and shape the actions of others, or individuals capable of stimulating interest in products or brands through online content (Spálová et al., 2021). Social media provides an effective environment for the emergence of influencers, as users frequently share personal experiences, product evaluations, and opinions about goods and services they have used (Shashikala et al., 2020).

In contemporary marketing research, influencers are commonly conceptualised as social media actors who cultivate credibility and domain-specific expertise through curated content and interactive communication with followers, thereby shaping consumer attitudes, beliefs and behaviours (Byun, Ahn, 2023). The widespread adoption of social media has resulted in an unprecedented volume of user-generated content that is produced, disseminated, and consumed within digital platforms (Ho & Ito, 2019). Many social media users have accumulated substantial numbers of followers, enabling them to influence consumers' attitudes and behaviours. Research also suggests that consumers often place significant trust in content shared on social media platforms (Shareef et al., 2020). Consequently, businesses increasingly utilise these platforms for marketing purposes through influencer marketing, which refers to collaborations between brands and influencers to promote products or services through influencers' social media accounts (De Veirman et al., 2017).

In social media marketing, influencers are often described as individuals who have leveraged digital platforms to build large followings and

shape public opinion by sharing their interests, knowledge, and experiences within a specific niche or domain. Such individuals are commonly referred to as social media influencers or micro-celebrities (Gaenssle & Budzinski, 2020). Influencers are typically knowledgeable in particular topics, enabling them to affect followers' attitudes and behaviours through the content they create and share (Sihi & Lawson, 2018). They capture audience attention by producing engaging content that resonates with followers' interests (Khamis et al., 2017).

Unlike traditional mass media, social media platforms facilitate two-way communication between influencers and their followers. Consumers are no longer passive recipients of marketing messages; instead, they actively interact with influencers and participate in content creation and dissemination (Lamberton & Stephen, 2016). Moreover, even ordinary consumers—without professional expertise or influencer status—can shape the attitudes and behaviours of others through electronic word-of-mouth (eWOM) communication on social media platforms (Liu & Shrum, 2021).

Overall, the evolution of social media influencers can be traced back to the concept of opinion leaders, who have long been recognised for their ability to shape attitudes and behaviours through interpersonal communication. With the advancement of digital technologies and social media platforms, these influential individuals have expanded their reach and transformed into modern influencers who engage audiences through online content and interactions. Unlike traditional media, social media enables two-way communication and widespread user-generated content, enhancing the role of influencers in shaping consumer perceptions. As a result, influencer marketing has emerged as a key strategy for businesses, leveraging trusted individuals to promote products and influence consumer decision-making in a highly interactive digital environment.

1.2 Influencer types

1.2.1 Influencer type by fame origin (celebrity vs. influencer)

Many scholars have examined different types of influencers and compared their effectiveness in shaping consumer attitudes and behaviours. One common typology categorises influencers based on their occupational background, distinguishing between individuals who achieved public recognition through the traditional entertainment industry and those who gained influence through their activities on social media platforms (Spálová et al., 2021). In this classification, influencers can broadly be divided into traditional celebrities and social media influencers. Celebrities are widely recognised individuals who achieve fame and public attention through their accomplishments in fields such as entertainment, sports, politics, or other areas of public life (Marshall, 1997). Due to their high visibility and social status, celebrities often possess considerable persuasive power in marketing communications.

The practice of celebrity endorsement has a long history in marketing. A celebrity endorsement occurs when a publicly recognised individual uses their reputation to promote a consumer good by appearing in advertising or other marketing communications. Companies have relied on celebrity endorsers to promote products since the emergence of cinema in the late nineteenth century (Erdogan, 1999). This strategy became increasingly prominent with the expansion of commercial radio broadcasting in the 1930s and the growth of television advertising in the 1950s (McDonough, 1995). Over the past several decades, the use of celebrities—such as Hollywood actors, popular music performers, and elite athletes—has become a well-established marketing strategy for enhancing brand visibility, credibility, and persuasive effectiveness (Koll & Matthes, 2017).

The rapid development and widespread adoption of social media platforms have significantly transformed the landscape of influencer endorsement. Social media has created new opportunities for individuals to gain visibility and influence outside traditional entertainment industries. As a

result, social media influencers have emerged as a new category of endorsers who build their reputation through content creation, audience engagement, and expertise within specific niches. The growing importance of influencer marketing is reflected in the increasing investment by companies in influencer-based promotional strategies. For example, a large proportion of marketers now incorporate influencer marketing into their communication strategies (Rahal, 2020).

The rise of social media has also altered the way celebrities interact with audiences. Unlike traditional media channels, social media platforms enable direct and continuous interaction between influencers and their followers. Celebrities are no longer limited to appearing in advertisements or media productions; they can communicate with audiences directly through posts, comments, and interactive content. One of the key distinctions between traditional media and social media is the level of perceived intimacy that followers experience when interacting with public figures online. Social media allows for more frequent and personalised communication, which can create stronger emotional connections between influencers and their audiences (Labrecque, 2014). Additionally, online communication environments—characterised by user-generated content, interactive feedback, and high levels of user engagement—tend to be more immersive than traditional mass media contexts (You & Joshi, 2020).

As a result of these developments, numerous studies have compared the effectiveness of celebrity endorsements and influencer endorsements on social media platforms (Ying & Dikčius, 2023). Research suggests that social media influencers may be perceived as more authentic and believable than traditional celebrities, particularly when they appear intrinsically motivated and maintain creative control over the content they produce (Kapitan et al., 2021). Consumers often perceive influencers as more relatable and similar to themselves than traditional celebrities, which can strengthen identification and trust (Jin et al., 2018; Schouten et al., 2020). Because influencers frequently share personal experiences and everyday activities with their audiences,

followers may perceive them as more accessible and genuine than highly visible celebrities (Kapitan et al., 2022).

Empirical research has demonstrated that consumers exposed to influencer-generated brand posts on platforms such as Instagram often exhibit more favourable attitudes toward the endorsed brand compared to those exposed to celebrity-endorsed posts. Influencer content may generate stronger perceptions of social presence and greater emotional engagement among audiences (Jin et al., 2018). However, the relative effectiveness of influencers and celebrities can depend on the context and format of the advertising message. For instance, Gräve and Bartsch (2022) found that influencer endorsements were more effective when advertising messages were subtle and integrated naturally into content. In contrast, more intrusive advertising formats were more effective when delivered by traditional celebrities.

Regardless of whether the endorser is a celebrity or a social media influencer, the characteristics of the endorser play a critical role in shaping consumer responses. When followers perceive an influencer as knowledgeable about the promoted product or as a credible user of the product, they are more likely to trust the influencer's recommendations and develop positive attitudes toward the message (Martínez-López et al., 2020). In such cases, the perceived expertise and credibility of the influencer become more influential than the influencer's celebrity status. Consequently, the effectiveness of endorsements depends not only on the type of endorser but also on the specific characteristics attributed to the influencer, such as expertise, trustworthiness, authenticity, and perceived similarity with followers (Uzunoğlu & Kip, 2014).

1.2.2 Influencer type by audience size (macro, mega, micro, nano)

Influencers can be classified into different categories based on the number of followers they have on social media platforms. Haenlein and Libai (2017) proposed distinguishing between mega-influencers, who are widely recognised experts or public figures with a large follower base, and micro-influencers, who are ordinary individuals exerting influence within relatively

smaller communities. The macro-influencer category is often considered an intermediate group between these two levels (Kay et al., 2020; Borges-Tiago et al., 2023). Campbell and Farrell (2020) further expanded this classification by introducing two additional categories: celebrities, who possess national or global recognition beyond social media platforms, and nano-influencers, who typically influence niche or local audiences through close interactions with followers. This classification reflects the evolving nature of social media ecosystems, where influence can emerge not only from traditional fame but also from the ability to build and maintain engaged online communities.

Although the exact numerical thresholds may vary depending on the size of the social media market in a given country, most scholars classify influencers with more than one million followers as mega-influencers, those with 100,000 to one million followers as macro-influencers, and those with 10,000 to 100,000 followers as micro-influencers (Campbell & Farrell, 2020; Conde & Casais, 2023; Hernández-Méndez & Baute-Díaz, 2024). Influencers with fewer than 10,000 followers are typically categorised as nano-influencers (Campbell & Farrell, 2020). This categorisation reflects not only differences in audience size but also variations in the nature of relationships between influencers and their followers. Influencers with smaller audiences often cultivate more intimate and interactive relationships with followers, while those with larger audiences tend to operate at a broader scale similar to traditional media personalities.

Higher-tier influencers (i.e., macro-influencers and mega-influencers) are generally perceived as possessing greater popularity and stronger opinion leadership compared to lower-tier influencers (i.e., micro-influencers and nano-influencers) (Conde & Casais, 2023). The number of followers has also been shown to positively influence several dimensions of source credibility, including perceived trustworthiness and attractiveness, and may increase consumers' purchase intentions toward endorsed products (Weismueller et al., 2020). From a marketing perspective, higher-tier influencers can therefore be particularly effective in generating brand awareness, reaching broad and heterogeneous audiences, and promoting products that target large consumer

segments (De Veirman et al., 2017). Their wide reach allows brands to quickly disseminate marketing messages to large audiences and enhance brand visibility across multiple markets.

In contrast, lower-tier influencers often demonstrate advantages in terms of relational engagement and perceived authenticity. Because micro- and nano-influencers tend to maintain closer interactions with their followers and share more personal content, they can foster stronger parasocial relationships with their audiences (Conde & Casais, 2023). These stronger perceived connections may increase followers' trust and make influencer recommendations appear more genuine and relatable. Additionally, lower-tier influencers may be perceived as more persuasive when sponsorship disclosures are present, as followers often interpret their endorsements as more transparent and authentic compared to those of highly commercialised influencers (Kay et al., 2020). Consequently, micro- and nano-influencers are often considered particularly effective in niche markets where credibility and authenticity are highly valued.

Empirical findings regarding the effectiveness of different influencer tiers remain somewhat mixed. Hernández-Méndez and Baute-Díaz (2024), for example, compared mega-, macro-, and micro-influencers in the promotion of tourist destinations and found that influencers with larger follower bases were perceived as more trustworthy and more knowledgeable. However, when consumers evaluated posts from influencers with smaller follower bases, attractiveness emerged as the most influential factor shaping attitudes toward the social media content. These findings suggest that the persuasive mechanisms associated with influencer marketing may vary depending on the influencer's audience size and perceived role within the social media ecosystem. Similarly, Li et al. (2024) demonstrated that consumers' mindset orientation can influence how different influencer tiers are perceived. Consumers with a growth mindset, as opposed to a fixed mindset, tend to perceive micro-influencers and their endorsements as more trustworthy and are more likely to engage in word-of-mouth communication about the endorsed products compared to endorsements made by mega-influencers. This

suggests that the effectiveness of influencer tiers may also depend on psychological characteristics of consumers, as well as contextual factors such as product category, message format, and communication style.

Overall, these findings highlight that the influence of follower size on marketing effectiveness is complex. While higher-tier influencers provide extensive reach and visibility, lower-tier influencers may offer advantages in authenticity, engagement, and relational closeness with audiences. As influencer marketing continues to evolve, understanding the differences between influencer tiers becomes increasingly important for selecting appropriate endorsement strategies and achieving desired marketing outcomes.

1.2.3 Influencer type by nature (human vs. virtual)

Influencers can be broadly categorised based on their nature as either human influencers or virtual influencers, reflecting a fundamental distinction in how influence is constructed and perceived. Human influencers are real individuals who build their personal brands through lived experiences, expertise, and social interactions, often fostering authenticity and relatability with their audiences (Lou & Yuan, 2019). In contrast, virtual influencers are computer-generated characters managed by brands or agencies, designed to simulate human appearance and behaviour on social media platforms (Moustakas et al., 2020). This new type of influencer has emerged alongside the rapid development of artificial intelligence and digital technologies, representing a novel form of communication in the AI era.

Artificial intelligence (AI) refers to the broad idea that computers, through the use of software and algorithms, can think and perform tasks like humans (Thomas & Fowler, 2021). The rapid development of AI has enabled widespread digital transformation and given rise to content-generation AI, computer-generated universes that foster social connectivity (Ahn et al., 2022). Content-generation AI systems, exemplified by ChatGPT and DALL-E, are revolutionizing content creation by seamlessly generating text and images. This breakthrough capability enables the development of immersive and

captivating content across diverse industries, such as entertainment (Kim & Yoo, 2021) and retailing (Chuah & Yu, 2021).

The rapid advancement of AI has given rise to a new type of influencer – the virtual influencer. The emergence of virtual influencers (VI) extends this concept, by introducing artificially created personas that operate as content producers and endorsers on social media platforms. Academic literature provides a multifaceted definition of VI, recognising them as a distinct and evolving category within the social media marketing landscape. Despite the growing dominance of the term 'virtual influencer' in academic literature, the persistent terminological variation underscores the need to establish a comprehensive definition. Table 1 presents the main characteristics of the virtual influencers presented in the definitions. These characteristics can be grouped into five major categories.

The origins of virtual influencers can be traced back to Brazil, where Lu Do Magalu was first introduced as a virtual mascot in 2003 to represent local e-commerce sites, her developers launched her YouTube channel, which eventually evolved her role into becoming the first virtual influencer, attracting over 30 million followers across social media platforms. Virtual influencer's popularity started speeding up since the recent virtual influencer Lil Miquela was created in 2016 (Lou et al., 2023; Miao et al., 2022). Lil Miquela is a popular Brazilian-American lifestyle influencer and singer from LA, with around 8 million followers across platforms (Koles et al., 2024), earning more than $12 million a year by endorsing brands such as Chanel, Calvin Klein, Samsung, etc. She was showcasing intimate encounters with American supermodel Bella Hadid and being recognised as one of the most influential people on the internet in 2018 by Time magazine. Besides her, Bermuda and Blawko are the top US-based virtual influencers and are also recognised as the most human-like virtual influencers on Instagram (Influencity, 2021; Jalan, 2022). They were created by Los Angeles startup Brud Inc. and represent diversity in ethnicity and life experience (Mosley, 2021). Bermuda is a Los Angeles "it girl" and aspiring musician with 228,000 Instagram followers. She's Caucasian, and her latest appearance is nearly

indistinguishable from that of a human model. Blawko is an African American male virtual influencer with 124,000 Instagram followers who describes himself as a "young robot sex symbol" because of his streetwear style and tattoos (Thomas & Fowler, 2021). All three virtual influencers have collaborations with mainstream brands such as Burberry, Nike, and Juicy Couture (Koles et al., 2024). While Miquela and her fellows are claimed as AI robots, the creator of them, Brud Inc. does not disclose to what extent she is powered by AI. Another example is Kuki AI, a virtual influencer with rule-based AI chatbot functionality programmed by the AI company ICONIQ. Furthermore, Esther Olofsson is a virtual influencer who travels around the world, but the marketing agency RAUWcc uses generative AI tools to create her storylines and images (Hiort, 2023).

Table 1. Overview of definitions of virtual influencers in academic research.

Study	**Definition**
Mouritzen, Penttinen & Pedersen (2024)	VI are non-human, digitally created characters that function as content creators on social media to gain influential status among consumers, distinguishing VI from other digital non-human entities like avatars that are primarily used for customer service. The taxonomy of VI is organized along the reality-virtuality continuum, shaping four distinct categories: hyper-realistic humans, hyper-realistic non-humans, unrealistic humans, and unrealistic non-humans. CGI influencers, defined by high visual realism, and AI influencers, characterized by their reliance on artificial intelligence for autonomous content creation, are treated as subtypes of VI.
Byun and Ahn (2023)	VI are computer-generated, non-human digital entities with anthropomorphic appearances and distinct personalities. Conceptually different from avatars, which represent users, or chatbots, which are task-oriented. VI's primary function is to create social media content and interact with audiences in a human-like manner, all while remaining fully controlled by humans or algorithms.
Angmo, Mahajan & da Silva Oliveira (2024)	VI are online social media personas created and maintained by individuals, brands or agencies, with unique public personalities and narratives. VI function as substitutes for HI by facilitating brand communication and consumer engagement through varying degrees of

Study	Definition
	anthropomorphism, ranging from human-like models to non-human characters, and are primarily employed by businesses for promotional purposes.
Sands, Campbell, Plangger & Ferraro (2022)	AI influencers are virtual endorsers created with artificial intelligence to serve as social media endorsers and mimic the behavior and content of HI. Despite the integration of AI, AI influencers are not yet fully autonomous, requiring human operators to manage content and brand relationships.
Koles, Audrezet, Moulard, Ameen & McKenn (2024)	VI are digitally created personas managed by third parties, whose deliberately constructed appearances (varying in human-likeness), curated personality, and storyline are designed to engage and influence audiences. Unlike scripted virtual assistants or chatbots, VI relies on development teams rather than operating autonomously. Additionally, VI can either be explicitly created to influence from the beginning or evolve into influencers after starting out as well-known characters.
Arsenyan & Mirowska (2021)	VI are embodied, anthropomorphized digital agents purposely created for social media engagement, combining crafted personas with ongoing storylines, positioning themselves as HI. Unlike other digital agents, the primary function of VI is to influence rather than to assist. VI differs from user-controlled avatars and task-oriented conversational agents, as VI are staged public figures managed by the development teams rather than autonomous tools.
Miao, Kozlenkova, Wang, Xie & Palmatier (2022)	An avatar is an interactive digital entity with an anthropomorphic appearance controlled by humans or software. Avatar's effectiveness is determined by two key dimensions: *form realism* (human likeness) and *behavioral realism* (human-like acting). The combination of these attributes defines distinct types of avatars and user experiences: simplistic avatar (unrealistic appearance, low intelligence), superficial avatar (realistic appearance, low intelligence), intelligent, unrealistic avatar (unrealistic appearance, high intelligence), and digital human avatar (realistic appearance, high intelligence).
Kim I., Ki, Lee & Kim Y. (2024)	VI are digital avatars created for marketing that replicate human form and behavior. VI effectiveness depends on the interplay between *form realism* (degree of human

Study	Definition
	resemblance) and *behavioral realism*. Form realism can range from low (cartoon-like), to medium (human-like but with artificial features), to high (indistinguishable from humans). Behavioral realism similarly varies from low (scripted or minimal interaction) to high (authentic, free-flowing responses).
Thomas, Fowler, Taheran & Mortazavi (2025)	VI are professionally managed, non-autonomous digital characters that take various forms (human-like, animated human, non-human) and are designed to share content and interact on social media with the aim of building influence. Unlike HI, VI are fabricated entities sustained by an ecosystem of human and technological actors, including founders, visual artists, content creators, and AI. VI influence depends on curated personas and strategic cultivation of perceived authenticity, credibility, and parasocial relationships.

Virtual influencers can be defined as digitally created, non-human entities, embodied with social roles, distinct personalities, and anthropomorphic features that are designed to perform communicative, social and persuasive functions commonly associated with human influencers (Byun & Ahn, 2023; Mouritzen et al., 2024). Virtual influencers represent innovative extensions to the field of influencer marketing (Cheung & Leung, 2021; Miao et al., 2022; Audrezet & Koles, 2023). They range in appearance from an "ideal" human to some robotic or cartoonish figures. VIs are typically managed by individuals, brands, or agencies and operate through dedicated social media profiles, crafting curated narratives, developing persona-driven storylines, and interacting with audiences in a way that parallels the activities of human influencers, thereby acting as substitutes for both businesses seeking product endorsements and users following lifestyle content (Angmo et al., 2024). While there is no universal agreement on precise terminology, literature suggests that VIs should be distinguished from artificial intelligence (AI) influencers since VI operations remain largely human-directed (Angmo et al., 2024; Byun, Ahn, 2023; Choudhry et al., 2022; Thomas et al., 2025). Instead, VIs are best characterised as non-human, digitally produced

characters that publish content and engage in communicative exchanges to attain influence among followers (Mouritzen et al., 2024). Notably, the definition scope must also encompass the multiplicity of visual forms VI can assume – ranging from hyper-realistic human-like to animated humans and even non-human characters – underscoring a hybrid position between fictional creation and social reality (Koles et al., 2024; Mouritzen et al., 2024; Thomas et al., 2025).

Many virtual influencers mimic human appearance and behaviour, which suggests that they may have impacts on consumers analogous to those of a human influencer. When analysing the antecedents influencing users' trust in virtual influencers, some of the characteristics which are important to human influencers can also be relevant to virtual influencers, because many popular virtual influencers who endorse brands resemble human figures. Like human influencers, virtual influencers' characteristics such as physical attractiveness, expertise, homophily of influencer and consumers, influencer-product fit, authenticity, parasocial interactions, trendiness (or coolness), and perceived usefulness of influencer have impacts on consumers' attitudes and trust in virtual influencers (Molin & Nordgren, 2019; Alboqami, 2023; Feng et al., 2024). Like a human influencer, the constructs related to content posted by a virtual influencer also play important roles in consumer behaviour. Perceived quality, entertainment and creativity of content are also important antecedents of consumers' attitudes towards virtual influencers (Molin & Nordgren, 2019; Feng et al., 2024).

Certain characteristics are relevant only when analysing a virtual influencer or comparing a virtual influencer to a human influencer. Virtual influencers are often described as "humanised robots", and anthropomorphism is an important characteristic of virtual influencers, which influences consumers' attitudes towards virtual influencers and brands endorsed by virtual influencers (da Silva Oliveira & Chimenti, 2021; Ahn et al., 2022). As some virtual influencers are created with features resembling real celebrities, luminary, which refers to the perceived similarity between the virtual influencer and other public characters, plays a positive role in consumers'

acceptance of the virtual influencer (Feng et al., 2024). As virtual influencer is a form of technology, robophobia—an extension of technology anxiety—refers to the perceived fear or anxiety related to virtual influencer, which can negatively impact consumers' acceptance of them (Feng et al., 2024).

One primary stream of research in the field of virtual influencers has focused on comparing virtual and human influencers and examining their respective impacts on consumers. Lee & Ham (2023) compared pictures of a robot influencer and a woman influencer and found that consumers' agent knowledge of the robot influencer (vs. human) results in less source credibility, less perceived persuasion effectiveness, less favourable attitudes toward social media recommendations and a lower level of purchase intention. When human-looking virtual influencers are being compared with real human influencers, virtual influencers are generally perceived as uncanny, authentically fake (Lou et al., 2023), having lower source trust (Sands et al., 2022), lower credibility (Li et al., 2023), weaker parasocial relationships (Lou et al., 2023), lower perceived sensory capability and less endorsement effectiveness (Li et al., 2023). Despite this, virtual influencers generate more electronic word-of-mouth (eWOM), a higher level of intention to follow, and elicit higher levels of consumer engagement compared to human influencers, due to the relative novelty of virtual influencers (Sands et al., 2022; Li et al., 2023). Lou et al. (2023) identified the primary motivations for consumers to engage with virtual influencers as information, entertainment, novelty, surveillance, esthetics, integration and social interaction. But those engagements with virtual influencers may not always be in a positive direction, as Arsenyan & Mirowska (2021) found virtual influencers garnered considerably fewer positive reactions but attracted a greater number of negative reactions compared to their human counterparts. Furthermore, other researchers found contradicting results showing that the nature of virtual vs. human influencers does not significantly affect users' social presence, trust, attitudes toward the influencer (De Cicco et al., 2024), or parasocial relationships (Stein et al., 2022).

Yam et al. argued that virtual influencers can be treated as social beings by their followers if they are fully anthropomorphised or human-like. Users

respond to technologies by employing social rules already applied to human-human interactions (Reeves & Nass, 1996). Given that virtual influencers tend to have human-like, attractive appearances and exhibit unique lifestyles and personalities, followers will likely perceive these influencers as genuine social actors when interacting (Ham et al., 2023). Ahn et al. (2022) found that highlighting the advantage of anthropomorphism can enhance the virtual influencers' social presence and social attractiveness, and therefore, the human-looking virtual influencer can be more effective than the cartoon-looking virtual influencer.

As with a human influencer, a virtual influencer can display emotions through facial expressions. Yu et al. (2023) analysed 1028 pictures shared by Lil Miquela; their findings disclosed that the virtual emotions of happiness, sadness, disgust, and surprise, which are mostly in line with the characteristics of human emotions, can facilitate parasocial relationships and trigger user engagement when promoting diverse products with visually captivating content.

1.3 Influencer characteristics

1.3.1 Credibility

Credibility refers to the degree of trustworthiness and reliability attributed to a source of information (Rogers & Bhowmik, 1970). It can also be conceptualised as a "weight" that enhances the value of information contained in a message, thereby increasing the likelihood that the message will be accepted by the audience (Anderson, 1971). The concept of source credibility is widely used in communication and marketing research to describe the positive characteristics of a communicator that influence the receiver's acceptance of a message (Ohanian, 1990). Early studies in persuasion research demonstrated that the credibility of the communicator plays a crucial role in determining the effectiveness of communication, as individuals are more likely to accept information delivered by sources perceived as credible (Hovland & Weiss, 1951). Subsequent studies in advertising and marketing

contexts have consistently confirmed that perceived source credibility positively influences endorsement effectiveness, consumer attitudes, and purchase intentions (Bhatt et al., 2013; Munnukka et al., 2016). In the context of social media marketing, the credibility of influencers has been identified as one of the most important attributes affecting followers' attitudes toward the influencer and the promoted content (Stubb et al., 2019; Chetioui et al., 2020).

The effectiveness of source credibility can also be influenced by characteristics of the information receiver. For example, individuals with high levels of dogmatism tend to be more strongly influenced by sources perceived as highly credible (Ottati et al., 2015). Similarly, audience involvement with the issue plays an important role in determining the extent to which source credibility affects persuasion. When individuals are highly involved with an issue, they are more likely to evaluate the arguments presented in the message rather than relying solely on the credibility of the communicator. In contrast, individuals with low involvement may rely more heavily on heuristic cues, such as the perceived credibility of the source, when forming attitudes toward the message (Lou & Yuan, 2019). Furthermore, prior attitudes toward the issue can influence the persuasive effect of source credibility. Research suggests that individuals who initially hold positive attitudes toward an issue may be influenced even by less credible sources, whereas those with initially negative attitudes tend to be more persuaded by highly credible communicators (Dholakia & Sternthal, 1977).

As part of studying the role of source credibility in the persuasion process, scholars have examined the multidimensional structure of this construct. Hovland et al. (1953) introduced the source-credibility model, which identified trustworthiness and expertise as the primary factors contributing to perceived source credibility. Later, McGuire (1985) proposed the source-attractiveness model, which emphasised that the effectiveness of a message can also depend on the communicator's familiarity, likability, similarity, and attractiveness to the audience. Building on these earlier frameworks, Ohanian (1990) integrated the source-credibility and source-attractiveness models and proposed that trustworthiness, expertise, and

attractiveness represent the three key dimensions of endorser credibility. This multidimensional perspective has become widely adopted in advertising and marketing research.

Consumer perceptions of an endorser's credibility have repeatedly been identified as one of the most influential factors determining advertising effectiveness (Ferle & Choi, 2005; Thomas & Johnson, 2016; Wang et al., 2017). In influencer marketing research, source credibility is often examined either as an outcome of influencer characteristics or as a mediating mechanism explaining how such characteristics influence consumer responses. For example, previous studies have linked influencer credibility to attributes such as attractiveness, trustworthiness, and expertise (De Jans et al., 2021; Theocharis & Papaioannou, 2020), the congruence between the influencer and the promoted brand (Chetioui et al., 2020; Belanche et al., 2021), parasocial relationships between influencers and followers (Reinikainen et al., 2020; Jin & Ryu, 2020), perceived homophily or similarity between influencers and audiences (Sokolova & Kefi, 2020), and sponsorship disclosure practices (Stubb et al., 2019; Lee & Kim, 2019). These findings highlight the central role of credibility in determining the persuasive effectiveness of influencer marketing communications.

Similar to human influencers, the credibility of virtual influencers can also influence consumers' trust and responses toward endorsed content (Alboqami, 2023). However, the mechanisms underlying credibility perceptions may differ in the case of artificial agents. According to mind perception theory, individuals evaluate the credibility of an entity based on perceived levels of agency and experience (Gray et al., 2007). Agency refers to the perceived capacity of an entity to act intentionally and perform tasks, whereas experience relates to the perceived ability to feel emotions and possess subjective awareness (Liu & Wei, 2019). Artificial intelligence systems, including virtual influencers, are often perceived as possessing high levels of agency because they can autonomously generate content and perform tasks (Lee & Ham, 2023). However, their ability to experience emotions or genuine feelings is frequently questioned by consumers due to their non-

human nature. As a result, virtual influencers may face challenges in establishing credibility and trust with audiences (Rapp et al., 2021). Empirical studies have also shown that consumers tend to perceive virtual influencers as less credible than human influencers, which may weaken their persuasive impact in certain contexts (Alboqami, 2023).

1.3.2 Trustworthiness

Trustworthiness refers to the consumer's confidence that a source provides information in an objective, honest, and reliable manner (Ohanian, 1990). The importance of trustworthiness in communication effectiveness was first demonstrated in the landmark study by Hovland and his associates. Their research showed that individuals are more likely to change their opinions in accordance with a communicated message when the information is attributed to a highly trustworthy source compared to a source perceived as less trustworthy (Hovland & Weiss, 1951). This early work laid the foundation for later studies examining the role of source credibility in persuasion processes. Over time, trustworthiness has been widely recognised as one of the most important dimensions of source credibility influencing how audiences interpret and accept persuasive messages (Ohanian, 1990; Erdogan, 1999).

The trustworthiness of communicators such as celebrities or social media influencers is therefore an important construct in research on persuasion and attitude change. Celebrities who are liked and admired by their fans are often perceived as more trustworthy, which increases the likelihood that audiences will accept the messages they communicate. Previous research has shown that trustworthiness is closely related to other source characteristics, including perceived similarity between the communicator and the audience, as well as the communicator's perceived expertise and attractiveness (Friedman et al., 1979). Because of these associations, trustworthiness often functions as a key mechanism through which endorsement effectiveness influences consumer attitudes and behavioural intentions. Numerous studies have demonstrated that the perceived trustworthiness of a celebrity endorser can significantly influence consumers' purchase intentions (Pornpitakpan,

2004; Tzoumaka et al., 2016). For example, Tzoumaka et al. (2016) found that among several celebrity characteristics, trustworthiness was the only attribute that significantly affected purchase intention. However, other studies suggest that the influence of trustworthiness may depend on contextual factors such as product type or the perceived fit between the celebrity and the promoted product. Pornpitakpan (2004) found that the effect of celebrity trustworthiness on purchase intention varies depending on the congruence between the celebrity and the endorsed product. In some cases, trustworthiness may have limited influence when consumers perceive that the endorser does not possess a relevant connection to the product category. This finding highlights the importance of the match-up hypothesis, which suggests that endorsement effectiveness depends on the perceived compatibility between the endorser and the product being promoted (Kamins, 1990; Thomas & Johnson, 2019).

In the context of social media marketing, trustworthiness continues to play a crucial role in shaping consumers' responses to influencer communication. Influencers frequently share product recommendations, reviews, and personal experiences with their followers, and the perceived honesty and authenticity of these messages strongly affect how audiences evaluate them. Research has shown that when influencers are perceived as trustworthy, followers tend to develop more positive attitudes toward the content they share (Ing & Ming, 2018; Lee et al., 2021). High levels of influencer trustworthiness can also strengthen followers' attitudes toward the influencer themselves and increase their willingness to accept recommendations (Johnson et al., 2021; Chetioui et al., 2020). In addition, trustworthiness can foster emotional connections between influencers and their audiences, contributing to stronger parasocial relationships and greater engagement with influencer-generated content (Yang & Sia, 2018). The perceived trustworthiness of influencers has also been shown to positively influence brand-related outcomes, including brand satisfaction, brand image, and brand trust (Wiedmann & von Mettenheim, 2019). Consequently, trustworthiness is widely considered one of the most critical determinants of influencer marketing effectiveness.

More recently, the emergence of virtual influencers has raised new questions regarding the role of trustworthiness in digital marketing environments. Some researchers argue that virtual influencers may face challenges in establishing trust because audiences are aware that these characters are artificially created and controlled by organisations or marketing teams. Molin and Nordgren (2019) suggest that the perceived lack of authenticity and transparency associated with virtual influencers may lead followers to question the credibility of their sponsored messages. Similarly, Lou et al. (2023) found that consumers tend to trust virtual influencers less than human influencers, partly because they perceive virtual characters as uncanny, eerie, or "authentically fake." These perceptions may reduce the perceived sincerity of virtual influencer endorsements and therefore weaken their persuasive impact.

Nevertheless, other studies suggest that the effectiveness of virtual influencers may improve as consumers become more familiar with artificial agents in digital environments. According to the uncanny valley theory (Mori, 1970), individuals may initially react negatively to artificial characters that closely resemble humans, but acceptance tends to increase as familiarity grows and as artificial agents demonstrate more natural social interaction. Supporting this perspective, Wirtz et al. (2018) argue that consumers' acceptance of robots and artificial agents increases when these entities display social presence and interactive capabilities. As a result, virtual influencers may still be capable of establishing trust with audiences under certain conditions. For instance, when virtual influencers communicate in ways that appear socially engaging and transparent, followers may gradually develop trust toward them and respond positively to their endorsements (Lou et al., 2023). These findings suggest that although trustworthiness may currently represent a challenge for virtual influencers, evolving consumer perceptions of artificial agents may gradually change how trust is established in digital influencer marketing contexts.

1.3.3 Expertise

Expertise is characterised as the level of knowledge possessed by a source and constitutes the second major dimension of source credibility (Hovland et al., 1953). It is further defined as the degree to which a communicator is perceived to possess superior knowledge, competence, experience, and problem-solving ability within a particular domain (McCroskey & Teven, 1999). Early persuasion research demonstrated that expertise plays an important role in shaping the effectiveness of communication. According to Andersen and Clevenger (1963), a source that demonstrates expertise tends to be more persuasive than one perceived as lacking relevant knowledge. Similarly, Maddux and Rogers (1980) found that communicators who are perceived as experts in a specific field receive greater agreement and acceptance from audiences than non-expert communicators. These findings indicate that perceived expertise functions as an important signal that influences how individuals evaluate and accept persuasive messages.

In marketing communication and advertising research, the expertise of endorsers has long been recognised as an important factor influencing the effectiveness of endorsements. An endorser who is perceived as knowledgeable about the promoted product category can signal a meaningful and credible connection between the endorser and the advertised product (Mowen, 1980). When consumers believe that an endorser possesses expertise relevant to the product being promoted, they are more likely to perceive the recommendation as credible and informative. From an information-processing perspective, Chaiken's (1979) Heuristic–Systematic Model suggests that individuals often rely on cognitive shortcuts, or heuristics, when evaluating persuasive messages. In this context, expertise can serve as a heuristic cue that simplifies decision-making, leading individuals to adopt the belief that "experts' statements can be trusted." As a result, perceived expertise may increase the persuasive power of a message without requiring individuals to carefully evaluate the content of the message itself. Similarly, the Elaboration Likelihood Model (ELM) suggests that expertise can function as a peripheral

cue that influences persuasion when individuals are not highly motivated to process message arguments in detail (Petty & Cacioppo, 1986).

The expertise of different types of endorsers has been widely examined in the literature. In the context of celebrity endorsement, perceived expertise has been shown to positively influence consumers' attitudes toward endorsed brands and advertisements (Till & Busler, 2000). When celebrities are viewed as knowledgeable or competent in a particular domain, audiences are more likely to perceive their endorsements as credible and persuasive. In the context of influencer marketing, expertise has also been recognised as an important factor shaping followers' responses to influencer content. Martensen et al. (2018) found that fashion influencers who are perceived as knowledgeable about fashion trends and styling can more effectively persuade followers to adopt recommended products. Premeaux (2005) further argued that expertise can be particularly valuable for celebrities because it may compensate for weaknesses in other credibility dimensions, such as trustworthiness. In other words, when consumers perceive an endorser as highly knowledgeable, they may still accept recommendations even if other characteristics of the communicator are less convincing.

However, empirical findings regarding the impact of influencer expertise have been mixed. Some studies have failed to find a significant relationship between influencer expertise and persuasion outcomes. For example, Balabanis and Chatzopoulou (2019) were unable to establish a significant impact of beauty influencers' expertise on perceived influence or purchase intentions. Their findings suggest that expertise may only become influential in specific situations, such as when consumers possess relatively low knowledge about a product category and therefore rely more heavily on expert opinions. Similarly, Wiedmann and von Mettenheim (2020) reported that influencer expertise had only a small effect on brand satisfaction and did not significantly influence brand image or brand trust. Lou and Yuan (2019) also found that influencer expertise did not significantly influence followers' trust in branded content on social media platforms. These conflicting findings suggest that expertise may play a more limited role in influencer marketing

than in traditional celebrity endorsement contexts, particularly when followers prioritise other characteristics such as authenticity or similarity with the influencer.

The emergence of virtual influencers has further complicated the role of expertise in influencer marketing. In the context of virtual influencer marketing, expertise has been identified as one of the factors that may influence consumers' trust toward artificial endorsers (Alboqami, 2023). Unlike human influencers, whose expertise may stem from personal experience or professional knowledge, the perceived expertise of virtual influencers may derive from their association with advanced technologies and data-driven content creation. Sanderson and Cheung (2020) suggest that the expertise of virtual influencers often lies in their ability to leverage sophisticated algorithms, data analytics, and artificial intelligence technologies to produce highly tailored and optimised content. From this perspective, virtual influencers may be perceived as possessing technological expertise that allows them to generate reliable and accurate information.

In some cases, virtual influencers may even be perceived as more objective than human influencers because their recommendations are assumed to be based on algorithmic analysis rather than personal bias. Lou et al. (2023) suggest that the perceived objectivity and technological sophistication of virtual influencers may lead consumers to view them as capable of providing reliable, accurate, and timely information. Consequently, the expertise of virtual influencers may, in certain circumstances, equal or even surpass that of human influencers. However, the perceived expertise of virtual influencers is not always straightforward. For many well-known virtual influencers, such as Lil Miquela, it remains unclear how their personalities, narratives, and social media content are generated. As Robinson (2020) notes, audiences often do not know whether such content is created through artificial intelligence and machine-learning algorithms or produced by a team of designers and marketers working behind the scenes. This lack of transparency may create ambiguity regarding the true source of expertise behind virtual influencers,

potentially influencing how consumers interpret and evaluate their recommendations.

Overall, the literature suggests that while expertise remains an important component of source credibility, its influence in influencer marketing contexts may vary depending on the type of influencer, the product category, and the informational needs of consumers. In particular, the rise of virtual influencers introduces new complexities regarding how expertise is perceived, interpreted, and utilised in digital persuasion environments.

1.3.4 Attractiveness

Attractiveness was proposed by McGuire (1985) as the third component of source credibility and refers to the degree to which a communicator is perceived as physically appealing or likeable by an audience. In early endorsement research, attractiveness was primarily conceptualised as physical attractiveness, referring to outward appearance and visual appeal. A communicator who is perceived as beautiful, elegant, or stylish is often considered more attractive and therefore more persuasive in communication contexts (McCracken, 1989; Ohanian, 1990). Physical attractiveness can be operationalised through various attributes, including facial attractiveness, body attractiveness, and overall physical appearance (Baker & Churchill, 1977). In advertising and persuasion research, attractiveness has been measured through constructs such as model attractiveness (Baker & Churchill, 1977), chicness (Mills & Aronson, 1965), sexiness (Steadman, 1969), and likability (Maddux & Rogers, 1980). These attributes collectively shape the initial impression that audiences form about a communicator.

Numerous studies in social psychology and marketing have suggested that physical attractiveness plays an important role in individuals' initial judgments of others. Research has shown that people tend to associate attractive individuals with positive traits such as competence, friendliness, and intelligence, a phenomenon often referred to as the "halo effect" (Dion et al., 1972). As a result, attractive communicators are often perceived more favourably and may have greater persuasive power in communication contexts.

Baker and Churchill (1977), Chaiken (1979), and Joseph (1982) found that attractiveness serves as an important cue in shaping audience perceptions during initial encounters with a communicator. According to the source-attractiveness model, attractive communicators can enhance the effectiveness of persuasive messages because audiences are more likely to pay attention to and identify with attractive sources (McGuire, 1985). Similarly, Chaiken (1979) demonstrated that physically attractive communicators are capable of generating stronger persuasion effects compared to less attractive communicators.

In advertising research, the attractiveness of celebrity endorsers has frequently been associated with positive consumer responses. Previous studies have shown that the physical attractiveness of celebrity endorsers can positively influence brand attitudes and purchase intentions toward endorsed products (Silvera & Austad, 2003; Wang & Scheinbaum, 2018). Attractive endorsers can also capture consumer attention more effectively and enhance the memorability of advertisements. In the context of social media marketing, influencer attractiveness continues to play an important role in shaping consumer engagement and persuasion outcomes. Research has found that the physical attractiveness of influencers can increase brand engagement among millennial consumers (Duh & Thabeth, 2021). Attractive influencers are also more likely to draw attention to sponsored content, facilitating brand recognition and recall among followers (Lou & Yuan, 2019). As a result, several studies have reported that influencer attractiveness can positively influence consumers' purchase intentions toward promoted products (Alfarraj et al., 2020; Weismueller et al., 2020; Wu, 2020).

In addition to physical attractiveness, social psychological research suggests that attractiveness also has a social dimension, often referred to as social attractiveness. The source-attractiveness model (McGuire, 1985) argues that the effectiveness of persuasive communication depends not only on physical appearance but also on interpersonal characteristics such as familiarity, similarity, and likability. These characteristics contribute to interpersonal attraction between the communicator and the audience.

Similarity and likability have been widely studied in persuasion and communication research as factors that enhance the perceived connection between a source and message recipient (Aronson & Worchel, 1966; Ohanian, 1990; Torres et al., 2019). Sertoglu et al. (2014) define attractiveness as a combination of qualities that make a person appealing or likeable to others, including not only physical appearance but also personality traits, communication style, and overall presentation. In influencer marketing contexts, social attractiveness can strengthen the relationship between influencers and their followers by fostering a sense of connection and relatability. As a result, socially attractive influencers are more likely to stimulate parasocial relationships, which create an illusion of friendship or emotional closeness between the influencer and their audience (Sokolova & Kefi, 2021).

Similar patterns have also been observed in research on virtual influencers. Several studies have shown that the attractiveness of virtual influencers can positively influence consumers' attitudes toward the influencer as well as the brands they endorse (Ahn et al., 2022; Alboqami, 2023; Yang et al., 2024). Because virtual influencers are often designed with highly stylised and aesthetically appealing appearances, they may possess visual characteristics that attract attention and generate interest among social media users. However, the role of attractiveness in virtual influencer marketing may differ from that in human influencer contexts. Ahn et al. (2022) found that the relatability and likability of the virtual influencer Lil Miquela were primarily conveyed through her social media posts and narratives rather than through her physical appearance alone. This phenomenon may be explained by the fact that consumers recognise the artificial nature of virtual influencers and therefore perceive their appearance as computer-generated graphics rather than genuine human attractiveness. Consequently, although visual attractiveness may initially attract attention, the persuasive influence of virtual influencers may depend more strongly on other factors, such as content quality, personality portrayal, and perceived authenticity. These findings suggest that while attractiveness remains an important characteristic in

influencer marketing, its role may evolve in the context of virtual influencers, where aesthetic design and narrative presentation interact to shape audience perceptions.

1.3.5 Authenticity

There are many conceptualisations of authenticity when assessing the authenticity of a person (Beverland & Farrelly, 2010), and the concept has been discussed across several academic fields, including marketing (Moulard et al., 2015), sociology (Vannini & Franzese, 2009), and art (Fine, 2003). Although definitions vary across disciplines, authenticity generally refers to the perception that a person or entity behaves in a genuine and sincere manner that reflects their true identity. In sociology, authenticity is often defined as being true to oneself and acting consistently with one's inner values and beliefs (Vannini & Franzese, 2008). In the field of art, authenticity refers to the originality, sincerity, and genuineness of the creator and their work, emphasising the authenticity of artistic expression (Fine, 2003). Within marketing communication, authenticity in endorsement refers to the extent to which consumers perceive that an endorser genuinely believes in the product they promote and that their actions and statements reflect sincere support for the brand (Moulard et al., 2015). Similarly, Audrezet et al. (2018) suggest that authenticity in influencer marketing is perceived when influencers communicate in a way that appears natural, spontaneous, and consistent with their personal identity rather than purely commercially motivated.

Authenticity has become an increasingly important attribute in social media environments, where consumers seek genuine and relatable communication from public figures and influencers. Previous research has shown that authenticity is a key factor motivating consumers to follow celebrities and influencers on social media platforms (Kowalczyk & Pounders, 2016). In contrast to traditional advertising, where promotional messages are often clearly commercial in nature, influencer marketing relies heavily on the perception that influencers share honest personal experiences and opinions. To create such perceptions, social media influencers employ various

techniques to craft an authentic self-presentation. These techniques include posting selfies and personal photographs that give followers insight into their everyday lives (Gannon & Prothero, 2016), interacting directly with followers through comments and messages (Marwick, 2013; Jun & Yi, 2020), and sharing original and creative content that reflects their personal style and experiences (Marwick, 2013). Live streaming and other interactive features further strengthen the perception of authenticity by allowing followers to engage in real-time communication with influencers (Suhr, 2014). Through these practices, influencers create an impression of transparency and personal connection that distinguishes influencer marketing from traditional advertising communication.

Another important factor contributing to perceived authenticity is the fit between the influencer and the promoted product. When influencers promote products that align with their lifestyle, personal interests, or expertise, followers are more likely to perceive the endorsement as genuine and credible. Renchen (2020) argues that authenticity is strengthened when influencers demonstrate personal experience with the products they promote, as this signals that their recommendations are based on genuine use rather than purely commercial motives. When followers perceive influencer content as authentic, they are more likely to believe that the influencer expresses sincere opinions and recommendations. As a result, authenticity can foster relational trust and loyalty toward the influencer, strengthen followers' emotional connections with the influencer, and ultimately lead to more favourable attitudes toward promoted products and stronger purchase intentions (Kim & Kim, 2021a).

In recent years, the rise of virtual influencers has raised new questions regarding the role of authenticity in influencer marketing. Similar to human influencers, authenticity has been identified as an important factor influencing consumers' trust toward virtual influencers (Alboqami, 2023). However, because virtual influencers are digitally created characters rather than real individuals, their authenticity is often questioned by audiences. Some scholars argue that virtual influencers may struggle to convey genuine personal experiences and emotions, which are typically associated with authentic self-

expression. Moustakas et al. (2020) and Robinson (2020) suggest that the artificial nature of virtual influencers may limit their ability to communicate authentic experiences, as followers are aware that the influencer's personality, narratives, and content are constructed by designers or marketing teams. As a result, consumers may perceive virtual influencers as less authentic than human influencers, which may reduce their credibility and persuasive impact.

1.3.6 Homophily of influencer and follower

The term homophily was first introduced by Lazarsfeld and Merton (1954) to describe a social network phenomenon referring to the tendency of individuals to associate and form connections with others who are similar to themselves. This similarity may occur across various aspects, including demographic characteristics, interests, beliefs, attitudes, or behavioural patterns. The principle of homophily suggests that social relationships are more likely to develop between individuals who share common characteristics, as similarity facilitates communication, mutual understanding, and trust. In consumer behaviour and marketing research, homophily—often referred to as perceived similarity—describes the extent to which information recipients perceive a communicator or brand endorser as being similar to themselves in terms of demographic attributes, attitudes, lifestyle, or personal values (Lou & Yuan, 2019; Chen, 2020). When consumers perceive a communicator as similar to themselves, they are more likely to consider the source relatable and trustworthy, which can enhance the effectiveness of persuasive communication.

Homophily plays an important role in shaping communication and information-sharing behaviour. Individuals are generally more willing to seek information from, interact with, and establish relationships with sources they perceive as similar to themselves (Ladhari et al., 2020). This tendency is explained by similarity–attraction theory, which posits that individuals are more likely to be attracted to others whose attitudes, beliefs, and values resemble their own (Byrne, 1971). When people perceive similarity with others, they tend to assume that those individuals share comparable

perspectives and possess desirable intellectual or moral characteristics. As a result, perceived similarity can strengthen interpersonal influence and increase the likelihood that individuals will accept information communicated by similar others.

Homophily is also closely related to the development of parasocial interactions, which describe the one-sided psychological relationships that audiences form with media figures. Parasocial interaction theory suggests that audiences can develop feelings of intimacy, friendship, and emotional connection with mediated personalities despite the absence of real interpersonal interaction (Horton & Wohl, 1956). When followers perceive influencers as similar to themselves in terms of attitudes, lifestyle, or personal values, they are more likely to develop stronger parasocial relationships with those influencers. Similarity increases the perception that the influencer understands the audience's experiences and perspectives, thereby strengthening emotional attachment and identification with the influencer (Schouten et al., 2020). As a result, homophily can facilitate deeper engagement with influencer content and increase the likelihood that followers will accept recommendations made by the influencer.

Furthermore, homophily can enhance the persuasive impact of marketing communication by strengthening the credibility and relatability of the communicator. When audiences perceive a communicator as similar to themselves, they may interpret the communicator's opinions and recommendations as more relevant and trustworthy. This mechanism is consistent with social identity theory, which suggests that individuals are more receptive to influence from members of groups with which they identify (Tajfel & Turner, 1986). In influencer marketing contexts, perceived similarity can therefore increase the persuasive effectiveness of influencer communication by making the message appear more personally relevant to followers. Consequently, homophily has been identified as an important driver of consumer engagement, trust formation, and behavioural intentions in social media environments (Schouten et al., 2020; Lou & Yuan, 2019).

In marketing communication contexts, homophily has been found to enhance the persuasive power of communication messages. Consumers tend to be more receptive to messages delivered by communicators with whom they feel a sense of similarity (Lou & Yuan, 2019; Duh & Thabethe, 2021). In influencer marketing specifically, the perceived similarity between influencers and their followers can strengthen the credibility and relatability of influencer recommendations. Research has shown that homophily between influencers and followers can increase trust in the influencer (Chen, 2020), trust in advertising messages (Li & Peng, 2021), and consumer engagement with brands (Duh & Thabethe, 2021; Fink, 2021). Furthermore, higher levels of perceived similarity can positively influence consumers' purchase intentions toward products recommended by influencers (Kim & Kim, 2021a; Pornsrimate & Khamwon, 2021). These findings suggest that homophily can serve as an important mechanism through which influencer marketing influences consumer attitudes and behavioural intentions.

The concept of homophily has also been examined in the emerging field of virtual influencer marketing. Similar to human influencers, the perceived similarity between viewers and virtual influencers has been found to contribute to the development of trust and positive attitudes toward the influencer (Alboqami, 2023). However, important differences may exist between human and virtual influencers in terms of perceived similarity. Research suggests that individuals often perceive greater homophily with other humans because human communicators share common life experiences, emotions, and social contexts. In contrast, consumers may exhibit skepticism or negative reactions toward algorithm-driven agents, sometimes referred to as algorithm aversion (Franke et al., 2023). This phenomenon may reduce the perceived similarity between audiences and virtual influencers, potentially limiting their persuasive effectiveness.

1.3.7 Parasocial interactions and parasocial relationships

The concept of parasocial relationships was first introduced by Horton and Wohl (1956), referring to the illusory experience of a face-to-face relationship

that audiences develop with media personalities such as celebrities, performers, or other public figures. Although these relationships occur in a non-reciprocal manner, audiences may perceive them as emotionally meaningful and personally significant. Parasocial relationships therefore describe a psychological process in which information recipients form imagined interpersonal bonds with mediated personas despite the absence of direct interaction. Rubin and McHugh (1987) further demonstrated that audiences often interpret these connections as emotionally reciprocal, believing that the media figure understands them or communicates directly with them. Early research on parasocial relationships did not clearly distinguish between parasocial interaction and parasocial relationships, treating the two concepts interchangeably (Horton & Wohl, 1956; Rubin & McHugh, 1987). Later studies, however, provided a clearer conceptual distinction between the two constructs. Parasocial interactions are typically defined as the immediate psychological responses that media users experience while engaging with a media character, whereas parasocial relationships represent long-term psychological bonds that develop over repeated interactions with that character (Giles, 2002). Klimmt et al. (2006) further argued that repeated parasocial interactions over time may gradually evolve into parasocial relationships, while previously established parasocial relationships can shape the nature and intensity of subsequent parasocial interactions with the media persona.

Parasocial relationships often resemble real social relationships in terms of the emotional components they involve. Horton and Wohl (1956) suggested that parasocial relationships encompass feelings of intimacy, familiarity, and identification with media figures. These relationships may involve perceptions of friendship, understanding, and emotional attachment. Tukachinsky (2010) described parasocial relationships as a form of perceived friendship between audiences and media personalities, characterised by feelings of liking, trust, and perceived interpersonal closeness. Friendship in this context can be understood as a relational bond involving intimacy, affection, and mutual appreciation (Tukachinsky, 2010). Research on interpersonal relationships

suggests that friendship formation is often associated with frequent communication and repeated interaction (Fehr, 1996). Similarly, when celebrities or media personalities adopt conversational styles that appear personal and intimate, audiences may experience greater emotional closeness and begin to perceive them as surrogate friends (Stern et al., 2007).

Because parasocial relationships resemble real social relationships, they may take different forms and vary in intensity. Tukachinsky (2010) proposed that parasocial relationships exist on a continuum ranging from parasocial friendship to parasocial love. Parasocial friendships involve feelings of liking, trust, solidarity, and the desire to communicate with the media performer, whereas parasocial love may involve stronger emotional responses, including admiration, idealisation, or even romantic feelings toward the media persona. Importantly, parasocial relationships are not always positive. Audiences may also develop negative parasocial relationships with media personalities whom they dislike or distrust (Tian & Hoffner, 2010). In such cases, viewers may engage in critical or hostile relational behaviours toward the media figure, which may include criticism or rejection of the communicator's messages (Sanderson, 2009). This complexity highlights that parasocial relationships encompass a wide range of emotional responses rather than exclusively positive audience–media connections.

Parasocial relationships can be strengthened by several characteristics of influencers and media personalities. Previous research suggests that certain attributes of communicators may increase the likelihood that audiences form parasocial bonds with them. For example, attractive influencers have been shown to generate stronger emotional connections with followers compared to less attractive influencers (Wu, 2020; Yuan & Lou, 2020a). Similarly, influencers who are perceived as similar to their followers in terms of attitudes, values, or lifestyle are more likely to develop stronger parasocial relationships with audiences (Yuan & Lou, 2020a). Self-disclosure also plays an important role in building parasocial connections. When influencers share personal or behind-the-scenes aspects of their daily lives with followers, audiences often perceive the influencer as more authentic and relatable, which strengthens

parasocial bonds (Leite & Baptista, 2021). These findings indicate that parasocial relationships are influenced by various characteristics of influencers that enhance perceived closeness and relatability.

Parasocial relationships have important implications for persuasion and consumer behaviour. Studies have shown that stronger parasocial relationships between consumers and celebrities can enhance the persuasive power of endorsements and promotional messages (Kim et al., 2015). When consumers feel emotionally connected to a celebrity or influencer, they may become more receptive to brand messages and more motivated to support products endorsed by that communicator (Sakib et al., 2020). Consequently, parasocial relationships have been found to positively influence consumers' attitudes toward brands and increase purchase intentions (Silva & Costa, 2020). Similar processes occur in social media environments, where influencers interact with followers through platforms such as Instagram, YouTube, and TikTok. Through repeated exposure to influencers' posts and interactions, followers may develop parasocial relationships that make them perceive the influencer as a credible and trustworthy information source (Colliander & Dahlén, 2011). Because influencers are often perceived as relatable and similar to ordinary social media users, audiences may interpret their recommendations as coming from "one of us" rather than from a traditional advertiser (Uzunoğlu & Kip, 2014). In video-based social media platforms such as YouTube, parasocial interactions between vloggers and viewers have been shown to positively influence consumer perceptions of brands and increase purchase intentions (Lee & Watkins, 2016; Kim et al., 2015).

Parasocial interactions can also occur with non-human or artificial entities, including animated characters, virtual avatars, and artificial intelligence agents. Previous research has shown that media users may develop parasocial interactions with cartoon characters (Ramasubramanian & Kornfield, 2012), virtual avatars (Jin, 2010), and even disembodied conversational agents such as chatbots (Youn & Jin, 2021). However, empirical findings generally suggest that parasocial responses toward human characters are typically stronger than those toward artificial personas (Bond

& Calvert, 2014; Sheldon et al., 2021). Giles (2002) argued that human visual features, particularly the human face, act as evolutionary cues that trigger parasocial responses. In contrast, virtual characters may evoke weaker parasocial reactions due to their artificial appearance and perceived lack of genuine human characteristics.

Research has shown that viewers' parasocial responses toward virtual personas may be influenced by two important factors: visual human-likeness and mental human-likeness. Visual human-likeness refers to the extent to which a virtual character physically resembles a human being, whereas mental human-likeness refers to the perceived capacity of the character to think, feel, and possess a mind (Stein et al., 2020). Virtual influencers may receive lower levels of both visual and mental human-likeness attributions compared to real individuals, which can reduce empathy and emotional engagement from audiences. Broadbent et al. (2013) suggested that artificial agents are often perceived as inferior to humans in terms of agency (the ability to think and plan) and experience (the ability to feel emotions). As a result, audiences may attribute lower levels of empathy or moral expectations toward virtual entities (Waytz et al., 2010). However, more recent research suggests that the relationship between human-likeness and parasocial interaction may be more complex. Jin et al. (2023) found that visual human-likeness does not necessarily determine the strength of parasocial interactions with virtual influencers. In some cases, parasocial interactions with virtual influencers may even exceed those with human influencers due to the novelty effect associated with artificial characters (Stein et al., 2022). These findings suggest that while parasocial relationships have traditionally been associated with human media personalities, evolving technologies and increasing exposure to artificial agents may gradually reshape how audiences form parasocial bonds in digital environments.

1.3.8 Congruence between influencer and product or brand

Congruence in the marketing field generally refers to the degree of alignment or consistency between two or more elements involved in marketing

communication or branding strategies. Scholars have examined congruence in relation to various aspects of marketing, including the alignment between brand image and marketing messages (Rogers, 1961), brand identity and consumer self-image (Sirgy et al., 2000), marketing messages and the promoted product (Aaker & Schmitt, 2001), communication channels and marketing messages (de Vries & Carlson, 2014), endorser and brand (Fleck & Quester, 2007), endorser and product (Kamins, 1990), and endorser and marketing messages (Martínez-López et al., 2020). In general, congruence reflects the extent to which different marketing elements are perceived as logically and conceptually consistent with one another. When consumers perceive high levels of congruence between these elements, they are more likely to interpret marketing messages as coherent, credible, and persuasive.

In the context of social media marketing, the congruence between influencers and the products or brands they promote has received increasing scholarly attention (Ying & Dikčius, 2023). Influencer–product congruence refers to the perceived fit between an influencer's personal image and the characteristics of the promoted product or brand. This perceived fit can be evaluated based on multiple factors, including similarities in image (Till & Busler, 2000; Fink et al., 2004), personality alignment between the influencer and the brand (Mishra et al., 2015), the influencer's expertise or knowledge regarding the product category (Till & Busler, 1998), and shared cultural or symbolic meanings between the influencer and the endorsed product (Choi et al., 2005). When followers perceive that an influencer naturally aligns with a product or brand, the endorsement is more likely to appear credible and authentic, thereby increasing the persuasive impact of the marketing message.

The importance of endorser–product congruence has been extensively examined in traditional celebrity endorsement literature. Numerous studies have provided empirical support for the idea that a strong match between a celebrity and the endorsed product significantly enhances the effectiveness of endorsements (Choi & Rifon, 2012; Schouten et al., 2020). According to the Match-Up Hypothesis proposed by Kamins (1990), the effectiveness of celebrity endorsement largely depends on the perceived fit between the

endorser and the brand. When the endorser's characteristics align well with the product's attributes, the endorsement tends to be perceived as more credible, attractive, and persuasive. For example, research has shown that physically attractive endorsers are particularly effective when promoting products associated with attractiveness, such as cosmetics, fashion, or beauty products (Kahle & Homer, 1985; Kamins, 1990). In contrast, attractiveness may be less relevant when endorsing functional or technology-related products, where other attributes such as expertise or product knowledge may be more important (Till & Busler, 2000). Empirical studies have also suggested that congruence between the endorser and the product may sometimes play a more significant role than individual characteristics such as attractiveness or expertise. This is because consumers' evaluations of endorsement effectiveness often depend on the combined influence of multiple attributes rather than a single characteristic (Kamins & Gupta, 1994; Misra & Beatty, 1990).

Similar patterns have been observed in influencer marketing research. The congruence between social media influencers and the brands or products they endorse has been shown to positively influence consumer attitudes toward the endorsement, the brand, and purchase intentions (Belanche et al., 2021; von Mettenheim & Wiedmann, 2021; Janssen et al., 2021). When consumers perceive a strong fit between an influencer's identity and the promoted product, they are more likely to evaluate the product positively and express stronger intentions to purchase it (Kim & Kim, 2021b). Moreover, influencer–brand congruence can strengthen the perceived expertise and trustworthiness of the influencer, thereby increasing the credibility of the endorsement message. Breves et al. (2019) found that the perceived fit between influencers and brands is particularly important for audiences with weaker parasocial relationships with the influencer. In such cases, the perceived congruence between the influencer and the brand acts as an additional cue that helps consumers evaluate the credibility of the endorsement. In some cases, congruence may even play a more important role in influencer marketing than in traditional celebrity endorsement. Unlike

celebrities, who may endorse a wide range of unrelated products, influencers often position themselves as experts or representatives of a specific niche, such as beauty, fashion, technology, or lifestyle. As a result, their perceived authenticity and credibility often depend heavily on the consistency between their personal brand and the products they promote (Schouten et al., 2020).

The concept of congruence has also been extended to the emerging field of virtual influencer marketing. Similar to human influencers, the perceived fit between virtual influencers and the products they promote plays a crucial role in shaping consumer trust and attitudes. Studies have shown that when consumers perceive a strong alignment between a virtual influencer's image and the endorsed product, they are more likely to trust the influencer and evaluate the endorsement positively (Feng et al., 2024; Alboqami, 2023). For example, Feng et al. (2024) found that virtual influencers with higher levels of perceived involvement in a particular product category are associated with stronger perceptions of congruence, which in turn lead to more positive attitudes toward the influencer and greater levels of consumer trust. However, consumer perceptions of congruence in virtual influencer contexts may also be influenced by attitudes toward artificial intelligence. Individuals who experience robophobia or negative attitudes toward AI technologies may perceive lower levels of congruence between virtual influencers and endorsed products, which can reduce trust and weaken the persuasive impact of the endorsement (Feng et al., 2024). These findings suggest that while influencer–product congruence remains an important determinant of endorsement effectiveness, the mechanisms through which congruence operates may differ between human and virtual influencers due to the unique characteristics of artificial agents.

1.3.9 Anthropomorphism

Anthropomorphism is a characteristic that is particularly relevant to virtual influencers rather than human influencers, as it refers to the attribution of human-like characteristics, behaviours, intentions, and emotions to non-human entities, including animals, objects, or technological agents (Guthrie,

2005; Epley et al., 2007). This concept has been widely examined across multiple research domains, particularly in studies involving human interaction with technological systems and artificial agents. In marketing and consumer behaviour research, anthropomorphism has been applied to a variety of contexts, including brand personification (Golossenko et al., 2020), intelligent tutoring systems (D'Mello & Graesser, 2010), chatbots (Cheng et al., 2022), virtual assistants (Balakrishnan & Dwivedi, 2024), service robots (Mende et al., 2019), and, more recently, virtual influencers (Dabiran et al., 2024; Feng et al., 2024). In these contexts, anthropomorphism plays an important role in shaping how individuals interpret and interact with non-human agents, as the attribution of human-like qualities often facilitates social and emotional responses toward artificial entities.

In the context of virtual influencer marketing, anthropomorphism represents a fundamental design characteristic that influences consumers' perceptions and responses toward virtual influencers (da Silva Oliveira & Chimenti, 2021). Virtual influencers are digitally created characters that mimic human appearance, behaviour, and communication patterns on social media platforms. Because they are designed to resemble human influencers, anthropomorphic features are essential for enabling audiences to interpret them as social actors rather than merely technological objects. Hoffman et al. (2021) suggest that anthropomorphic cues can significantly shape consumer responses to virtual influencers by increasing perceptions of social presence, relatability, and emotional engagement. Similarly, Murphy et al. (2019) argue that anthropomorphic characteristics in humanoid robots enhance individuals' tendency to anthropomorphize artificial agents, which plays a crucial role in consumer acceptance and trust formation. When individuals attribute human-like characteristics to artificial entities, their perceptions of the agent's competence, intelligence, and social capability may improve (Duffy, 2003).

Virtual influencers represent a particularly interesting case of anthropomorphic design because their degree of human resemblance varies widely. Some virtual influencers are designed to closely resemble real humans, while others maintain more stylised or cartoon-like appearances.

Anthropomorphism in virtual influencers therefore represents a multifaceted design challenge involving both visual and behavioural dimensions (Golossenko et al., 2020). Epley et al. (2007) proposed a psychological framework explaining why humans anthropomorphize non-human entities. According to their theory, anthropomorphism arises through three primary psychological mechanisms: effectance motivation, elicited agent knowledge, and social motivation. Effectance motivation refers to individuals' desire to understand and predict the behaviour of agents in their environment. Elicited agent knowledge occurs when individuals apply knowledge about human behaviour to interpret the actions of non-human entities. Social motivation reflects the human need for social connection and affiliation, which may lead individuals to perceive social characteristics in non-human agents when real social interaction is limited.

Building on these psychological mechanisms, Van Pinxteren et al. (2019) proposed two key dimensions of anthropomorphic design: anthropomorphic appearance and anthropomorphic social functioning. Anthropomorphic appearance refers to the extent to which an artificial agent visually resembles a human being, including features such as facial structure, body proportions, and expressions. Anthropomorphic social functioning refers to the ability of an artificial agent to engage in social behaviours typically associated with humans, such as emotional expression, conversational interaction, and social responsiveness. Some studies have demonstrated that more human-like appearances can enhance perceptions of trust and acceptance toward artificial agents (Ahn et al., 2021). However, increasing anthropomorphism does not always produce positive outcomes.

One important theoretical framework explaining the complexity of anthropomorphism is the uncanny valley theory proposed by Mori (1970). According to this theory, individuals' acceptance of artificial agents increases as the agent becomes more human-like, but only up to a certain point. When artificial entities appear almost—but not perfectly—human, individuals may experience feelings of discomfort, eeriness, or unease. This phenomenon occurs because slight imperfections in appearance or behaviour remind

observers that the entity is not truly human, creating a psychological conflict between human-like cues and artificial characteristics. As the realism of the artificial agent continues to increase and eventually becomes indistinguishable from real humans, acceptance and emotional responses may rise again. Molin and Nordgren (2019) argue that this dynamic may also apply to virtual influencers, whose highly realistic appearances can sometimes trigger feelings of discomfort if audiences perceive them as artificial or unnatural.

In addition to visual appearance, anthropomorphic social functioning also plays a crucial role in the acceptance of artificial agents. Robots and AI-based agents must not only perform functional tasks but also satisfy users' social and emotional expectations (Salem et al., 2015). Murphy et al. (2019) suggest that robots capable of expressing emotions, communicating using human-like voices, or engaging in interactive dialogue may blur the distinction between humans and machines. When artificial agents display these human-like social behaviours, individuals may begin to treat them as social partners rather than technological tools. Consequently, consumers may even develop emotional connections with artificial agents. For instance, research has shown that individuals can develop friendships with chatbots, reflecting a form of parasocial interaction similar to those experienced with media personalities (Youn & Jin, 2021).

Recent research on virtual influencers has provided empirical evidence supporting the importance of anthropomorphism in shaping consumer responses. Ahn et al. (2022) conducted a survey among Instagram users and found that perceived anthropomorphism enhances virtual influencers' social presence, which in turn increases perceptions of physical and social attractiveness and positively influences consumers' attitudes toward endorsed brands. Similarly, El Hedhli et al. (2023) demonstrated that consumers' perceived anthropomorphism of virtual influencers positively affects perceptions of warmth, which subsequently increases followers' willingness to accept influencer recommendations. Feng et al. (2024) also found that anthropomorphism—particularly the perceived realism of both appearance

and social behaviour—positively influences consumers' attitudes and trust toward virtual influencers.

Expanding beyond the commonly studied dimensions of anthropomorphism, Dabiran et al. (2024) proposed a multidimensional conceptualisation of anthropomorphism in virtual influencers, including appearance, moral virtue, cognitive experience, and conscious emotionality. Their findings indicate that different dimensions of anthropomorphism may influence consumer perceptions in distinct ways. Specifically, moral virtue and cognitive experience were found to significantly influence both the perceived credibility of virtual influencers and the strength of parasocial relationships formed with them. In contrast, anthropomorphic appearance was found to influence parasocial relationships but did not directly affect perceived credibility. These findings suggest that while human-like appearance may facilitate emotional engagement with virtual influencers, other psychological attributes such as perceived intelligence or moral character may play a more critical role in shaping credibility and persuasion outcomes.

Overall, anthropomorphism plays an important role in explaining how consumers perceive and respond to virtual influencers, particularly because it helps virtual influencers appear more human-like, socially present, and emotionally engaging. Therefore, this concept is introduced in the theoretical part to clarify the distinctive nature of virtual influencers and to explain why they may be perceived as social actors in influencer marketing. However, anthropomorphism is not included as a construct in the research model because the purpose of this dissertation is to compare human and virtual influencers as two influencer types, rather than to compare different virtual influencers according to their varying degrees of human-likeness. Moreover, anthropomorphism is conceptually applicable only to non-human or artificial agents and cannot be meaningfully measured in the human influencer condition (Epley et al., 2007; Guthrie, 2005; Waytz et al., 2010). Including it as an empirical variable would therefore create measurement inconsistency across the experimental groups and reduce the comparability between human and virtual influencer conditions. For this reason, anthropomorphism is

retained as a theoretical background concept, but it is not operationalised in the empirical model.

1.4 Message content characteristics

1.4.1 Content quality or argument quality

Content quality, often conceptualised as argument quality, has long been discussed in the information systems and communication literature as a critical determinant of persuasion and information adoption. Within dual-process persuasion theories, such as the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (HSM) (Chaiken, 1979), argument quality functions as a central or systematic route factor, whereas source credibility typically functions as a peripheral or heuristic cue. In these frameworks, individuals who are motivated and able to process information carefully evaluate the quality and strength of the arguments presented in a message, while those with lower motivation or cognitive resources rely more on heuristic cues such as the credibility or attractiveness of the source (Eagly & Chaiken, 1993). Argument quality therefore refers to the strength, plausibility, and persuasiveness of the arguments embedded in a communication message (Eagly & Chaiken, 1993). Petty and Cacioppo (1986) similarly described argument quality as the extent to which message recipients perceive the arguments as strong, convincing, and logically sound rather than weak or unpersuasive. Following this line of reasoning, Bhattacherjee and Sanford (2006) defined argument quality as the perceived persuasive strength of the arguments contained in informational messages, emphasising that higher-quality arguments are more likely to lead to information adoption and behavioural intentions.

Early studies in information systems research conceptualised argument quality through multiple dimensions related to information quality. For instance, Doll and Torkzadeh (1988) measured argument quality through attributes such as information content, accuracy, format, and timeliness, highlighting the importance of both informational richness and presentation

quality. As digital technologies and online information environments evolved, additional dimensions were incorporated into the conceptualisation of information quality. McKinney et al. (2002), examining information quality in online environments, identified understandability, reliability, and usefulness as key dimensions influencing users' evaluations of website information. Similarly, the updated Information Systems Success Model proposed by DeLone and McLean (2003) suggested that information quality in e-commerce contexts can be assessed through dimensions such as accuracy, relevance, completeness, understandability, currency, personalisation, and variety. In online community and social media environments, Cheung et al. (2008) evaluated information quality in online forums by focusing on relevance, timeliness, accuracy, and comprehensiveness of user-generated comments. These studies collectively demonstrate that argument quality is a multidimensional construct reflecting the informational value and usefulness of communication messages.

However, some inconsistencies in the conceptualisation of content quality have emerged across studies. Bhattacherjee and Sanford (2006) suggested that these inconsistencies may stem from differences in users' experience and familiarity with the subject matter. Experienced users tend to evaluate information based on attributes such as completeness, accuracy, and consistency, whereas inexperienced users often rely on simpler cues such as the perceived strength or persuasiveness of the arguments presented. To reconcile these different perspectives, Zhang et al. (2014) proposed a simplified conceptualisation of argument quality consisting of two core dimensions: perceived informativeness and perceived persuasiveness. Their findings indicated that higher levels of perceived argument quality positively influence individuals' behavioural intentions, supporting the central role of argument quality in persuasion processes.

With the rapid development of social media platforms, the nature of communication content has become increasingly diverse. Social media messages can take multiple forms, including text posts, images, short videos, livestreams, and interactive multimedia content created by brands, influencers,

and individual users. In many cases, social media content performs functions similar to traditional advertising messages, as it aims to inform, persuade, and influence consumer behaviour. Recognising this similarity, Lou and Yuan (2019) applied the concept of advertising content value to examine the effectiveness of influencer-generated content on social media platforms. The concept of value in marketing refers to the benefits or utility that consumers derive from marketing offerings during exchange processes (Sheth & Uslay, 2007). In advertising research, advertising value has been defined as the consumer's "subjective evaluation of the relative worth or utility of advertising" (Ducoffe, 1995).

Ducoffe (1996) proposed three primary determinants of advertising value: informativeness, entertainment, and irritation. Advertising informativeness refers to the extent to which advertising provides useful and relevant information about products or services, thereby helping consumers make more informed purchasing decisions. Advertising entertainment refers to the ability of advertising content to amuse, engage, or emotionally stimulate consumers. Advertising irritation, by contrast, refers to negative reactions toward advertising that is perceived as intrusive, manipulative, or disruptive to consumers' goals. Among these factors, informativeness is often considered the most fundamental element because it directly contributes to consumers' decision-making processes and enhances their perceived usefulness of the advertising message.

Applying these concepts to influencer marketing, Lou and Yuan (2019) identified informative value and entertainment value as key characteristics of influencer-generated content. Their findings indicated that informative content produced by influencers significantly contributes to followers' trust in branded messages and increases purchase intention. In contrast, entertainment value did not significantly influence followers' trust in branded content or their purchase intention. These findings suggest that although entertaining content may attract attention and engagement, informational value plays a more crucial role in establishing credibility and persuasion in influencer marketing contexts. Consequently, content informativeness is often

considered the most important attribute of social media content quality, particularly when consumers evaluate influencer recommendations and branded messages on digital platforms.

1.4.2 Argument strength

While numerous dimensions of argument quality have been proposed in prior research, the construct of argument strength represents a more specific conceptualisation, referring to the extent to which the arguments contained in a persuasive message are perceived as cogent, convincing, and logically valid (Petty & Cacioppo, 1986). Argument strength is widely regarded as one of the most commonly manipulated message characteristics in persuasion research (Johnson et al., 2005). Empirical studies consistently demonstrate that strong arguments are more effective in producing attitude change and belief modification than weak arguments, particularly when individuals carefully evaluate the information presented (Johnson et al., 2004; Wood & Quinn, 2003). Consequently, argument strength has become a central construct in understanding how persuasive communication influences individuals' attitudes and behavioural intentions.

Scholars have generally approached argument strength from two main perspectives (O'Keefe, 2003): The first approach focuses on intrinsic message features, examining the characteristics of the message itself that contribute to persuasive effectiveness. This perspective attempts to identify objective qualities of the argument, such as logical consistency, evidence quality, clarity, and relevance, that enhance the persuasive potential of the message. The second approach focuses on message receivers' cognitive responses, analysing how individuals interpret and mentally process the arguments presented in a persuasive communication (O'Keefe, 2003). While the first approach evaluates the structural properties of the message, the second approach examines how persuasive messages stimulate favourable or unfavourable cognitive reactions among recipients. As Zhao et al. (2011) suggest, identifying message features that influence persuasion represents a direct approach to assessing argument strength, whereas analysing recipients'

cognitive responses represents an indirect approach that captures how individuals interpret and evaluate the arguments.

The cognitive response perspective has been widely adopted in persuasion research through dual-process theories such as the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986). According to ELM, individuals process persuasive messages through either a central route or a peripheral route, depending on their level of motivation and ability to process information. When individuals are highly involved and motivated to evaluate the message, they engage in central-route processing, carefully scrutinising the quality and strength of the arguments presented. In such cases, strong arguments generate more favourable cognitive responses, leading to stronger and more persistent attitude change. Conversely, when individuals have low motivation or limited cognitive resources, they rely on peripheral cues such as the credibility, attractiveness, or popularity of the message source rather than the strength of the arguments themselves (Petty & Cacioppo, 1986). Within this framework, argument strength plays a crucial role in determining the effectiveness of persuasive messages, particularly in information-rich environments such as online platforms. Even when messages advocate the same position, they may vary in their persuasive impact depending on the perceived strength and quality of the arguments presented. As a result, argument strength has frequently been applied in studies examining the adoption of online persuasive messages, especially within information systems and electronic word-of-mouth research (Cheung, 2009; Xiao et al., 2018). For example, Cheung (2009) demonstrated that stronger arguments in online consumer reviews enhance the perceived credibility of the message and increase the likelihood that individuals will adopt the information when making purchase decisions. Similarly, Xiao et al. (2018) found that argument strength significantly influences the credibility of online messages and their subsequent acceptance by information receivers.

1.4.3 Information credibility and message credibility

The concept of credibility encompasses multiple dimensions, including the quality, accuracy, currency, and meaningfulness of a message, as well as the credibility of the source and the reliability of the medium through which the message is communicated (Khan et al., 2024). In communication and information systems research, credibility is generally understood as the degree to which information is perceived as trustworthy, reliable, and believable by recipients. Perceived information credibility plays a crucial role in shaping individuals' information evaluation and decision-making processes. In particular, it has been identified as a significant antecedent of information adoption behaviour, as individuals are more likely to accept and use information that they perceive as credible (Khan et al., 2022; Albon et al., 2018; Erkan & Evans, 2016). Credibility is also considered essential for the survival and legitimacy of new media platforms, as audiences increasingly rely on digital information sources when forming opinions and making consumption decisions (Mackay & Lowrey, 2011).

Information credibility has traditionally been conceptualised as a multidimensional construct consisting of three primary components: message credibility, source credibility, and medium credibility (Metzger et al., 2003; Eysenbach, 2007; Li & Suh, 2015). Message credibility refers to the extent to which recipients perceive the content of a communication as truthful, believable, and reliable (Appelman & Sundar, 2016; Xiao et al., 2018). In contrast, source credibility focuses on the characteristics of the communicator, such as expertise, trustworthiness, and attractiveness, that influence the acceptance of the message (Bhattacherjee & Sanford, 2006). Medium credibility, on the other hand, relates to the perceived reliability and trustworthiness of the communication channel through which the information is delivered, such as traditional media outlets, websites, or social media platforms (Li & Suh, 2015; Mousavizadeh et al., 2018). While these three dimensions are conceptually related, message credibility specifically

evaluates the reliability and truthfulness of the message content itself rather than the characteristics of the communicator or the communication channel.

Various measurement approaches have been developed to operationalise message credibility across different research contexts. Metzger et al. (2003) conceptualised message credibility through three components: message content, message structure, and message delivery or presentation style, emphasising that both informational substance and the manner of communication influence perceived credibility. Li and Suh (2015) proposed that message credibility is determined by two key factors: argument strength and information quality, highlighting the importance of persuasive reasoning and informational value in shaping credibility perceptions. Similarly, Shamim and Islam (2021) suggested that message credibility comprises informational value and vicarious expressions, indicating that both the informational usefulness of the message and the experiential elements conveyed by the communicator contribute to credibility evaluations. Appelman and Sundar (2016) offered a widely adopted measurement scale conceptualising message credibility through three core descriptors: accuracy, authenticity, and believability. This conceptualisation emphasises the cognitive judgments individuals make when evaluating whether the content of a message can be trusted.

The role of message credibility becomes particularly important in the context of influencer marketing. Social media influencers frequently communicate branded content directly to their followers in the form of product recommendations, reviews, tutorials, or personal narratives. Unlike traditional advertising, influencer-generated content often blends personal expression with promotional intent, making it more difficult for audiences to distinguish between genuine opinions and sponsored messages (Lou & Yuan, 2019). Consequently, followers must evaluate the credibility of influencer-generated messages in order to determine whether the information can be trusted (Lee, 2021). In this context, message credibility represents followers' assessment of whether the information provided by the influencer is truthful, reliable, and acceptable. Kim et al. (2015) argue that message credibility reflects the degree

to which audiences perceive the content of a communication as believable and trustworthy, which directly influences their evaluation of the promoted product or brand.

Furthermore, message credibility plays a crucial role in the information adoption process within social media environments. Studies have shown that when users perceive influencer-generated messages as credible, they are more likely to accept the information presented and integrate it into their decision-making processes (Li & Suh, 2015). Message credibility has therefore been found to positively influence information adoption, which in turn shapes consumer attitudes and behavioural intentions (Sardar et al., 2021; Jiang et al., 2021). In marketing contexts, this process often translates into stronger purchase intentions, as credible messages increase consumers' confidence in product claims and recommendations (Daowd et al., 2020; Chih et al., 2020). Consequently, message credibility represents a key mechanism through which influencer-generated content affects consumer responses, linking the evaluation of persuasive messages to downstream outcomes such as attitudes toward the product and purchase intentions.

1.4.4 Message valence

Message valence is the evaluation of the message's direction (Percy & Rossiter, 1992). Message valence is a context-dependent construct, with its operational definition varying across research domains and applications. In the context of persuasion-focused communication, a message can focus on either the positive outcomes of undertaking an action as a positive framed message or the negative consequences of not implementing an action as a negative framed message (O'Keefe & Jensen, 2008). Positive (gain-framed) messages can enhance message effectiveness by increasing the receiver's engagement and favourable attitudes, whilst negative (loss-framed) messages tend to create urgency to avoid risks and adverse outcomes (Maheswaran & Meyers-Levy, 1990). Consumers react differently to the same information depending on whether the message is framed positively or negatively (Tversky & Kahneman, 1981). The message valence of positive or negative content can

affect consumers' attention and comprehension (Xu, 2019). In the context of consumer evaluations, message valence refers to the evaluative direction of a review, and can be positive (e.g., praise) or negative (e.g., complaint) (Cheung et al., 2009). Scholars have documented conflicting findings regarding which message valence is more effective in influencing consumer behaviour. Many studies find that positive eWOM benefits consumers' attitudes, purchase intentions and sales (Don & Hwang, 2009; Purnawirawan et al., 2015; Bae & Lee, 2011; Floyd et al., 2014). Positive valence messages are more persuasive than negative valence messages, as positive valence messages align with consumers' desires for positive reinforcement and self-improvement, making them more engaging and credible (O'Keefe & Jensen, 2008). Fear-inducing messages often evoke greater message processing (Slater et al., 2002). When information receivers get involved in the issue with detailed processing, negative-framed messages appear to be more persuasive (Maheswaran & Meyers-Levy, 1990). Loss-framed messages tend to be more effective in changing behaviours that are considered risky, while gain-framed messages tend to be more effective with behaviours considered safe (Edwards et al., 2001).

The effectiveness of message valence can depend on other message attributes, product characteristics, source characteristics and consumer differences (Septianto et al., 2019). Balaji et al. (2021) studied the message features of nano-influencers and found that positively framed low-construal messages are perceived as more credible than negatively framed low-construal messages, but message valence has no impact on high-construal messages. Sen and Lerman (2007) found that the type of product moderates the effect of review valence. For utilitarian products, readers exhibit a negativity bias, perceiving negative reviews as more useful and attributing them to product-related factors. In contrast, for hedonic products, readers are more likely to attribute negative reviews to the reviewer's personal motives, finding them less useful than positive reviews. Siering and Muntermann (2013) found that positive review sentiment increases perceived helpfulness for search goods, whilst negative review sentiment is seen as more helpful for experience goods.

Wang et al. (2020) compared the effectiveness of recommendations with manipulation of message valence, agent types (human experts vs. AI systems) and expert identity (ingroup vs. outgroup vs. no identity), and found that positive ratings are more influential than negative ratings without differences in terms of AI systems (vs. human experts) or expert identity. However, for negative ratings, human ingroup members generate greater effects than no-identity experts.

1.5 Product type

Product type is an important contextual condition for understanding when human and virtual influencers may differ in persuasive effectiveness. Following Nelson (1970, 1974), products can be broadly classified into search goods and experience goods. Search goods are products whose key attributes can be evaluated before purchase through available information, such as descriptions, specifications, reviews, or observable product features. Experience goods, by contrast, require actual use or consumption before consumers can fully assess their quality. This distinction is relevant because consumers do not rely on the same type of evidence when evaluating all products.

The search-experience distinction is especially important in influencer marketing because influencer persuasiveness depends partly on whether product evaluation is based on objective information or real consumption experience. For search goods, consumers can rely more on factual, observable, or second-hand information to reduce uncertainty before purchase. For experience goods, however, product evaluation depends more strongly on sensory experience, personal use, and subjective judgement (Weathers et al., 2007). Therefore, the same influencer may be perceived differently depending on whether the endorsed product requires informational explanation or credible experiential testimony.

This distinction becomes particularly relevant when comparing human and virtual influencers. Human influencers can claim real product experience and can provide consumption-based cues such as personal use, sensory

evaluation, and practical feedback. Virtual influencers, although visually appealing and controllable, do not possess genuine embodied experience or sensory capability (Li et al., 2023; Zeng et al., 2025). This may limit their persuasiveness for products that require direct physical interaction or experiential evaluation. In contrast, when products can be evaluated through clear descriptive or visual information, the lack of real sensory experience may be less problematic.

Previous research suggests that virtual influencers may be more suitable for products that can be assessed through observable, symbolic, or information-based attributes, whereas human influencers may retain an advantage for products requiring authentic personal experience. Zhang et al. (2022) similarly distinguish between products that require deeper physical interaction and those that can be evaluated through more surface-level information. However, empirical evidence remains mixed. While some studies suggest that virtual influencers' lack of sensory capability may weaken their effectiveness for experience-based products, De Cicco et al. (2024) find no significant differences between human and virtual influencers in trust, attitudes, or social presence. This indicates that the interaction between influencer type and product type remains theoretically and empirically important.

Accordingly, this dissertation treats product type as a boundary condition in the effectiveness of virtual versus human influencers. The key question is whether virtual influencers are more persuasive for search goods, where consumers can rely on objective and information-based evaluation, than for experience goods, where personal or sensory experience is more central. Examining this interaction helps clarify whether the persuasive role of virtual influencers depends on the alignment between the nature of the influencer and the evaluability of the promoted product.

1.6 Theories related to information adoption from influencers and consumer behavioural intention

1.6.1 Behavioural intention theories

The development of behavioural intention theories has evolved over time, beginning with the Theory of Reasoned Action (TRA), followed by the Theory of Planned Behaviour (TPB), and later extended into technology contexts through the Technology Acceptance Model (TAM). These theories collectively explain how individuals form intentions and make decisions, and they have been widely applied in consumer behaviour and, more recently, in influencer marketing research.

The Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) is one of the earliest and most influential models for predicting human behaviour (See Figure 1). It posits that an individual's behavioural intention is determined by two key factors: attitude toward the behaviour and subjective norms. Attitude reflects the individual's overall evaluation of performing the behaviour, which is formed based on behavioural beliefs about the likely outcomes of the behaviour and the evaluation of those outcomes. Subjective norms capture perceived social pressure from others and are shaped by normative beliefs, referring to whether important referents (e.g., peers, family, or influencers) approve or disapprove of the behaviour, as well as the individual's motivation to comply with these expectations. These two components jointly influence behavioural intention, which represents the individual's readiness or likelihood to perform the behaviour and is considered the most immediate predictor of actual behaviour. TRA also assumes that behaviour is under volitional control, meaning that individuals can act freely based on their intentions. TRA has been widely applied in marketing to explain how consumers form purchase intentions based on their personal evaluations and social influences. In the context of influencer marketing, TRA provides a strong foundation for understanding how influencers affect consumer decision-making. Influencers function as modern opinion leaders, shaping both attitudes (through persuasive content) and subjective norms

(through perceived social endorsement). Research has shown that influencer credibility and content can significantly impact consumer attitudes, while the perceived popularity and recommendations of influencers contribute to subjective norms (Casaló et al., 2018; Lou & Yuan, 2019). Furthermore, social media environments amplify subjective norms, as consumers are constantly exposed to others' opinions, likes, and endorsements, making social influence a critical determinant of behavioural intention (Erkan & Evans, 2016).

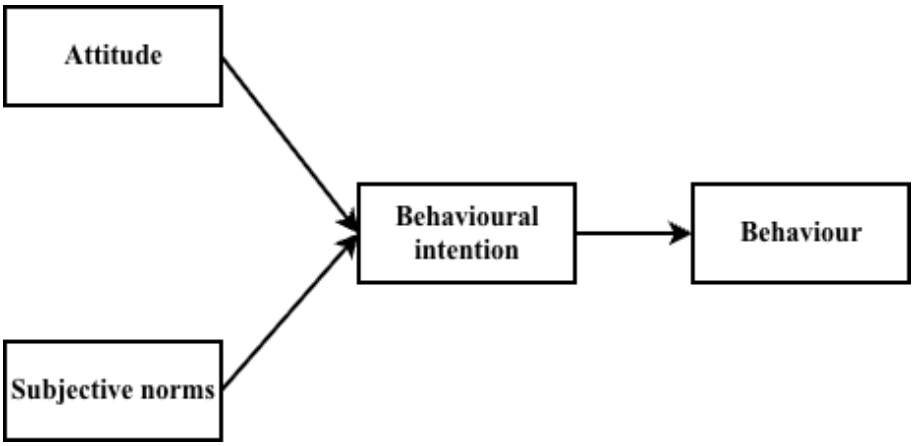


Figure 1. Theory of Reasoned Action (Ajzen & Fishbein, 1980).

The Theory of Planned Behaviour (TPB) (Ajzen, 1991) extends TRA by introducing a third construct: perceived behavioural control, which reflects an individual's perception of their ability to perform a behaviour (See Figure 2). This construct is formed based on control beliefs, which refer to the perceived presence of factors that may facilitate or hinder the behaviour, as well as the perceived power of these factors. Perceived behavioural control captures both internal factors (e.g., skills, knowledge, confidence) and external factors (e.g., resources, time, accessibility) and thus represents the degree to which individuals feel capable of executing a behaviour. In addition to influencing behavioural intention, perceived behavioural control can also have a direct effect on behaviour when actual control is limited. This addition improves the model's predictive power, particularly in situations where

behaviour is not entirely under volitional control. In influencer marketing, TPB has been widely used to explain how consumers form purchase intentions in digital environments. Influencers not only shape attitudes and subjective norms but also influence perceived behavioural control by providing product information, demonstrations, and usage guidance. For example, tutorials, reviews, and experiential content shared by influencers can reduce uncertainty and increase consumers' confidence in making purchase decisions (Sokolova & Kefi, 2020). By lowering perceived barriers and enhancing consumers' sense of capability, influencer content can strengthen perceived behavioural control and thereby increase the likelihood of purchase. Moreover, influencer credibility and authenticity have been shown to strengthen attitudes, while social proof (e.g., followers, likes) enhances subjective norms, collectively influencing purchase intention (Djafarova & Rushworth, 2017). TPB is particularly relevant in social media contexts, where consumers actively engage with content and perceive varying levels of control over their decisions. However, while TPB effectively explains behavioural intention, it does not fully capture the antecedents of attitude formation, especially those related to influencer characteristics and message attributes.

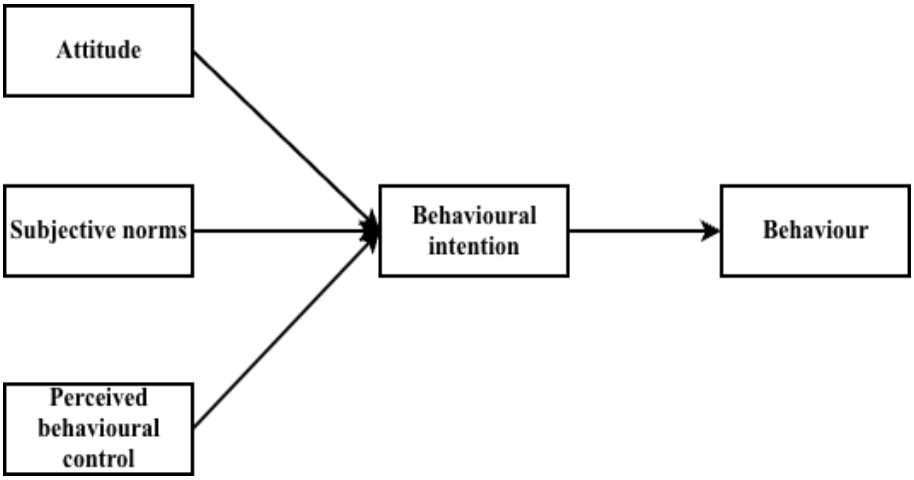


Figure 2. Theory of Planned Behaviour (Ajzen, 1991).

The Technology Acceptance Model (TAM) (Davis, 1989) adapts TRA to explain technology adoption behaviour, introducing two key determinants: perceived usefulness and perceived ease of use. These factors influence attitudes toward technology use, which in turn affect behavioural intention (See Figure 3). TAM has been widely applied in digital marketing and social media research to understand how users adopt online platforms and technologies. In influencer marketing, TAM is particularly useful for explaining how consumers evaluate influencer-generated content in digital environments. Influencers can enhance perceived usefulness by providing valuable information, reviews, and recommendations, while ease of use relates to how easily consumers can access and process influencer content on platforms such as Instagram or TikTok (Hsu et al., 2013). Moreover, trust in influencers and perceived credibility of their content have been linked to perceived usefulness, thereby influencing attitudes and purchase intention (Alalwan, 2018). While TAM provides a useful framework for understanding how cognitive evaluations shape attitudes and behavioural intention, it primarily focuses on technology-related factors and does not fully account for the characteristics of the information source. As a result, TAM alone cannot fully explain how influencer characteristics and social dynamics shape consumer behaviour.

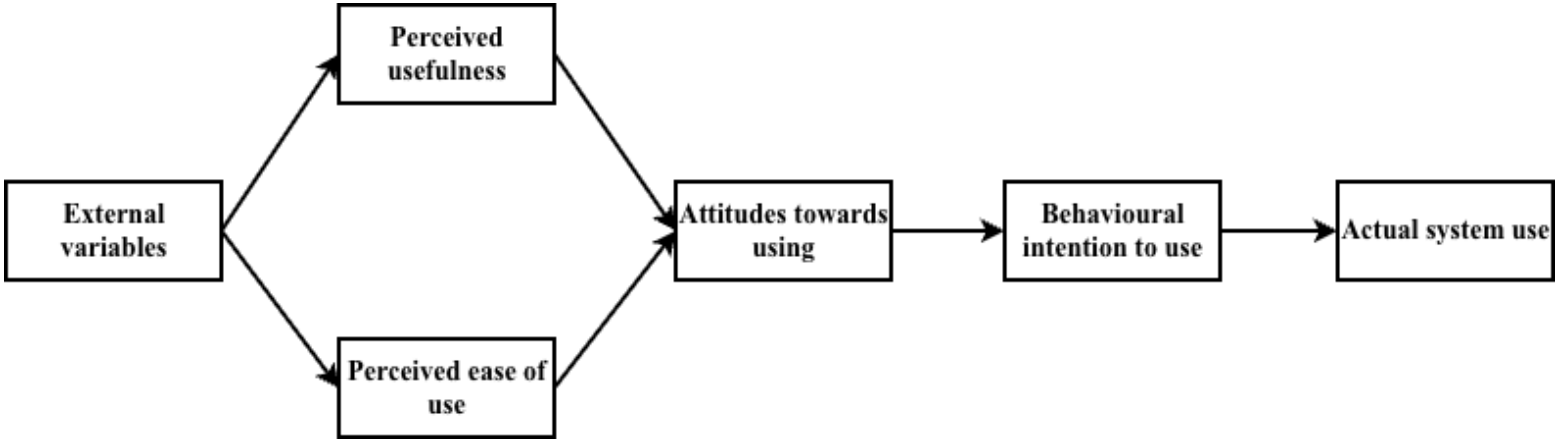


Figure 3. Technology Acceptance Model (Davis 1989).

1.6.2 Source credibility theory

One of the most widely used theories for explaining influencer characteristics is Source Credibility Theory (SCT), a communication-based framework that examines how the attributes of a message source affect persuasion. The origin of this theory can be traced back to early work by Hovland and Weiss (1951), who proposed that the effectiveness of a message is largely determined by the perceived credibility of its source. Later developments conceptualised credibility as comprising key dimensions such as expertise, referring to the perceived knowledge or competence of the source, and trustworthiness, reflecting the perceived honesty and reliability of the source (Ohanian, 1990). In addition, attractiveness was introduced as a complementary dimension, capturing the source's physical appeal and likability, which can enhance persuasive effectiveness through identification and affective responses.

In the context of influencer marketing, SCT has been extensively applied to explain how influencer characteristics shape consumer attitudes and behavioural intentions. According to Martensen et al. (2018), influencers who demonstrate higher levels of expertise and trustworthiness are more persuasive, as these attributes increase the perceived credibility of their recommendations. Similarly, the three core attributes of the Source Credibility Model—expertise, trustworthiness, and attractiveness—have been found to positively influence persuasion outcomes in social media environments (Wiedmann & von Mettenheim, 2020). Recent studies have further expanded the scope of SCT by incorporating additional relational and social attributes, such as familiarity, likability, homophily, originality, and interaction, which are particularly relevant in digital contexts where influencers maintain ongoing engagement with their audiences (Duh & Thabethe, 2020; Li & Peng, 2021). For example, homophily enhances perceived similarity between influencers and followers, while interaction strengthens relational bonds, both contributing to greater persuasive impact.

More recent influencer marketing research has applied SCT to compare different types of endorsers and communication strategies. Gräve and Bartsch

(2022) utilised the Source Credibility Model to examine differences in effectiveness between influencers and traditional celebrities across advertising formats, while Trivedi and Sama (2021) compared the relative impact of expert influencers and attractive celebrity endorsers. These studies highlight that different dimensions of credibility may carry varying importance depending on the context and type of influencer. However, emerging evidence suggests that source characteristics alone are insufficient to fully explain persuasion outcomes. Message-related factors, such as content quality (Guerreiro et al., 2019; Nunes et al., 2018; Lou & Yuan, 2019) and linguistic style (Lee & Theokary, 2021), also play a critical role in shaping consumer responses. This indicates that while SCT provides a valuable foundation for understanding influencer effectiveness, it should be complemented by frameworks that account for message attributes and relational dynamics in digital environments.

While Source Credibility Theory (SCT) provides a strong foundation for understanding how influencer characteristics shape persuasion, it primarily focuses on the attributes of the message source and does not fully capture the role of message content in the persuasion process. In influencer marketing contexts, consumer responses are not determined solely by who delivers the message, but also by what is communicated and how it is presented. This highlights the necessity of considering both source-related cues (e.g., credibility, attractiveness) and content-related factors (e.g., quality, relevance, style) in explaining persuasive outcomes. By incorporating both routes, a more comprehensive understanding can be achieved, recognising that consumers may rely on source cues as heuristic signals or engage with message content more deeply depending on the context.

1.6.3 Models on information dual-process models

Several dual-process theories, including Dual-Process Theory (DPT), Elaboration Likelihood Model (ELM), and Heuristic-Systematic Model (HSM) have extensively explained how individuals react to a piece of information. These theories suggest that information is processed by two

routes (the source and the content), which can explain the factors of characteristics of both influencer and the content they post.

The DPT model was proposed by Deutsch and Gerard (1955) to evaluate social influences on people's judgements. Two types of influence, namely, normative and informational influences can affect individuals' decisions. Normative influences refer to people seeking to align their behaviour with others' expectations. Informational influences refer to the acceptance of information passed on by others as evidence of reality. Bhattacherjee & Sanford (2006) suggest that external information or informational influences are the primary driver of individuals' attitudinal changes and, subsequently, behavioural changes.

The DPT model provides the foundational framework which underpins both the HSM and ELM. Chaiken (1980) proposed HSM and posits two routes for information processing: systematic processing, involving analytical evaluation of the arguments presented in the message, and heuristic processing, involving using simple decision rules or cognitive shortcuts to assess the message without engaging in deep analytical thinking. HSM is a major dual-process theory adopted by many empirical studies on online information processing (Luo et al., 2013; Zhang et al., 2014) and influencer marketing (Xiao et al., 2018).

Similarly, ELM, introduced by Petty & Cacioppo (1986), distinguishes between the central route, which parallels systematic processing, and the peripheral route, which is akin to heuristic processing. According to ELM, information processing can occur at different degrees of receiver elaboration. High levels of elaboration present a central route to influence, whilst low levels of elaboration represent a peripheral route. The central route occurs when individuals carefully evaluate the content of the message they receive or evaluate the argument quality. The peripheral route occurs when recipients use simple decision rules to assess the message. Many peripheral cues have been discussed in the ELM literature, including source credibility, source likeability, the number of messages, and the number of message sources, etc. Source credibility is one of the most frequently referred cues. ELM is an even

more popular theory than HSM, widely employed in empirical studies about how people evaluate information (Li & Suh, 2015; Zhou et al., 2016; Mun et al., 2013), influencer marketing (von Mettenheim, 2021; Nunes et al., 2018), and virtual influencers (Tseng & Ou, 2025).

The main difference between the two theories is that HSM suggests a co-occurrence of both heuristic and systematic processing when people are processing information, whilst the ELM suggests that individuals adopt only one mode, either central or peripheral, when processing information. Individuals process information by the central route only when they are sufficiently motivated or possess the knowledge and ability to understand the message. However, if individuals are not sufficiently motivated or do not have enough cognitive ability, they process information by the peripheral route, such as the expertise or trustworthiness of the source. ELM has generally been adopted to the model of persuasive communication, whereas HSM was created to be applicable to a wide range of validity-seeking contexts (Chaiken et al., 1979). Zhang & Watts (2008) chose HSM model to analyse information adoption of online community because they argued that the online community context was broader than one persuasion, also, dual-processes can occur concurrently. However, both models only focus on the cognitive aspects of persuasion and may not sufficiently emphasize the rapid dissemination and adoption of information on modern digital platforms.

1.6.4 Information Adoption Model

Information Adoption Model (IAM) (Sussman & Siegal, 2003) explains how individuals adopt information and influence their intentions and behaviours on computer-mediated communication platforms. It's based on both TAM and the dual-process model of information influence ELM.

TAM is specifically focused on explaining and predicting the acceptance and use of technology, with the key determinants of perceived usefulness, perceived ease of use and external variables. According to Davis (1989), perceived usefulness is defined as "the prospective user's subjective probability that using a specific application system will increase his or her job

performance within an organisational context", while perceived ease of use refers to "the degree to which the prospective user expects the target system to be free of effort." TAM is a widely accepted theory which explains the adoption of technology, such as information systems, and individual usage of computers, but lacks the social processes (Riffai et al., 2015).

To include the processes by which individuals will be influenced by the online information that they receive, IAM integrates TAM and ELM. The model uses the argument quality as the central route, the source credibility as the peripheral route, and information usefulness as a mediator (See Figure 4). According to Sussman and Siegal (2003), *argument quality* refers to the persuasive strength of arguments embedded in an informational message. Source credibility is defined as the degree to which a message source is perceived as believable, competent, and trustworthy by the message recipients. Information usefulness refers to the extent to which information provided is perceived as helpful, valuable and capable of enhancing the recipients' task performance.

Different from ELM's rigid distinction between the central and peripheral routes, IAM assumes both central and peripheral routes may work simultaneously (Sussman & Siegal, 2003; Bhattacherjee, 2006), which is more relevant in a fast-paced online environment where users often rely on a mix of detailed analysis and heuristic cues for adopting information. Compared to other dual-process models, IAM is comparatively new, but it has drawn much attention from researchers in the field of online information adoption.

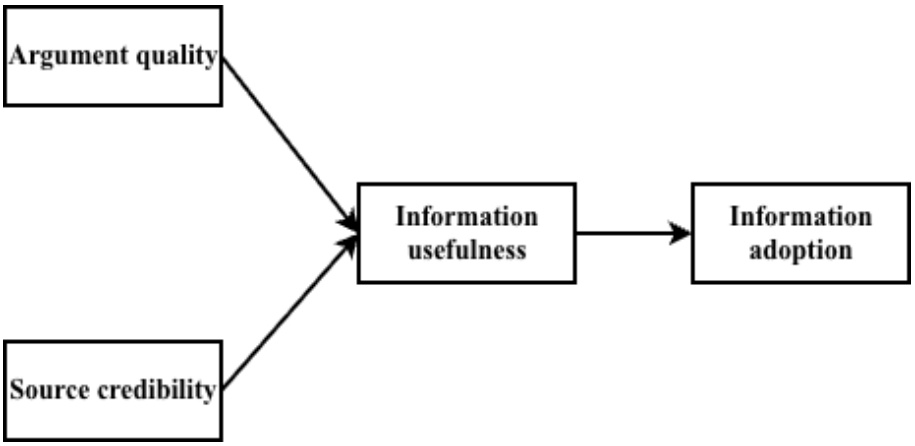


Figure 4. Information Adoption Model (Sussman & Siegal, 2003).

IAM has been widely used in researching adoption of online information and converted to different research models. Cheung and colleagues (2008) used IAM to study the factors affecting the adoption of opinions in online communities of restaurants and food in Hong Kong. Their research model adapted four variables of argument quality (relevancy, timeliness, accuracy and comprehensiveness), two variables of source credibility (expertise and trustworthiness), the usefulness of information and information adoption. The results of the study show that only relevance and comprehensiveness are the most effective components of argument quality that impact information usefulness and information adoption. Some researchers (e.g., Erkan & Evans, 2016; Gunawan & Huarng, 2015) combine the model of IAM and TRA for studying social media marketing. In those cases, the IAM emphasises how information quality and source credibility influence information adoption in social media environments. Additionally, the TRA focuses on the role of attitudes and subjective norms in shaping behavioural intentions, which explains the importance of social influence and personal attitudes. TRA (Ajzen & Fishbein, 1980) is a model to predict behaviour, which argues that attitude and subjective norms influence the intention to perform certain behaviours. Individuals learn attitudes from others through written messages that peers send and therefore influence purchase

intentions (Wang et al., 2012). Similarly, subjective norms of technology acceptance, such as different forms of social media would impact consumers' behaviour intention (Choi & Chung, 2013).

Moreover, Erkan & Evans (2016) developed the Information Acceptance Model (IACM), which integrates the IAM and some related constructs of TRA to study the influence of eWOM in social media on consumers' purchase intentions in the UK. The model includes information quality and credibility from IAM, needs of information and attitudes towards information from TRA. The empirical study used respondents who were UK university students who use social media websites. The results confirm that quality, credibility, usefulness, adoption of information, needs of information, and attitudes towards information are the key factors of WOM in social media that influence consumers' purchase intentions. Similarly, Gunawan & Huarng developed an extended model by integrating IAM and the additional construct of subjective norms from TRA to test the viral marketing effects on consumers' purchase intention in social networks and media. The empirical study analysed online users from major platforms such as Facebook, YouTube and Instagram in Indonesia. The results indicate that source credibility, argument quality and subjective norms all influence consumers' behavioural intentions.

In recent years, a growing number of studies have applied the Information Adoption Model (IAM) to examine the role of influencers in shaping consumer decision-making processes. Researchers have increasingly extended the IAM framework by incorporating additional influencer characteristics that influence the perceived value and credibility of online information. For example, Gökerik (2024) applied the IAM framework to investigate the impact of influencer attributes on consumer behaviour and found that characteristics such as originality, trustworthiness, and emotional resonance play a crucial role in enhancing the perceived value of information and increasing consumers' purchase intentions. These findings suggest that influencer-related characteristics can strengthen the persuasive effectiveness of online messages by enhancing the informational value perceived by audiences.

Similarly, Nadlifatin et al. (2021) adopted the extended IAM framework originally developed by Cheung et al. (2008) to examine travellers' adoption of travel influencer advertising. Their findings indicate that source credibility dimensions, particularly source expertise and source trustworthiness, exert a stronger influence on perceived information usefulness and information adoption than argument quality. This result highlights the central role of influencer credibility in shaping how consumers evaluate and adopt information shared on social media platforms. As influencers increasingly act as intermediaries between brands and consumers, their personal characteristics and perceived credibility become key determinants of whether audiences accept and rely on the information they communicate.

Table 2 summarises the key characteristics of the Information Adoption Model (IAM), Source Credibility Theory (SCT), and the Theory of Reasoned Action (TRA), highlighting their distinct yet complementary roles in explaining consumer behaviour. As shown, IAM focuses on how information is evaluated and adopted through argument quality and source credibility, making it particularly relevant for understanding how influencer content and credibility shape message acceptance. SCT, in contrast, emphasises the attributes of the source, such as trustworthiness, expertise, and attractiveness, providing a foundation for examining how influencer characteristics influence perceived credibility and persuasion. TRA shifts the focus to the outcome stage by explaining how attitudes and subjective norms jointly determine behavioural intention. Together, the table illustrates that while each theory addresses a different aspect of the persuasion process—source characteristics, message evaluation, and behavioural intention—none of them alone offers a complete explanation, thereby supporting the need for an integrated approach.

Table 2. Comparison of IAM, SCT and TRA.

Theory	Core Constructs	Role in Influencer Marketing	Limitations
Information Adoption Model (IAM) (Sussman & Siegal, 2003)	Argument quality, source credibility, information usefulness	Explains how influencer content and credibility shape message adoption and attitudes	Limited focus on social influence and behavioural intention
Source Credibility Theory (SCT) (Hovland & Weiss, 1951; Ohanian, 1990)	Expertise, trustworthiness, attractiveness	Explains how influencer characteristics affect persuasion and credibility	Does not explain cognitive processing or behavioural intention formation
Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980)	Attitude, subjective norms, behavioural intention	Explains how attitudes and social influence drive purchase intention	Does not explain how attitudes are formed

Building on these theoretical developments, the present study adopts IAM and TRA as the core theoretical frameworks to capture both the process of message evaluation and the formation of behavioural intention. At the same time, the model incorporates key constructs from SCT, specifically trustworthiness, expertise, and attractiveness, as fundamental dimensions of source credibility, and extends this perspective by including additional influencer-related characteristics such as authenticity, homophily, parasocial interaction, and influencer–product congruence. Importantly, the model recognises that both influencer characteristics and content-related factors jointly contribute to attitude formation: influencer attributes shape how the source is perceived, while message credibility (as a reflection of content quality) captures how the information itself is evaluated. By integrating these elements, the research model provides a more comprehensive, process-oriented framework that explains how both source-related cues and message quality influence attitudes, which subsequently translate into behavioural intention.

1.6.5 Theory-related constructs: attitudes, subjective norms and purchase intention

Attitudes refer to an individual's overall evaluation of a particular behaviour, reflecting the degree to which a person has a favourable or unfavourable assessment of performing that behaviour (Ajzen, 1991). Attitudes are formed based on underlying beliefs about the consequences of the behaviour and the evaluation of those outcomes. In consumer behaviour research, attitudes play a central role in predicting behavioural intention, as they represent an individual's internal judgment that guides decision-making processes.

Building on this general concept, attitudes toward the product refer specifically to consumers' evaluations of a product, reflecting their overall favourable or unfavourable perceptions based on available information and experiences (Spears & Singh, 2004). In influencer marketing contexts, such attitudes are largely shaped through exposure to influencer-generated content. Within the framework of the Information Adoption Model (IAM), attitudes toward the product are influenced by the extent to which consumers perceive the information as credible and useful (Sussman & Siegal, 2003). In particular, message credibility, as a representation of content quality, plays a central role in shaping favourable product evaluations (Lou & Yuan, 2019).

At the same time, source-related characteristics of influencers significantly contribute to attitude formation. Attributes such as trustworthiness, expertise, attractiveness, authenticity, and homophily influence how consumers perceive the influencer and interpret the endorsed message (Djafarova & Rushworth, 2017; Sokolova & Kefi, 2020). More recent research also highlights the importance of relational and contextual factors, such as parasocial interaction and influencer–product congruence, in shaping attitudes toward the product, as these factors enhance emotional connection and perceived relevance (Kim & Kim, 2021; Lee & Watkins, 2016). With the emergence of virtual influencers, researchers have further examined whether these artificial entities can generate similar attitudinal effects as human influencers. Some studies suggest that virtual influencers can

positively influence consumer attitudes and purchase intentions when they are perceived as credible, attractive, or engaging (Ahn et al., 2022; Alboqami, 2023). However, other studies indicate that consumers may perceive virtual influencers as less trustworthy or authentic compared to human influencers, which may weaken favourable attitudes and purchase intentions (Lee & Ham, 2023; Li et al., 2023). These findings suggest that attitude formation in influencer marketing depends not only on the type of influencer but more importantly on how both content-related factors (e.g., message credibility) and source-related cues (e.g., influencer characteristics) are evaluated by consumers.

Subjective norms refer to the perceived social pressure to perform or not perform a particular behaviour, based on the expectations of important others (Ajzen, 1991; Ajzen & Fishbein, 1980). These norms are shaped by normative beliefs about whether significant referents—such as friends, family, or influencers—approve of the behaviour, as well as the individual's motivation to comply with these expectations. In social media environments, subjective norms are particularly salient, as consumers are constantly exposed to others' opinions, recommendations, and behaviours through likes, comments, and shares. Influencers, as opinion leaders, play a critical role in shaping subjective norms by signalling what is socially acceptable or desirable, thereby influencing consumers' intentions.

Subjective norms are particularly relevant in the context of virtual influencer marketing because consumers' acceptance of virtual influencers may depend not only on their personal evaluations, but also on whether such digital endorsers are perceived as socially acceptable sources of product information. Unlike human influencers, virtual influencers are artificial, digitally created agents; therefore, consumers may experience uncertainty when evaluating whether their recommendations should be trusted or followed. In social media environments, this uncertainty can be reduced through social cues such as follower numbers, likes, comments, shares, and visible audience engagement, which signal that others accept the influencer and the promoted content. Previous research has shown that social influence and subjective

norms can affect consumers' behavioural intentions in digital and social media contexts (Halim & Karami, 2020; Li & Peng, 2021; Tobon & García-Madariaga, 2021). In the case of virtual influencers, subjective norms are therefore useful for capturing the extent to which consumers perceive social pressure or social approval to rely on information provided by a virtual influencer. This is especially important because virtual influencers are still a relatively new form of endorser, and consumers' willingness to accept their recommendations may be shaped by whether other people appear to recognise them as legitimate and acceptable sources of marketing communication. Studies on technology adoption indicate that social influence significantly affects individuals' willingness to use technology and rely on digital systems for information (Venkatesh et al., 2003). Therefore, subjective norms in this dissertation not only capture traditional interpersonal influence but also extend to the social expectation of engaging with influencer-generated content, including content created by virtual influencers, highlighting the evolving nature of social influence in digital environments.

Purchase intention refers to an individual's conscious plan or likelihood to buy a particular product or service (Spears & Singh, 2004), and it is widely recognised as a strong predictor of actual purchasing behaviour. Within behavioural theories such as TRA and TPB, purchase intention is influenced by both attitudes and subjective norms, reflecting the combined effects of personal evaluation and social influence (Ajzen, 1991). In the context of influencer marketing, purchase intention is shaped not only by favourable attitudes toward the product but also by the perceived social endorsement from influencers and their networks. When consumers evaluate influencer-generated content as credible, relevant, and appealing, they are more likely to develop favourable attitudes toward the endorsed product. These positive evaluations then translate into stronger purchase intentions, as attitudes reflect consumers' overall assessment of the desirability of the product (Thomas & Fowler, 2021). Empirical studies confirm that influencer credibility and content quality significantly shape attitudes, which in turn strongly predict purchase intention (Lou & Yuan, 2019; Sokolova & Kefi, 2020).

In the context of virtual influencer marketing, purchase intention becomes an important outcome because it reflects whether consumers are willing to translate their evaluations of a digitally created endorser and the promoted product into a potential buying decision. Unlike human influencers, virtual influencers do not have real consumption experiences, physical embodiment, or genuine personal use of products, which may create uncertainty regarding the authenticity and diagnostic value of their recommendations (Lou et al., 2023; Sands et al., 2022). However, previous studies suggest that virtual influencers can still influence consumers' purchase intentions when they are perceived as credible, attractive, authentic, socially engaging, or well-matched with the endorsed product (Alboqami, 2023; Kim et al., 2023; Li et al., 2023). In particular, virtual influencers may generate favourable consumer responses when their content reduces uncertainty, provides useful product information, and creates a persuasive connection between the influencer and the promoted product (Feng et al., 2024; Liu & Lee, 2024). Therefore, examining purchase intention in the context of virtual influencers is necessary for understanding whether digitally created endorsers can move beyond attention and engagement to influence consumers' behavioural intentions.

Altogether, attitudes and subjective norms jointly influence purchase intention, reflecting both personal evaluation and social pressure. While attitudes often have a stronger direct effect, subjective norms play a complementary role by reinforcing or weakening the impact of attitudes depending on the social context (Hasan & Suciarto, 2020). In influencer marketing, this dual influence is particularly important, as consumers not only evaluate the product based on the influencer's message but also consider the broader social endorsement surrounding it (Casaló et al., 2018).

1.7 Impact of culture dimensions on perceived characteristics of human and virtual influencers

1.7.1 National culture

National culture has often been conceptualised as a set of core values that guide the behaviour of individuals and shape social institutions within a society. These values influence a wide range of behavioural outcomes, including communication styles, consumption patterns, and attitudes toward innovation and technology. However, national culture is inherently complex and multifaceted. Some cultural characteristics may be specific to particular societies, while others may be shared across multiple cultural contexts (Steenkamp, 2001). Consequently, cross-cultural research often focuses on cultural dimensions that can be meaningfully compared across different societies in order to explain variations in attitudes and behaviours.

This dissertation concentrates on cultural dimensions that are relevant across multiple societies, as the study involves cross-country comparisons. In such research, valid cultural models that illustrate dimensions of national cultural variation are essential for building a nomological framework capable of integrating diverse attitudinal and behavioural phenomena. These frameworks allow researchers to systematically analyse how cultural values influence consumer behaviour and to develop hypotheses explaining variations between societies (Smith et al., 1996). By incorporating measurable cultural variables into empirical models, researchers can move beyond purely descriptive comparisons of countries and instead provide theoretically grounded explanations for observed behavioural differences.

1.7.2 Hall's Cultural Model

Hall (1976) argued that culture is a fundamental phenomenon underlying social action and interaction, functioning as an invisible force that shapes people's behaviours and perceptions. Because cultural norms operate largely at an unconscious level, individuals are often unaware of the extent to which

culture influences their communication patterns and social expectations. As a result, cultural differences can lead to misunderstandings in intercultural interactions when people interpret behaviours according to their own cultural assumptions rather than those of others. Hall's work significantly transformed the study of intercultural communication by shifting attention away from visible cultural practices and toward the implicit and often unspoken dimensions of human interaction. He proposed that culture functions as a "silent language", governing behaviour through implicit rules and shared meanings that are rarely articulated but deeply embedded in social systems.

Hall's cultural framework examines culture through three main dimensions: context, time, and space. The first dimension, context, refers to the amount of contextual information that is embedded in communication. According to Hall (1976), cultures can be classified as high-context or low-context depending on how much meaning is conveyed implicitly through shared understandings and social relationships rather than explicitly through verbal messages. In low-context cultures, communication tends to be explicit, direct, and clear, with messages conveyed primarily through words. Individuals are expected to communicate their ideas and intentions openly and in a manner consistent with their personal feelings. In contrast, high-context cultures rely heavily on contextual cues such as non-verbal signals, shared experiences, and situational factors, allowing the message to evolve indirectly without addressing issues explicitly. Empirical research has further elaborated these distinctions. For example, Gudykunst et al. (1996) described high-context communication as indirect, ambiguous, harmony-oriented, reserved, and understated. Conversely, low-context communication is characterised as direct, precise, explicit, and expressive, often emphasising the clear articulation of intentions and feelings.

The second dimension of Hall's framework concerns time orientation, which he classified into monochronic and polychronic time systems. In monochronic cultures, time is perceived as linear and segmented, and individuals tend to emphasise schedules, punctuality, and the completion of tasks in a sequential order. People operating within monochronic systems

typically prefer to focus on one activity at a time and value efficiency and time management. Such orientations are commonly associated with cultures in Northern Europe and North America. In contrast, polychronic cultures perceive time as more fluid and flexible. Individuals in these cultures often engage in multiple activities simultaneously and place greater emphasis on interpersonal relationships than strict adherence to schedules. Social interactions and relationship-building may therefore take priority over task completion. Polychronic time orientation is frequently associated with cultures in Latin America, the Middle East, and parts of Southern Europe (Hall, 1976).

The third dimension identified by Hall is space, which refers to the culturally defined ways in which individuals perceive and use physical distance in interpersonal interactions. Hall introduced the concept of proxemics, describing how spatial relationships influence communication behaviour. He identified four primary spatial zones that structure interpersonal interactions: intimate distance (0–45 cm), personal distance (45 cm–1.2 m), social distance (1.2–3.6 m), and public distance (above 3.6 m). These spatial zones determine the appropriate level of closeness between individuals depending on the nature of their relationship and the social context. Cultural differences strongly influence how these spatial norms are interpreted. For example, Hoft (1996) noted that people in Latin cultures such as Spain and Italy tend to prefer closer interpersonal distances during conversations, reflecting a cultural emphasis on relational warmth and social closeness. In contrast, individuals from countries such as the United States and Northern European societies generally prefer greater interpersonal distance and may perceive close proximity as intrusive or uncomfortable.

Hall and Hall (1990) later introduced message speed as a fourth cultural dimension, referring to the rate at which information is transmitted, interpreted, and acted upon within different cultural environments. Message speed distinguishes between fast-message cultures and slow-message cultures, based on how quickly communication can be encoded, decoded, and responded to. Fast messages, such as headlines, television commercials, advertisements, and short-form written content, can be easily and rapidly

interpreted with minimal contextual information. These messages are designed for quick comprehension and immediate reaction. In contrast, slow messages, such as books, academic texts, documentaries, and poetry, require more time and cognitive effort to interpret and process because they often involve deeper meanings, contextual nuances, or complex narratives. Cultures differ in their preference and effectiveness in dealing with these different types of communication. Fast-message cultures, such as the United States, tend to favour rapid communication, concise messages, and quick exchanges of information. Individuals in these cultures are often skilled at establishing contacts quickly and efficiently, which can facilitate fast-paced business and social interactions. However, such communication styles may sometimes be perceived by members of other cultures as superficial or lacking depth. In contrast, slow-message cultures, which are more common in some European and Arab societies, tend to place greater value on gradual communication processes and the development of deeper interpersonal understanding. In these cultures, relationships and trust are often built slowly through extended interaction and contextual communication. Although this approach may require more time, it often results in stronger, long-lasting relationships characterised by deeper levels of trust and mutual understanding (Hall & Hall, 1990).

Together, Hall's dimensions highlight how culture shapes communication patterns in subtle but significant ways. By examining contextual communication styles, time orientation, and spatial behaviour, Hall's framework provides important insights into the underlying cultural factors that influence interpersonal communication and cross-cultural interactions. These insights are particularly relevant for understanding differences in communication styles and consumer responses in international marketing and intercultural communication contexts.

1.7.3 Trompenaars's Cultural Model

Trompenaars (1996) defined culture as the way in which a group of people solves problems. According to Trompenaars's model, culture is divided into three layers from outer to the core. The outer layer contains all aspects of life

and is made up of explicit, external and observable realities such as clothes, food, language, etc. The middle layer is the deeper layers of culture and reflects the norms and values which a community holds: what is considered right or wrong (norms) and good or bad (values). The core layer concerns the series of rules and methods which a society has evolved to deal with the regular problems, which is essential to work with other cultures.

Trompenaars's model includes seven cultural dimensions to understand different interactions between people from different national cultures. The first is *universalism versus particularism*. Universalism societies respect general rules and obligations as a strong source of moral basis, and ideas and practices can be applied everywhere without modification. Particularism societies believe particular circumstances or relationships (such as family and friends) are more important than any abstract rules, and therefore, ideas and practices cannot be done the same way as circumstances can influence how they should be applied. The second dimension is *individualism versus collectivism*. Individualism has been described as a prime orientation to the self, and collectivism as a prime orientation to common goals and objectives of the group. The third dimension is *neutral versus affective.* Neutral cultures tend to control the expressions of emotions, whereas affective cultures are able to express whatever their emotions freely and naturally to others. The fourth dimension is *specific versus diffuse.* It's important to specific cultures to keep business separated from other aspects of life, whilst different aspects of the total person can be integrated for stronger relationships. In specific societies, work and private life are sharply separated, whereas employees in diffuse societies value the importance of loyalty and human bonds much more. The fifth dimension is *achievement versus ascription.* In achievement societies rewards are based on things people do and achieve based on skill, whereas ascription societies respect people based on their experience and power. The sixth dimension is *time orientation*, which refers to the relative importance cultures give to the past, present and future. The seventh dimension is *internal control versus external control.* Internal control cultures focus on themselves to determine the right action, whereas external control cultures keep their

focus on the environment rather than themselves. For e.g., an organisation with internal control culture believe that they should focus on things they are good at; in contrast, an organisation with external control value responding to the needs of their customers.

1.7.4 Schwartz's Cultural Model

Schwartz (1994) views culture as the rich complex of meanings, beliefs, practices, symbols, norms and values that are prevalent among people in a society. His cultural model is focused on basic values, including six main features: beliefs, desirable goals, values transcend specific actions and situations, values serve as standards or criteria, values are ordered by importance, the relative importance of values guides action (Schwartz, 2006). He conducted a study amongst teachers and students with 35 000 respondents (Schwartz, 1999), and identified 7 cultural value orientations based on universal human value types: embeddedness, intellectual autonomy, affective autonomy, hierarchy, egalitarianism, mastery, and harmony. Those seven values have formed three bipolar dimensions of culture: embeddedness versus autonomy, hierarchy versus egalitarianism, and mastery versus harmony.

The first bipolar dimension is about the nature of the relation or the boundaries between person and the group. In cultures with emphasis on embeddedness, people are viewed as entities embedded in the collectivity. Social relationships, traditional orders, shared goals and solidarity inside the social group indicate the life meanings. Embedded cultures cherish values such as social order, respect for tradition, security, obedience, and wisdom. There are two types of autonomy: intellectual autonomy encourages individuals to pursue their own ideas and intellectual directions independently. People in this culture present important values such as broadmindedness, curiosity, and creativity. Affective autonomy encourages individuals to pursue affectively positive experience for themselves. People cherish values like pleasure, exciting life, and varied life. The second bipolar dimension is to guarantee that people have in a responsible manner that preserves the social fabric. In egalitarianism cultural societies, people recognize one another as

moral equals who share basic interests as human beings. Important values include equality, social justice, responsibility, help, and honesty. In contrast, hierarchy cultures rely on hierarchical system of ascribed roles to ensure responsible, productive behaviour. Important values include social power, authority, humility, and wealth. The third dimension is to regulate how people manage their relations to the natural and social world. Harmony cultures emphasize fitting into the world as it is. People try to understand and appreciate the natural and social surroundings rather than to change or exploit it. Important values include world at peace, unity with nature, and protecting the environment. In contrast, mastery societies encourage active self-assertion to master, direct, and change the natural and social environment to attain group or personal goals. Values such as ambition, success, daring, and competence are important in mastery cultures.

1.7.5 Hofstede's Cultural Model

Hofstede's Cultural Model is one of the most influential frameworks for understanding how national cultures shape values and behavioural patterns across societies. Hofstede (1980) originally identified four key cultural dimensions: power distance, individualism versus collectivism, masculinity versus femininity, and uncertainty avoidance. As cross-cultural research expanded, particularly through studies conducted in East Asian countries, a fifth dimension—long-term versus short-term orientation—was added to the model (Hofstede, 1991). Later, a sixth dimension, indulgence versus restraint, was introduced, capturing the extent to which societies allow the gratification of basic human desires related to enjoyment and leisure (Hofstede et al., 2010). Together, these six dimensions provide a comprehensive framework for analysing cultural differences in values, attitudes, and behaviours across nations.

Power distance refers to the degree to which less powerful members of a society accept and expect unequal distributions of power. In high power distance cultures, hierarchical relationships and authority structures are widely accepted, and individuals tend to respect authority and formal positions of

power. In contrast, low power distance cultures prefer more egalitarian relationships and participative decision-making processes. For example, countries such as China, Malaysia, and Mexico are often characterised by relatively high power distance, where organisational hierarchies are accepted and authority figures are rarely challenged. In contrast, countries such as Denmark, Sweden, and the Netherlands are considered low power distance cultures, where employees and managers interact more informally and decision-making processes tend to involve greater participation and consultation (Hofstede, 2001; Hofstede et al., 2010).

Individualism versus collectivism describes whether societies prioritise individual autonomy and personal achievements or emphasise group harmony and collective interests. In individualistic cultures, individuals are expected to take care of themselves and pursue personal goals, whereas in collectivist cultures people tend to prioritise group membership, social harmony, and loyalty to family or community. This dimension shares conceptual similarities with Schwartz's (1992) cultural value dimension of embeddedness versus autonomy, although the two frameworks differ in emphasis. Schwartz focuses on the role of individuals within social systems, while Hofstede's dimension primarily highlights the contrast between individual goals and collective goals (Steenkamp, 2001). Countries such as the United States, the United Kingdom, and Australia are typically considered highly individualistic, whereas countries such as China, South Korea, and Thailand are generally classified as collectivist societies, where group consensus and social relationships play a central role in decision-making (Hofstede et al., 2010).

Masculinity versus femininity reflects the extent to which societies value traditionally "masculine" attributes such as competitiveness, achievement, and material success, as opposed to "feminine" values such as cooperation, quality of life, and care for others. In masculine cultures, social roles tend to emphasise ambition, performance, and success, while feminine cultures tend to emphasise work–life balance, social welfare, and interpersonal relationships. For instance, countries such as Japan, Germany, and Italy are considered relatively masculine cultures, where achievement and competition are highly valued. In contrast,

countries such as Sweden, Norway, and the Netherlands are often identified as feminine cultures that emphasise social equality, cooperation, and quality of life (Hofstede, 2001; Hofstede et al., 2010).

Uncertainty avoidance refers to the degree to which members of a culture feel uncomfortable with ambiguity, uncertainty, and unstructured situations. Societies with high uncertainty avoidance tend to prefer formal rules, structured environments, and predictable outcomes in order to reduce uncertainty. In contrast, societies with low uncertainty avoidance are generally more tolerant of change, innovation, and risk. Countries such as Greece, Portugal, and Japan are commonly described as having high uncertainty avoidance, where individuals may rely heavily on regulations and social norms to manage uncertainty. On the other hand, countries such as Singapore, Denmark, and the United States are characterised by relatively low uncertainty avoidance, where individuals are more comfortable with flexibility, experimentation, and new ideas (Hofstede et al., 2010).

Long-term versus short-term orientation reflects the degree to which a culture prioritises future-oriented values such as perseverance, thrift, and long-term planning, as opposed to values associated with the present and past, such as respect for tradition and fulfilling social obligations. Cultures with high long-term orientation tend to emphasise persistence, adaptability, and investment in future outcomes. For example, China, Japan, and South Korea are often considered long-term-oriented societies where planning for the future and long-term commitments are highly valued. In contrast, countries such as the United States, Spain, and Nigeria are often characterised by shorter-term orientations that prioritise immediate results, social traditions, and maintaining current social norms (Hofstede et al., 2010).

Indulgence versus restraint captures whether societies encourage the gratification of human desires related to enjoyment, leisure, and personal freedom or regulate such behaviours through strict social norms and self-control. Indulgent cultures allow relatively free gratification of basic human drives and tend to emphasise happiness, leisure activities, and personal enjoyment. Examples of indulgent cultures include the United States, Mexico,

and Australia, where individuals generally have greater freedom to pursue personal pleasures and recreational activities. In contrast, restrained cultures emphasise social discipline, control of desires, and adherence to societal norms. Countries such as China, Russia, and Pakistan are often classified as restrained societies where personal gratification is more tightly regulated by cultural expectations and social norms (Hofstede et al., 2010).

Previous research has demonstrated that cultural dimensions play a significant role in shaping consumer behaviour and communication processes. Cultural differences have been shown to influence interpersonal information exchange (Dawar et al., 1996), advertising appeals and message effectiveness (Han & Shavitt, 1994), persuasion processes (Aaker & Maheswaran, 1997), and consumer persuasion and decision-making (Briley & Aaker, 2006). These findings highlight the importance of considering cultural contexts when analysing consumer responses to marketing communication strategies.

Hofstede's cultural dimensions remain widely used in cross-cultural research for several reasons. First, the framework captures and synthesises major conceptualisations of cultural values developed across decades of research (Yoo et al., 2011). Many alternative cultural typologies share similarities with Hofstede's framework, and their dimensions can often be mapped onto Hofstede's model (Clark, 1990). Furthermore, a comprehensive literature review conducted by Soares et al. (2007) concluded that Hofstede's dimensions remain highly relevant for research in international business and consumer behaviour. Second, the model was developed through extensive empirical analysis of approximately 100,000 IBM employees across 66 countries, enabling Hofstede to identify systematic patterns in work-related values that explain cross-cultural differences (Hofstede, 1980). Third, the framework has been widely adopted in social sciences and cross-cultural studies and is often considered one of the most influential theories of national culture (Chandy & Williams, 1994).

Originally, Hofstede's framework was applied primarily at the national level, assuming that individuals within the same country share similar cultural orientations. For example, early studies treated Chinese respondents as

collectivists and American respondents as individualists when examining persuasion effects (Aaker & Lee, 2001). However, such assumptions may oversimplify cultural diversity within societies. To address this limitation, researchers increasingly measure cultural dimensions at the individual level, allowing for variation in cultural orientations among individuals within the same country (Yoo et al., 2011). Examples of applying Hofstede's dimensions at the individual level include studies examining digital platform usage and travel behaviour (Sharmin et al., 2021), workplace behaviour (Furrer et al., 2000), ethical decision-making (Vitell et al., 2003), negotiation behaviour (Volkema, 2004), and leadership and personality traits (Shao & Webber, 2006). To facilitate such research, Yoo et al. (2011) developed the CVSCALE, which measures Hofstede's cultural dimensions at the individual level and has since been widely adopted in cross-cultural studies.

Although research examining virtual influencers across different cultural contexts remains relatively limited due to the novelty of the topic, numerous studies have explored the influence of culture on related phenomena such as electronic word-of-mouth (eWOM) (Lee et al., 2018; Nath et al., 2018), influencer marketing (Yang, 2022; Kikumori et al., 2025), and technology acceptance (Cardon & Marshall, 2008; Metallo et al., 2022). Cross-cultural research has also investigated consumer adoption of digital technologies in areas such as online shopping (Choi & Geistfeld, 2004) and communication technologies (Parboteeah et al., 2005a; Musambira & Matusitz, 2015). These studies generally suggest that national culture influences the development of information infrastructures, technology transfer processes, innovation diffusion, and individuals' willingness to adopt new technologies (Thatcher et al., 2003; Lee et al., 2013).

Several cultural dimensions have been identified as particularly relevant to technology adoption and digital consumer behaviour. For example, low uncertainty avoidance, long-term orientation, and masculinity have been found to positively influence perceptions of technological usefulness and acceptance (Parboteeah et al., 2005b; Sharmin et al., 2021). In contrast, societies characterised by high uncertainty avoidance tend to exhibit stronger

resistance to new technologies and greater reliance on established norms and traditions (Ford et al., 2003), which may negatively affect perceived usefulness of technological innovations (Parboteeah et al., 2005b). Similarly, consumers in high uncertainty avoidance cultures often perceive greater risks in online environments, which may reduce their trust in online transactions and lower their willingness to engage in online shopping (Choi & Geistfeld, 2004; Stewart, 2003; Hwang, 2009).

Similarly, the dimension of long-term orientation has also been associated with technology adoption and innovation acceptance. Cultures characterised by long-term orientation emphasise perseverance, future rewards, and adaptive learning, which may facilitate individuals' psychological adjustment to new technologies. For example, Chi et al. (2023) found that consumers from long-term-oriented cultures, such as China, demonstrate greater psychological adaptation to anthropomorphic robots compared to consumers from short-term-oriented cultures.

Finally, masculinity has been linked to attitudes toward innovation and technological advancement. Societies characterised by high masculinity tend to emphasise competitiveness, achievement, and performance, which may increase openness to technological solutions and innovations (Hofstede, 2001). Consequently, individuals in masculine cultures are more likely to adopt information technologies than those in more feminine cultures (Venkatesh & Morris, 2000; Ford et al., 2003).

Overall, Hofstede's cultural dimensions model was selected as the cultural framework for this dissertation because it provides a clear, widely recognised, and empirically measurable structure for examining how cultural values influence consumer responses across different markets. Compared with Hall's cultural model, which mainly focuses on communication context, and Trompenaars' and Schwartz's models, which offer broader classifications of cultural values, Hofstede's framework has been more extensively applied in international marketing, consumer behaviour, cross-cultural advertising, and technology acceptance research (De Mooij & Hofstede, 2010; Soares et al., 2007). This makes it particularly suitable for examining whether consumers'

evaluations of virtual and human influencers differ according to cultural value orientations. Among Hofstede's dimensions, masculinity, uncertainty avoidance, and long-term orientation were selected because they are most directly connected to the specific research focus of this dissertation: the perceived characteristics of virtual versus human influencers. Masculinity reflects values related to achievement, success, performance, competitiveness, and status, which may shape the evaluation of influencer competence, attractiveness, expertise, and aspirational appeal (Hofstede et al., 2010). Uncertainty avoidance is relevant because virtual influencers represent artificial and relatively unfamiliar communication agents; therefore, consumers' tolerance for ambiguity and uncertainty may affect their perceptions of virtual influencers' trustworthiness, authenticity, and credibility (Hofstede et al., 2010; Hwang, 2009; Rizzo et al., 2025). Long-term orientation is also relevant because virtual influencers are associated with technological development, innovation, and future-oriented digital marketing practices, making this dimension useful for understanding consumers' openness to digitally created endorsers (Hofstede et al., 2010; Yalcinkaya, 2008). Although individualism–collectivism is an important cultural dimension, it was not included in the final cultural moderation analysis because it is less directly aligned with the specific focus on perceived influencer characteristics. Individualism–collectivism mainly explains whether individuals define themselves through personal autonomy or group belonging and is particularly relevant for research on conformity, social influence, interpersonal obligation, and normative pressure (Hofstede et al., 2010; Zhang et al., 2007). In contrast, this dissertation examines whether cultural values condition how consumers perceive the characteristics of virtual versus human influencers, rather than how social groups influence behavioural decisions. Therefore, the exclusion of individualism–collectivism does not imply that this dimension is unimportant; rather, it reflects the theoretical focus of the dissertation and helps maintain a more coherent and parsimonious cultural moderation model.

2. METHODOLOGY FOR THE IMPACT OF VIRTUAL AND HUMAN INFLUENCER CHARACTERISTICS ON PURCHASE INTENTION

2.1 Aim, model and hypotheses

Virtual influencers (VIs) coexist with human influencers (HIs) on social media platforms and engage with the audience in similar ways (Xu and Liao, 2020). VIs with sizeable social networks of followers can be regarded as "trusted tastemakers" (De Veirman et al., 2017). Human influencers have the power to influence consumers' behaviour through demonstrating their characteristics, such as credibility, authenticity, homophily, parasocial interactions, and influencer-product congruence (Vrontis et al., 2021; Ying & Dikcius, 2023). Virtual influencers can mimic human appearance and behaviour, which gives them the possibility to have opinion-leading power on consumers as human influencers. Those important characteristics of human influencers also function as drivers of consumers' trust in virtual influencers (Alboqami, 2023; Feng et al., 2024). Potential positive effects of human influencers (HI) can be observed from virtual influencers as well (Ferrara et al., 2016). Notably, although anthropomorphism is discussed as a theoretical background concept for understanding virtual influencers, it is not included in the research model because the study compares virtual and human influencers rather than different levels of anthropomorphism among virtual influencers.

When comparing the effectiveness of bots and human influencers, De Bellis & Johar (2020) and Kim et al. (2019) found that individuals react more positively to human influencers than to robot-looking ones. When comparing human-looking virtual influencers to human influencers, scholars present conflicting results. Some argue that audiences tend to prefer humans over virtual influencers because humans are perceived as having more homophily (Frank et al., 2023), higher source credibility (Lee and Ham, 2022), and closer social-psychological distance (Sands et al., 2022). On the contrary, Stein et al. (2024) and De Cicco et al. (2024) did not observe any advantage of human influencers over virtual influencers. Consumer perceptions of virtual and

human influencers can be similar in terms of following intentions, but a virtual influencer is perceived with less source trust due to the larger social distance (Sands et al., 2022). As compared to their human counterparts, virtual influencers garnered considerably fewer positive reactions but attracted a greater number of negative reactions (Arsenyan & Mirowska, 2021). The divergence in the results of the virtual influencers and human influencers comparison likely arises from individual-level differences among audience members (Sands et al., 2022). Culture may have a significant impact on users' perception of virtual influencers (Koles et al., 2024; Rizzo et al., 2025). Understanding whether cultural differences result in the perception of virtual influencers is necessary (Frank & Groeppel-Klein, 2024; Byun & Ahn, 2023). There is limited research on virtual influencers across different cultures. However, masculinity, long-term orientation and uncertainty avoidance have been proven to have an impact on acceptance of new technology (Sharmin et al., 2021), which could be considered as important cultural dimensions for acceptance of virtual influencers.

According to the Information Adoption Model (IAM) (Sussman & Siegal, 2003), source credibility and argument quality act as a dual process information processing model. Influencer characteristics such as influencer credibility (three dimensions: trustworthiness, expertise, attractiveness), authenticity, homophily, parasocial interaction and influencer-product congruence are the most studied characteristics in past research about human influencers (Ying & Dikcius, 2023). However, most virtual influencers studies explore a limited number of characteristics, such as source credibility (Lee & Ham, 2023) and authenticity (Alboqami, 2023). There is a lack of research to compare virtual vs. human influencers within a framework including all often-studied human influencer characteristics (trustworthiness, expertise, attractiveness, authenticity, homophily, parasocial interaction and influencer-product congruence). Moreover, although IAM has been widely used in analysis of human influencers, it's not often utilised in the research of virtual influencers. As a result, previous research has compared the endorsement of human and virtual influencers without considering the role of message factors.

However, message credibility, as a route of argument quality, shows a significant impact on information adoption behaviour among social media users (Khan et al., 2022). It's worth examining whether the message factors also play an important role in promoting products by virtual influencers.

Thus, **empirical research aims** to examine the differences between virtual and human influencers in terms of perceived influencer characteristics and their influence on consumer persuasion, while assessing the moderating roles of message frame valence, product type, and cultural values. Specifically, the influencer characteristics include the seven most studied characteristics: trustworthiness, expertise, attractiveness, authenticity, homophily, parasocial interactions, and congruence between the influencer and the product. Three Hofstede's cultural dimensions—masculinity, long-term orientation, and uncertainty avoidance — were included to analyse the moderating effects on the relationships among influencer type, influencer characteristics, and their outcomes.

The research model for this study is developed according to the Information Adoption Model (IAM) (Sussman & Siegal, 2003), integrated with Hofstede's cultural theory (Hofstede, 2002) and the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980). Influencer's trustworthiness, expertise, attractiveness, authenticity, homophily, parasocial interactions, and influencer-product congruence are included as the characteristics of the source and message credibility, which acts as a measure of argument quality. Among those seven characteristics, five of them, namely, trustworthiness, expertise, attractiveness, authenticity and homophily, are psychological characteristics, which are perceived by consumers subjectively through psychological processes (Ying & Dikcius, 2023). Parasocial interactions and congruence reflect the relationship between influencers and others and are categorised as relational characteristics. As relationships with virtual influencers have attracted increasing scholarly attention (e.g., Stein, 2022; Liu, 2025), this dissertation examines the mediating role of relational characteristics between psychological characteristics and message credibility. According to IAM, the characteristics of both the influencer and the information in the influencer's

social media posts affect information adoption and, therefore, consumer attitudes and purchase intentions. The study compares the effectiveness of a virtual influencer versus a human influencer through their characteristics and the impact on message credibility, attitudes towards the product and purchase intention. According to TRA, the subjective norm of getting information from a virtual influencers or human influencers is an antecedent of purchase intention.

Moreover, Hofstede's cultural theory (Hofstede, 2002) was utilised in the research to evaluate cultural differences in consumers' perceptions of influencer characteristics and their responses to virtual and human influencers across countries, allowing the study to examine how cultural values shape the persuasion mechanisms within influencer marketing. Three dimensions, namely, masculinity, long-term orientation and uncertainty avoidance, were chosen according to the previous research in technology acceptance (Chi et al., 2023; Venkatesh & Morris, 2000; Parboteeah et al., 2005).

Furthermore, contextual factors related to message framing and product type are examined: two groups of interactions are included as moderators: the interaction of influencer type (VI vs. HI) * message frame valence (positive vs. negative) and influencer type (VI vs. HI) * product type (search and experience goods). The effectiveness of information, which can be manipulated by message valence, type of source (Wang et al., 2020), and type of influencer (VI vs. HI) (Ying et al., 2025). With the moderation analysis, the study investigates how the interaction of influencer type and message frame valence influences the impact of message credibility and attitudes towards the product, as well as how the interaction of influencer type and product type impacts the relationship between influencer-product congruence and attitudes towards the product. The research model is shown as Figure 5.

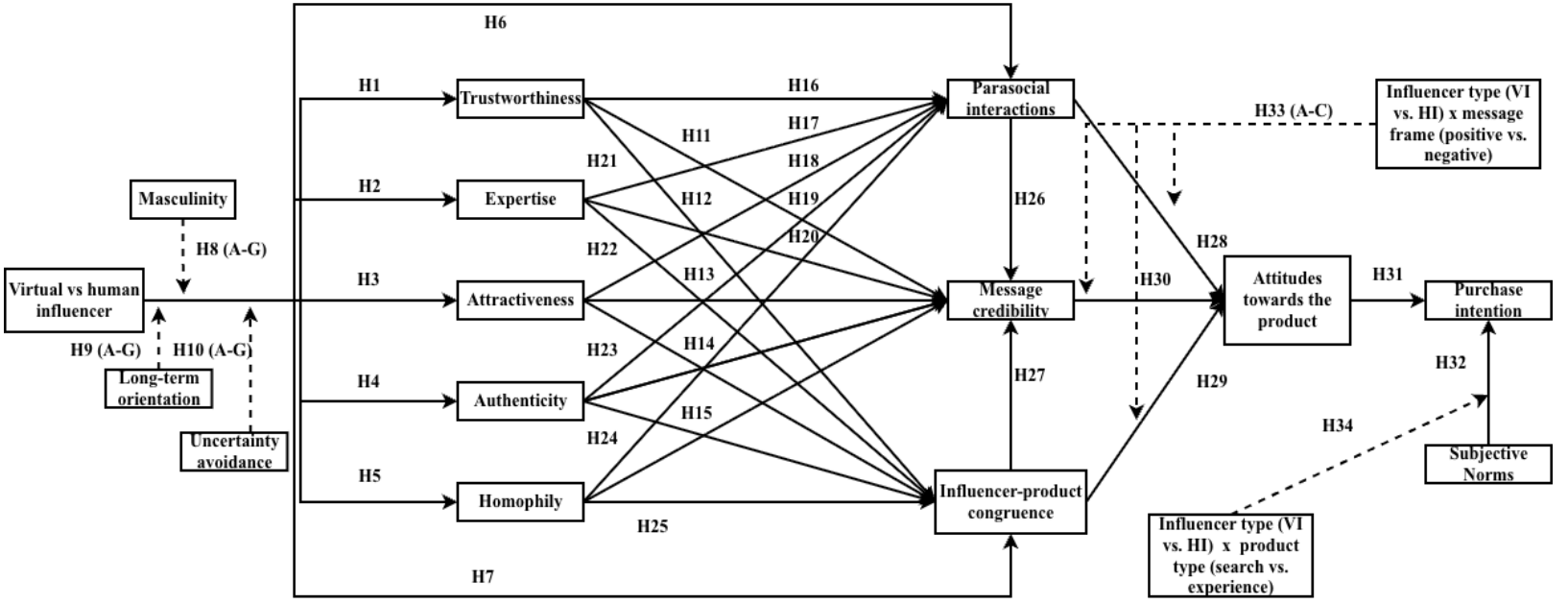


Figure 5. Research Model for The Impact of Virtual and Human Influencer Characteristics on Purchase Intention

Influencer credibility represents one of the key factors distinguishing social media influencers from traditional celebrities (Lou & Yuan, 2019). In influencer marketing contexts, credibility plays a crucial role in shaping consumers' evaluations of both the influencer and the promoted products. Prior research consistently shows that influencer credibility significantly influences consumers' attitudes toward endorsements and their purchase intentions (Pick, 2021). Drawing from the source credibility framework, influencer credibility is commonly conceptualised through three primary dimensions: trustworthiness, expertise, and attractiveness (Ohanian, 1990). These dimensions have been widely examined in advertising and influencer marketing studies and have been shown to influence consumer attitudes and purchase intentions either directly or indirectly (Wiedmann & Mettenheim, 2020; Duh & Thabethe, 2021; Koay et al., 2021).

With the emergence of virtual influencers, questions have arisen regarding whether these credibility dimensions operate similarly for artificial social media personalities. Virtual influencers are designed to resemble human influencers in terms of appearance, communication style, and social media behaviour, and therefore may possess characteristics similar to those of human influencers. Previous research has shown that characteristics such as attractiveness, credibility, and expertise can influence consumers' trust in virtual influencers and their responses to influencer-generated content (Alboqami, 2023; Feng et al., 2024). However, empirical research comparing the perceived credibility characteristics of virtual influencers and human influencers remains relatively limited.

Consumers may evaluate virtual influencers differently from human influencers because virtual influencers are perceived as artificial entities rather than real individuals. The perceived credibility of an influencer therefore becomes a key factor shaping how audiences differentiate between virtual and human influencers and how they respond to their messages (Sands et al., 2022). Existing studies suggest that virtual influencers may be perceived as less credible than human influencers due to the absence of genuine human

experiences and emotions. For example, Lee and Ham (2023) compared consumer reactions to images of a human woman and a robot influencer and found that the robot influencer generated lower levels of perceived credibility and less favourable attitudes. Building on these findings, it can be expected that consumers will attribute lower levels of key credibility characteristics to virtual influencers compared to human influencers. Therefore, the following hypotheses are proposed:

H1: Perceived trustworthiness is lower for VI compared to HI.

H2: Perceived expertise is lower for VI compared to HI.

H3: Perceived attractiveness is lower for VI compared to HI.

Perceived authenticity plays an important role in shaping consumers' trust in influencers. When a virtual influencer is perceived as authentic, consumers are more likely to develop trust toward the influencer and the messages they communicate (Alboqami, 2023). Authenticity can be reflected through various elements of an influencer's social media presence, including the characteristics of the influencer's account, profile description, and the information associated with the influencer's identity and popularity (Zniva et al., 2023). In some cases, virtual influencers designed with strong human-like features may also create a sense of authenticity, particularly when they closely resemble real individuals in appearance and behaviour (Li & Ma, 2024; Um, 2023; Liu & Lee, 2024).

However, despite these design efforts, many consumers still perceive virtual influencers as lacking genuine authenticity. Research suggests that artificial influencers may evoke feelings of uncanniness and skepticism among audiences, partly because consumers are aware that virtual influencers are digitally created entities rather than real individuals (Arsenyan & Mirowska, 2021; Robinson, 2020). Unlike human influencers, virtual influencers cannot physically experience or personally use the products they endorse. As a result, consumers may question the sincerity of their recommendations and the credibility of their personal narratives (Lou et al., 2023). This perceived lack of real-life experience may weaken consumers'

perceptions of authenticity compared to human influencers who can share genuine product experiences and personal opinions. Then:

H4: Perceived authenticity is lower for VI compared to HI.

For human influencers, homophily between the influencer and consumers, as well as congruence between the influencer and the promoted product or brand, positively influence attitudes toward the endorsed product or brand (Xiao et al., 2018; Belanche et al., 2021; von Mettenheim & Wiedmann, 2021). Similar patterns have also been observed in the context of virtual influencers, where homophily between the virtual influencer and consumers and congruence among the virtual influencer, product, and consumer can enhance consumers' trust in the influencer (Alboqami, 2023). Despite these findings, research directly comparing virtual influencers and human influencers in terms of homophily, parasocial interactions, and congruence remains limited.

Consumers may evaluate virtual influencers differently because they are artificial entities rather than real individuals. Virtual influencers are often perceived as lacking the ability to genuinely feel or experience products, which may weaken perceptions of similarity and credibility compared with human influencers (Laukkanen et al., 2022; Li et al., 2023). In addition, parasocial interactions play an important role in strengthening followers' emotional connections with influencers, making followers feel closer to them even without direct personal interaction (Reinikainen et al., 2020). However, consumers may experience difficulties forming strong parasocial relationships with virtual influencers because they are perceived as staged or artificial characters rather than real people (Lou et al., 2023). These perceptions may also influence how consumers evaluate the fit between the influencer and the promoted product. Therefore, the following hypotheses are developed:

H5: Perceived homophily is lower for VI compared to HI.

H6: Perceived parasocial interactions are lower for VI compared to HI.

H7: Perceived congruence is lower for VI compared to HI.

Cultural differences are important factors shaping consumers' responses to emerging digital marketing practices, including the use of virtual influencers (Rizzo et al., 2025). Despite the growing popularity of virtual influencers, research examining how cultural values influence consumers' perceptions of virtual influencers remains limited (Byun & Ahn, 2023). The emergence of virtual influencers is closely related to technological advancements in communication and information systems (Laszkiewicz & Kallińska-Kula, 2023). Therefore, cultural values that influence individuals' attitudes toward technology adoption may also affect how consumers perceive and evaluate virtual influencers.

Among Hofstede's cultural dimensions, masculinity has been identified as an important factor influencing technology acceptance and adoption (Metallo et al., 2022). Masculine cultures emphasise achievement, competitiveness, and material success, whereas feminine cultures place greater importance on nurturance, cooperation, and quality of life (Hofstede, 2004). Because individuals in masculine cultures tend to value performance, efficiency, and innovation, they may be more open to technological solutions and novel digital tools (Hofstede, 2002). Previous studies have also shown that individuals in masculine societies are more likely to adopt new technologies compared to those in more feminine cultural contexts (Venkatesh & Morris, 2000; Ford et al., 2003). These cultural tendencies may influence how consumers evaluate virtual and human influencers. In cultures with higher levels of masculinity, consumers may place greater emphasis on technological novelty and efficiency, which could reduce the perceptual differences between virtual influencers and human influencers. As a result, the perceived advantages traditionally associated with human influencers may become less pronounced in more masculine cultures. Therefore, cultural masculinity is expected to moderate the relationship between influencer type and the perceptions of influencer characteristics. Thus, the following hypothesis is proposed:

H8: Cultural masculinity weakens HI's advantage over VI in perceived trustworthiness (A), expertise (B), attractiveness (C), authenticity (D), homophily (E), parasocial interactions (F), and congruence (G).

Long-term orientation represents a cultural dimension that reflects how societies prioritise future-oriented values such as perseverance, thrift, and long-term rewards over short-term outcomes (Hofstede et al., 2010). Cultures with a high level of long-term orientation tend to emphasise adaptation, pragmatism, and long-term planning, whereas short-term-oriented cultures focus more strongly on traditions, immediate results, and maintaining established norms (Hofstede et al., 2010). As a result, individuals in short-term-oriented cultures may demonstrate greater resistance to novel or unfamiliar innovations.

Previous research suggests that long-term orientation can influence consumers' acceptance of new technologies and artificial agents. For example, consumers in long-term-oriented cultures, such as China, may adapt more easily to anthropomorphic technologies such as robots compared with consumers in short-term-oriented cultures, such as the United States (Chi et al., 2023). Because virtual influencers represent a form of technologically mediated communication and artificial representation, cultural time orientation may influence how consumers evaluate virtual influencers relative to human influencers. In societies characterised by stronger long-term orientation, consumers may be more open to technologically mediated agents and therefore perceive smaller differences between virtual and human influencers. Therefore, the following hypothesis is proposed:

H9: Cultural long-term orientation weakens HI's advantage over VI on perceived trustworthiness (A), expertise (B), attractiveness (C), authenticity (D), homophily (E), parasocial interactions (F), and congruence (G).

According to Hofstede (2004), uncertainty avoidance reflects the extent to which members of a society feel uncomfortable with uncertainty, ambiguity,

and unpredictable situations. Individuals in societies with high levels of uncertainty avoidance tend to prefer structured environments, clear rules, and stable conditions, and therefore often show greater resistance to change and innovation. In contrast, societies with low uncertainty avoidance are generally more open to experimentation and are more likely to adopt new technologies and innovations at earlier stages (McCoy, 2002).

Previous studies have shown that cultures with high uncertainty avoidance tend to demonstrate stronger resistance toward new technological applications and place greater emphasis on established traditions (Ford et al., 2003). Such cultural tendencies may negatively influence individuals' perceptions of the usefulness and acceptance of new technologies (Parboteeah et al., 2005). In the context of digital consumption, research has also found that consumers in high uncertainty avoidance countries tend to perceive higher levels of risk when engaging in online activities such as online shopping (Choi & Geistfeld, 2004; Stewart, 2003). Consequently, uncertainty avoidance has been shown to influence consumers' trust and behavioural intentions in online environments, including their willingness to adopt digital services (Hwang, 2009). Because virtual influencers represent a relatively new form of technologically mediated communication, cultural uncertainty avoidance may influence how consumers evaluate virtual influencers compared with human influencers. Individuals in cultures with higher uncertainty avoidance may perceive greater uncertainty or scepticism toward artificial influencers, which may affect their evaluations of influencer characteristics. Therefore, uncertainty avoidance is expected to moderate the relationship between influencer type and consumers' perceptions of influencer characteristics. Thus, the following hypothesis is developed:

H10: Cultural uncertainty avoidance amplifies HI's advantage over VI on perceived trustworthiness (A), expertise (B), attractiveness (C), authenticity (D), homophily (E), parasocial interactions (F), and congruence (G).

Influencer characteristics serve as important cues in shaping audiences' evaluations of message credibility in social media environments. Drawing on the Information Adoption Model (IAM), message credibility is a key determinant of information adoption, as individuals are more likely to accept and rely on information they perceive as credible (Sussman & Siegal, 2003). Source-related attributes play a critical role in this evaluation process. Recent research suggests that credibility-based characteristics such as trustworthiness and expertise strengthen perceptions of influencer communication, while attractiveness can enhance favourable source evaluations (Alcántara-Pilar et al., 2024; Xiao et al., 2018). In addition, other characteristics, such as authenticity and homophily, have become increasingly important in digital environments, as they foster stronger perceived connections and confidence in influencer-generated content (Kim & Kim, 2021b). Studies on both human and virtual influencers further show that authenticity and homophily are closely associated with higher credibility judgments (Dondapati & Dehury, 2024; Ju et al., 2024). Therefore, these characteristics are expected to positively influence message credibility, and the following hypotheses are developed:

H11: Influencer's perceived trustworthiness positively impacts message credibility.

H12: Influencer's perceived expertise positively impacts message credibility.

H13: Influencer's perceived attractiveness positively impacts message credibility.

H14: Influencer's perceived authenticity positively impacts message credibility.

H15: Influencer's perceived homophily positively impacts message credibility.

Previous studies have examined how various influencer characteristics shape the strength of parasocial interactions between influencers and their audiences (Bond, 2018; Lou & Kim, 2019). Empirical evidence suggests that

audiences tend to develop stronger parasocial interaction perceptions when they perceive influencers as similar, attractive, and relatable (Tian & Hoffner, 2010; Bond, 2018). These perceptions can foster feelings of psychological closeness and familiarity with the influencer, which strengthens the audience's engagement with the influencer's content. Stronger parasocial interactions have also been shown to enhance perceptions of influencer credibility and increase the persuasive impact of influencer communication (Hwang & Zhang, 2018).

In addition to similarity and attractiveness, other influencer characteristics may contribute to the development of parasocial interactions. Influencers who are perceived as knowledgeable and competent in a specific domain may encourage audiences to engage more actively with their content and develop stronger parasocial bonds (Lin et al., 2021). Similarly, authenticity in influencer communication can reinforce audiences' perceptions that the influencer's interactions and self-presentation are genuine, thereby strengthening the sense of realism in parasocial interactions (Nah, 2022). Research further suggests that parasocial interactions may serve as a mechanism through which influencer authenticity influences consumers' behavioural responses, including purchase behaviour (Agnihotri et al., 2023).

Similar patterns have also been observed in the context of virtual influencers. Despite their artificial nature, audiences can still develop parasocial interactions with virtual influencers when certain characteristics are perceived positively. For example, homophily and attractiveness have been found to significantly influence the strength of parasocial interactions with virtual influencers (Rehman et al., 2026). These findings suggest that influencer characteristics play an important role in shaping audiences' perceptions of relational closeness and interaction with both human and virtual influencers. Based on these insights, the following hypotheses are proposed:

H16: Influencer's perceived trustworthiness positively impacts perceived parasocial interactions.

H17: Influencer's perceived expertise positively impacts perceived parasocial interactions.

H18: Influencer's perceived attractiveness positively impacts perceived parasocial interactions.

H19: Influencer's perceived authenticity positively impacts perceived parasocial interactions.

H20: Influencer's perceived homophily positively impacts perceived parasocial interactions.

Social identity theory suggests that individuals construct and reinforce their social identity by associating themselves with others who possess desirable characteristics (Tajfel & Turner, 1986). In the context of influencer marketing, consumers may strengthen their self-identity by identifying with influencers whose characteristics they admire, such as attractiveness, trustworthiness, or reputation. Through this identification process, consumers may perceive a stronger alignment between the influencer and the products promoted by the influencer. When followers view an influencer as credible, appealing, and relatable, they are more likely to perceive the influencer's endorsements as naturally fitting with the promoted products or brands (Arora et al., 2022).

Prior research indicates that several source characteristics contribute to this perception of alignment. Attributes such as attractiveness, expertise, and reputation have been identified as antecedents of endorser identification, which in turn enhances the perceived match between the endorser and the product (Fink et al., 2004; Donavan et al., 2015). When consumers perceive that an influencer possesses relevant knowledge, trustworthy intentions, and appealing personal characteristics, they are more likely to believe that the influencer genuinely represents or fits the promoted product. In addition, authenticity and perceived similarity between influencers and followers may further strengthen perceptions that the influencer's endorsements are consistent with their personal image and lifestyle. These perceptions may therefore contribute to stronger evaluations of influencer–product congruence.

Based on these theoretical considerations, the following hypotheses are proposed:

H21: Influencer's perceived trustworthiness positively impacts perceived influencer-product congruence.

H22: Influencer's perceived expertise positively impacts perceived influencer-product congruence.

H23: Influencer's perceived attractiveness positively impacts perceived influencer-product congruence.

H24: Influencer's perceived authenticity positively impacts perceived influencer-product congruence.

H25: Influencer's perceived homophily positively impacts perceived influencer-product congruence.

Previous studies have demonstrated that parasocial interactions can enhance audiences' trust in influencers and strengthen the persuasive effectiveness of influencer communication (Lin et al., 2021; Lou, 2021). When individuals experience parasocial interactions and gradually form parasocial relationships with influencers through repeated exposure to their social media content, they become more inclined to trust the information shared by those influencers and rely on their product recommendations (Colliander & Dahlén, 2011). The sense of closeness and familiarity created through parasocial interactions can therefore strengthen the persuasive power of influencer communication. As a result, followers may perceive the influencer's messages as more credible and develop more favourable evaluations of the promoted products.

In addition, stronger parasocial interactions can indirectly influence consumer behavioural responses. When followers feel emotionally connected to influencers, they are more likely to adopt the influencer's viewpoints and develop positive attitudes toward the endorsed products or brands. This enhanced credibility and relational closeness can subsequently increase consumers' purchase intentions (Chung & Cho, 2017). Similar effects have also been observed in the context of virtual influencers. Studies indicate that

parasocial interactions with virtual influencers can positively influence perceived credibility in ways comparable to human influencers, despite the artificial nature of virtual influencers (Lim & Lee, 2023; Stein et al., 2024). Based on these findings, parasocial interactions are expected to contribute positively to message credibility and consumer responses toward promoted products. Therefore, the following hypotheses are proposed:

H26: Influencer's parasocial interactions positively impact message credibility.

Previous studies have identified a strong conceptual relationship between the match-up hypothesis and the source credibility model (Park & Lin, 2020; Yoo & Jin, 2015). When an influencer's image and characteristics align well with the promoted product, the endorsement appears more natural and believable to audiences. Such alignment enhances the perceived credibility of the influencer and strengthens the persuasive impact of the message (Schouten et al., 2020). Audiences are more likely to perceive content posted by influencers who have a strong fit with the endorsed product as genuine and trustworthy (Belanche et al., 2021). In contrast, a poor match between the endorser and the product may reduce the effectiveness of the endorsement and weaken consumer responses.

Empirical evidence supports the importance of this alignment in shaping consumer evaluations. A strong match between a celebrity and a brand has been shown to produce more favourable consumer responses and more positive brand attitudes compared to situations where the fit is weak (Kim & Kim, 2021b). Similar findings have been observed in the context of influencer marketing. The congruence between an influencer and a product or brand plays an important role in influencing consumers' perceptions of the endorsement, as well as their attitudes toward the product and their purchase intentions (Torres et al., 2019; Dhun & Dangi, 2023). When consumers perceive that an influencer naturally fits the promoted product, the endorsement message may appear more credible and persuasive. Based on these considerations, influencer–product congruence is expected to enhance

both message credibility and consumers' evaluations of the promoted product. Thus, the following hypotheses are proposed:

H27: Influencer-product congruence positively impacts message credibility.

According to the Information Adoption Model (IAM) (Sussman & Siegal, 2003), both argument characteristics and source characteristics play important roles in influencing individuals' information adoption behaviour. Within this framework, the perceived quality and credibility of information determine whether recipients accept and rely on the communicated message. Prior research has demonstrated that source-related factors, particularly credibility, significantly shape consumers' attitudes toward brands and products (Chu & Kamal, 2008). In the context of influencer marketing, parasocial interaction and influencer–product congruence represent critical source characteristics that further explain how audiences process and evaluate influencer-generated content. Parasocial interaction refers to the perceived emotional connection and sense of relationship that consumers develop with influencers, which enhances trust and increases receptiveness to the communicated message (Labrecque, 2014; Sokolova & Kefi, 2020). Similarly, influencer–product congruence reflects the perceived fit between the influencer and the endorsed product, which strengthens message persuasiveness and enhances credibility evaluations (Belanche et al., 2021; Schouten et al., 2020). When consumers perceive both a strong relational connection with the influencer and a high level of congruence between the influencer and the product, they are more likely to consider the message as credible and relevant. As a result, credible and well-aligned messages lead to more favourable evaluations of the promoted product and stronger attitudinal responses (Walten & Wiedmann, 2022). Based on these theoretical considerations, parasocial interaction, influencer–product congruence, and message credibility are expected to positively influence consumers' attitudes toward the product. Therefore, the following hypotheses are proposed:

H28: Influencer's parasocial interactions positively impact consumers' attitudes towards the product.

H29: Influencer-product congruence positively impacts consumers' attitudes towards the product.

H30: Message credibility is positively associated with consumers' attitudes towards the product.

According to the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), individuals' behavioural intentions are primarily influenced by their attitudes toward the behaviour and by subjective norms, which represent perceived social pressure to perform or not perform a particular behaviour. In marketing contexts, favourable attitudes toward a product or brand are often associated with stronger intentions to purchase. Previous studies have confirmed that consumers' attitudes significantly influence their behavioural intentions across various consumption contexts (Hegner et al., 2017).

In influencer marketing, several factors, including perceived influencer credibility, expertise, trustworthiness, and influencer–product congruence, contribute to shaping consumers' attitudes toward promoted products, which subsequently influence purchase intention (Chetioui et al., 2019). In addition to attitudes, subjective norms play an important role in shaping consumer decision-making. Subjective norms reflect the influence of social expectations, peer opinions, and reference groups on individuals' behavioural intentions. Prior research has shown that subjective norms significantly influence consumers' acceptance of new technologies (Bhattacherjee & Sanford, 2006), adoption of online advertising (Zhang & Mao, 2008), and purchase intentions in digital environments (Halim & Karami, 2020; Gunawan & Huang, 2015). In social media contexts, followers may rely on the opinions and behaviours of others within their social networks when evaluating influencer recommendations and making purchasing decisions. This is particularly relevant in the context of virtual influencers, because consumers may rely on social approval and the behaviour of others when evaluating whether digitally created influencers are acceptable and credible sources of product

recommendations. Therefore, subjective norms help capture the social acceptance mechanism through which consumers may form purchase intentions in response to virtual influencer endorsements. Based on these theoretical considerations, attitudes toward the product and subjective norms are expected to positively influence purchase intention, while subjective norms may also shape consumers' attitudes toward the product. Therefore, the following hypotheses are proposed:

H31: Consumers' attitudes towards the product positively impact purchase intention.

H32: Subjective norms positively impact purchase intention.

Previous studies have demonstrated that consumers perceive human influencers (HI) and virtual influencers (VI) differently, which leads to differences in their persuasive effectiveness and their influence on followers' behavioural intentions. These differences can be partly explained by perceived agency theory, which suggests that individuals attribute agency to entities whose actions appear to be driven by internal thoughts and intentions rather than by external programming or environmental factors (Trafton et al., 2024). Humans naturally attribute agency and intentionality to other humans, whereas artificial agents are often perceived as lacking genuine internal motivations. Building on this perspective, Vanneste and Puranam (2024) argue that trust fundamentally relies on perceived agency. In the context of artificial intelligence, perceived agency can influence trust through several pathways, including increasing perceptions of competence, shifting trust from the AI system to its human creators, and heightening sensitivity to potential betrayal or misuse. In social influence contexts, the perceived absence of agency in artificial agents may limit their persuasive effectiveness, as advice adherence depends strongly on perceived intentionality rather than emotional capacity alone (Liao et al., 2023).

Trust in artificial agents also differs from trust in humans in terms of its development and underlying mechanisms. While trust in humans often develops through interpersonal interactions and emotional connections, trust

in AI systems tends to be formed through both cognitive and emotional evaluations. Cognitive trust is influenced by factors such as reliability, transparency, and task suitability, whereas emotional trust can be shaped by anthropomorphic cues and perceived social presence (Glikson & Woolley, 2020). Furthermore, trust in AI has been conceptualised as an individual's willingness to rely on a technological system, which may evolve from an initial cognition-based trust prior to interaction into a more dynamic form through repeated use and collaboration (Zhu et al., 2023). However, previous research suggests that consumers often question the sensory and experiential capabilities of virtual influencers, perceiving them as unable to genuinely experience, feel, or evaluate products (Li et al., 2023). As a result, consumers may be less motivated to carefully process information communicated by virtual influencers compared to human influencers (Bakpayev et al., 2022).

Message framing may further influence how consumers evaluate persuasive messages delivered by different types of influencers. In persuasion-focused communication, a positive message frame emphasises the benefits or positive outcomes associated with a particular action, whereas a negative message frame highlights potential losses or negative consequences (Florence et al., 2022). Prior research suggests that positive-framed messages tend to be more persuasive when behaviours are perceived as safe or low risk, as they reinforce consumers' motivations for positive outcomes and self-improvement (Edwards et al., 2001; O'Keefe & Jensen, 2008). In contrast, negative-framed messages can be more effective when the message concerns behaviours perceived as risky or when fear-based appeals stimulate deeper message processing (Edwards et al., 2001; Slater et al., 2002). However, negative-framed messages may be less effective when audiences have low involvement or limited familiarity with the topic (Wansink & Pope, 2015).

Accordingly, the interaction between influencer type and message frame valence may shape several routes through which influencer communication affects product attitudes. First, message framing may affect whether message credibility is converted into favourable product attitudes,

because the same credible message may be interpreted differently depending on whether it is delivered by a human or virtual influencer and whether the message is framed positively or negatively. Second, parasocial interaction may also depend on this interaction, as positive or negative framing may strengthen or weaken the relational connection consumers feel toward different types of influencers. Since parasocial interaction reflects a perceived social relationship between consumers and media figures, its effect on product attitudes may be stronger when the message frame is consistent with the perceived social and emotional capacity of the influencer (Lou, 2022; Reinikainen et al., 2020). Third, influencer–product congruence may also be affected by the interaction between influencer type and message framing, because perceived fit between the influencer and the product can determine whether an endorsement appears appropriate, convincing, and relevant (Janssen et al., 2021; Kim & Kim, 2021). This may be especially important for virtual influencers, whose persuasive effectiveness often depends on whether their image, message, and product category are perceived as coherent and suitable (Feng et al., 2024; Liu & Lee, 2024). Therefore, the effect of message credibility, parasocial interaction, and influencer–product congruence on attitudes toward the product may vary depending on the joint influence of influencer type and message frame valence. Thus, the following hypothesis is proposed:

H33: The relationships between message credibility (A), parasocial interactions (B), influencer–product congruence (C), and attitudes towards the product are moderated by the interaction of influencer type (VI vs. HI) and message frame valence (positive vs. negative).

Search goods can be evaluated objectively before purchase based on measurable attributes such as specifications or price, whereas experience goods require consumption or usage before their quality can be fully assessed (Huang, 2009). As a result, perceived performance uncertainty tends to be higher for experience goods than for search goods (Weathers et al., 2007). In marketing communication, the type of product being promoted may therefore influence how consumers evaluate the credibility and effectiveness of an endorsement.

Virtual influencers may possess certain advantages when endorsing products that rely primarily on objective information. Due to their technological nature, virtual influencers can be perceived as reliable sources of information because of their objectivity and ability to process and present data-driven content (Lou et al., 2022). However, compared with human influencers, virtual influencers lack the ability to experience products physically and express genuine emotions or personal experiences, which may reduce the credibility of their endorsements for products that rely heavily on subjective evaluation (Li et al., 2023). Consequently, virtual influencers may be perceived as more suitable for promoting utilitarian or information-based products, whereas human influencers may be viewed as more appropriate endorsers for hedonic or experience-based products (Duan et al., 2025). Furthermore, virtual influencers face limitation relates to their lack of embodied sensory experience, as consumers perceive virtual influencers as having significantly lower proximal sensory capacities, such as touch, smell, and taste, compared to human influencers, even though they are seen as comparable in visual and auditory abilities (Zhou et al., 2024). Therefore, even the subjective norms may drive consumers to follow virtual influencers' advice according to the Theory of Reasoned Action (Ajzen & Fishbein, 1980), this impact might be limited to search goods rather than experience goods, and the following hypotheses are proposed:

H34: The relationship between subjective norms and purchase intention is moderated by the interaction of influencer type (VI vs. HI) and product type (search vs. experience goods).

2.2 Development of the research instrument

To test the hypotheses, the study was followed by a 2x2x2 factorial designed experiment and survey. The manipulations included the type of influencer (VI vs. HI), message frame (positive vs. negative), and product type (search vs. experience). To ensure internal validity and isolate the effect of influencer

type (virtual vs. human), this study employed the same visual stimulus across conditions while manipulating only the textual description. By using an identical image of created influencers, potential confounding effects related to physical attractiveness, facial expression, visual appeal, initial awareness and attitudes or differences in number of followers were controlled, allowing any observed differences in responses to be attributed more confidently to the perceived nature of the influencer rather than visual characteristics. This approach is consistent with experimental research practices that emphasize controlling extraneous variables to establish causal relationships (Shadish et al., 2002). Prior studies in influencer and communication research have similarly manipulated source type through textual cues while holding visual stimuli constant to ensure comparability between conditions (De Cicco et al., 2024). In the context of virtual influencers, research shows that perceptions of whether an influencer is human or artificial can be effectively induced through descriptive information, even when visual representations remain the same (Appel et al., 2020). This design is appropriate in this study comparing virtual and human influencers, where the goal is to isolate the psychological effect of "virtuality" rather than differences in appearance or aesthetics. To ensure that respondents correctly perceived the intended influencer type, a manipulation check question was included after exposure to the stimulus.

Another consideration is to operationalise product type, this study used a restaurant as an experience good and an SSD hard drive as a search good, following the established distinction that experience goods are evaluated through consumption, whereas search goods can be assessed based on objective information prior to purchase (Nelson, 1974). These products were selected to ensure familiarity and relevance across respondents, thereby enhancing ecological validity. In addition, both categories are appropriate for endorsement by a male influencer while remaining gender-neutral in consumption, allowing both male and female participants to relate to the scenario. This choice also aligns with the match-up principle, ensuring congruence between the influencer and the endorsed product (Kamins, 1990).

To manipulate message framing, this study employed gain-framed and loss-framed messages across both product types. Gain-framed messages emphasized positive outcomes, such as the enjoyable taste and service of a restaurant or the reliability and capacity of an SSD, whereas loss-framed messages highlighted potential negative consequences, such as missing out on a desirable dining experience or the risks associated with using a traditional hard drive. This approach is consistent with recent framing research showing that consumers respond differently to positively versus negatively framed information, even when the underlying content is equivalent (Hussein et al., 2014; Rawal et al., 2026).

Therefore, the stimulus first featured the same photo of a young, European-looking male influencer for both virtual and human influencers. AI picture tools created the photo based on a real individual. The manipulation of influencer type was achieved through a textual introduction describing the influencer either as "a 25-year-old robot who lives in London" (VI condition) or as a "25-year-old talented British guitarist and vocalist" (HI condition) (See Appendix 2). The influencers were described as macro-influencers, having 3.5 million to 5 million followers on various social media platforms and having collaborations with brands in both conditions. After receiving a picture of the influencer with a text introduction indicating whether they were a VI or a HI, participants were asked to evaluate the influencer's trustworthiness, expertise, attractiveness, authenticity, homophily, and parasocial interactions. The second and third manipulations involved the influencer's product post related to either an SSD hard drive (search product) or a restaurant (experience product), which was framed to emphasise either the positive outcomes of using the product or the negative consequences of missing out on it. Eight groups were formed by the different combinations of stimulus (See Table 3.) After viewing a picture of the post in four conditions with the interaction of message frame (positive vs. negative) and product (search vs. experience), participants were asked to evaluate the congruence between influencer and product, message credibility, attitudes towards the product, subjective norms,

and purchase intention. Additionally, perceived performance uncertainty was included to assess consumers' perceived uncertainty of the product.

Table 3. Eight groups according to the combination of stimuli.

Influencer type	**Message Frame**	**Experience Good**	**Search Good**
Virtual	Positive	Group 1	Group 2
Virtual	Negative	Group 3	Group 4
Human	Positive	Group 5	Group 6
Human	Negative	Group 7	Group 8

Notably, the choice of assigning the influencer an expertise in music while having them endorse products from unrelated domains was intentional and theoretically grounded. This design reflects the reality of contemporary influencer marketing, where influencers frequently promote a wide range of products beyond their original area of expertise (Ki et al., 2020; Campbell & Farrell, 2020). In practice, influencers are not always domain specialists, and their endorsements often rely more on their personal brand, visibility, and relational connection with followers rather than on product-specific knowledge. By adopting this arrangement, the study enhances ecological validity and captures a more realistic representation of how consumers encounter influencer marketing in everyday contexts. At the same time, this design allows for the examination of whether expertise remains a relevant cue when it is not directly aligned with the endorsed product.

The study employed measurement scales with established reliability and validity that have been widely used in prior research across different cultural contexts. Table 4 presents the adapted constructs used in the research and their reliability, and Appendix 1 presents the full list of adjusted constructs and their items. Using previously validated scales enhances measurement accuracy, comparability, and construct validity, which is critical in cross-cultural and multi-construct research (DeVellis, 2017). The selected scales are grounded in well-established theoretical frameworks in marketing and communication research. For example, Ohanian's (1990) scale for

trustworthiness, expertise, and attractiveness is one of the most widely applied measures of source credibility, ensuring consistency with prior influencer and endorsement studies. Similarly, parasocial interaction, congruence, and message credibility were measured using scales that have been empirically validated in digital and influencer marketing contexts (Belanche et al., 2021; Lee & Jang, 2013; Xu, 2014), supporting their relevance to social media environments. In addition, more recent scales were incorporated for constructs that have gained importance in contemporary digital contexts, such as authenticity and perceived uncertainty (Zniva et al., 2023; Lin et al., 2023), ensuring that the measurement reflects current developments in consumer behavior research. The inclusion of established scales for attitudes towards the product and purchase intention (Spears & Singh, 2004; Gupta et al., 2023) further ensures comparability with prior studies examining persuasion outcomes. Finally, cultural values were measured using Yoo et al.'s (2011) individual-level cultural scale, which has been widely adopted in cross-cultural research and allows for more precise measurement compared to country-level proxies. Overall, the selection of these scales ensures both theoretical consistency and empirical robustness, while enabling comparison with prior studies and enhancing the generalizability of the findings (Hair et al., 2019).

Table 4. Constructs used in research and their reliability.

Construct	**Number of Items**	**Reference**	**Cronbach's alpha**
Trustworthiness	5	Ohanian (1990)	0.896
Expertise	5	Ohanian (1990)	0.885
Attractiveness	5	Ohanian (1990)	0.904
Authenticity	6	Zniva et al. (2023)	0.870
Homophily	4	Ladhari et al. (2020)	0.870
Parasocial Interactions	7	Lee & Jang (2013)	0.950
Influencer–Product Congruence	4	Belanche et al. (2021)	0.951
Message Credibility	3	Xu (2014)	0.900

Construct	Number of Items	Reference	Cronbach's alpha
Construct	**Number of Items**	**Reference**	**Cronbach's alpha**
Perceived Performance Uncertainty	5	Lin et al. (2023)	0.808
Attitudes towards the Product	5	Spears & Singh (2004)	0.970
Purchase Intention	3	Gupta et al. (2023)	0.910
Subjective Norms	4	Fitzmaurice (2005)	0.889
Masculinity	4	Yoo et al. (2011)	0.840
Uncertainty Avoidance	5	Yoo et al. (2011)	0.880
Long-term Orientation	6	Yoo et al. (2011)	0.790

The study collected data from three countries, including Lithuania, Spain and China, to ensure the scalability of findings. Moreover, those three countries exhibit markedly distinct cultural orientations along the dimensions of masculinity, long-term orientation, and uncertainty avoidance. In terms of masculinity—which reflects a society's emphasis on competition, achievement, and success—China scores considerably high (66), indicating a performance-driven culture where success and material rewards are central. Lithuania, with a moderate score (42), leans toward a more balanced, consensus-oriented society, while Spain's low score (19) reflects a strong preference for cooperation, quality of life, and modesty. Regarding long-term orientation, China again scores very high (77), highlighting a pragmatic, future-focused mindset that values perseverance and adapting to changing circumstances. Lithuania (47) and Spain (49) both fall into the mid-range, suggesting a more moderate inclination toward tradition and short-term obligations. In uncertainty avoidance, which measures how societies cope with ambiguity and uncertainty, Spain scores the highest (86), indicating a strong preference for structured environments, clear rules, and job security. Lithuania's high score (65) also shows a tendency toward anxiety about the unknown, while China's relatively low score (30) reveals greater comfort with

ambiguity and a more flexible approach to rules (The Cultural Factor Group, 2026). The distinct cultural differences provided the rationales of the selection of the above three countries, but the paper measured those three cultural dimensions at the individual level to account for within-culture variations.

To collect responses for the paper, the research questionnaire is being distributed through a research agency online in three countries. The sampling technique of the research was a convenience sampling method. Similar research in the past in the fields of influencer marketing ranged from 191 respondents to 884 respondents, with an average of 397 respondents, as shown in Table 5.

Table 5. Number of respondents in similar studies in the field of influencer marketing.

No.	Sample size	Research methods	Country	Research
1	386	Experiment	USA	Stubb & Colliander, 2019
2	288	Survey	Germany	Wiedmann & Mettenheim, 2020
3	240	Survey	China	Wu, 2020
4	330	Survey	South Africa	Duh & Thabethe, 2021
5	329	Experiment	USA	Thomas & Fowler, 2021
6	497	Survey	USA	Xiao et al., 2018
7	538	Survey	USA	Lou & Yuan, 2019
8	191	Survey	Malaysia	Koay et al., 2021
9	884	Experiment	Germany	Breves et al., 2019
10	282	Survey	Korea	Jun & Yi, 2020
	397	Average		

According to the 2x2x2 factorial design experiment, the respondents are divided into 8 groups: VI with a positive message about a search product, VI with a negative message about a search product, VI with a positive message about an experience product, VI with a negative message about an experience product, HI with a positive message about a search product, HI with a negative message about a search product, HI with a positive message about an experience product, and HI with a negative message about an experience

product. Sample size determination for a 2x2x2 factorial design depends on several factors, including the expected effect size, significance level (α), desired statistical power (1 − β), and the number of experimental conditions. In this design, there are three independent variables with two levels each, resulting in eight experimental conditions, and researchers typically consider main effects, two-way interactions, and the three-way interaction. Power analysis for factorial designs is usually conducted for the smallest effect of interest, often the interaction effects, which require larger samples to detect. Cohen's f can be used as a measure of effect size for ANOVA, with conventional benchmarks of 0.10, 0.25, and 0.40 for small, medium, and large effects, respectively (Cohen, 2013).

$$f = \frac{\sigma_{\text{effect}}}{\sigma_{\text{error}}}$$

Power calculations can be performed using software such as G*Power (Faul et al., 2007), specifying the number of groups, desired α level, power, and effect size. As a practical guideline in behavioral research, approximately 20–30 participants per cell are recommended for detecting medium effects, whereas small effects may require 40–50 participants per cell. Therefore, for a 2×2×2 design with eight conditions, total sample sizes of around 160 participants would be sufficient for medium effects, and approximately 320 participants would be needed for small effects. These recommendations ensure adequate power to detect both main effects and interactions in factorial experiments (Wickens & Keppel, 2004; Lakens, 2022). The research aims to collect 40 respondents per condition and country, for a total of 960 respondents.

3. RESEARCH RESULTS OF THE IMPACT OF VIRTUAL AND HUMAN INFLUENCER CHARACTERISTICS ON PURCHASE INTENTION

3.1 Descriptive statistics

A total of 1,044 initial responses were collected from the questionnaire. After data cleaning, 14 responses were removed due to incomplete answers, 47 were removed because they were completed in under two minutes, and 56 were removed as straight-liners (variance equals zero). Although 960 responses were initially targeted, 927 valid responses remained after data cleaning.

Demographic characteristics of the sample. A total of 927 valid responses were retained for analysis. The demographic profile of the sample is summarised in Table 6. Respondents were distributed relatively evenly across the three countries: 321 from China (34.6%), 298 from Lithuania (32.1%), and 308 from Spain (33.2%). Gender balance was nearly equal, with 467 male respondents (50.4%) and 460 female respondents (49.6%). The largest age group consisted of respondents aged 30–39 years (n = 333, 35.9%), followed by those aged 18–29 (n = 255, 27.5%), 40–49 (n = 191, 20.6%), and 50 years or older (n = 148, 16.0%). The majority of respondents reported earning on the country's average (n = 275, 29.7%), followed by slightly higher (n = 217, 23.4%) and higher than the national average (n = 168, 18.1%). Smaller proportions reported incomes slightly lower (n = 96, 10.4%), lower (n = 66, 7.1%), much lower (n = 40, 4.3%), or much higher than the average (n = 65, 7.1%).

Table 6. The demographic data of the respondents.

Age	**N**	**%**	**Gender**	**N**	**%**
18-29	255	27.5	Male	467	50.4
30-39	333	35.9	Female	460	49.6
40-49	191	20.6			
50+	148	16	Country		
			China	321	34.6
			Lithuania	298	32.1
			Spain	308	33.2
Income					
Much lower than the country's average				40	4.3
Lower than the country's average				66	7.1
Slightly lower than the country's average				96	10.4
On the country's average				275	29.7
Slightly higher than the country's average				217	23.4
Higher than the country's average				168	18.1
Much higher than the country's average				65	7

To confirm the conceptual model and its fit for measuring influencer characteristics and their impacts on attitudes and purchase intention, the paper employed factor analysis with SPSS. Skewness and kurtosis analyses were used to assess data normality before the exploratory factor analysis was conducted. Skewness is a statistical measure that describes the degree and direction of asymmetry in a distribution of data around its mean. Skewness values between −1 and +1 are considered indicative of approximately normal distributions in social science research. Meanwhile, values between −2 and +2 may still be acceptable for many parametric analyses, particularly with moderate to large samples (George & Mallery, 2024). The skewness values for all items in this study fell within the range of −1 to +1, indicating that the sample distribution can be considered approximately symmetrical (See Appendix 4).

Kurtosis assesses the degree to which a distribution is peaked or heavy-tailed relative to the normal distribution. In applied research, kurtosis values between −1 and +1 are commonly considered indicative of approximately

normal distributions, whereas values between −2 and +2 are often deemed acceptable for many parametric analyses, particularly in moderate to large samples (George & Mallery, 2024). All kurtosis values for the items in this study also ranged between −1 and +1, suggesting that the distribution does not exhibit excessive peakedness or flatness.

3.2 Evaluating reliability, validity, and multicollinearity of the scales

The primary purpose of Exploratory Factor Analysis (EFA) is to uncover the number and nature of latent constructs that account for patterns of correlations among measured items, thereby reducing data dimensionality and enhancing theoretical interpretability (Fabrigar et al., 1999). The constructs of this research adapted from established scales, the EFA was conducted as a preliminary assessment because the same English questionnaire was administered across three culturally and linguistically different countries. This step helped to examine whether the items loaded broadly according to the expected construct structure in the collected sample. However, because the study relied on established measures, the primary validation of the measurement model was conducted through confirmatory assessment in PLS-SEM, including indicator loadings, reliability, convergent validity, and discriminant validity. In the present study, the number of factors was determined a priori and fixed during extraction rather than relying solely on the Kaiser criterion (eigenvalues greater than 1). Although the eigenvalue-greater-than-one rule is widely used, it has been criticised for its tendency to over-extract or under-extract factors depending on sample size and item characteristics (Fabrigar et al., 1999; Hayton et al., 2004). When strong theoretical foundations exist, specifying the number of factors in advance is considered appropriate, as exploratory factor analysis can be guided by conceptual expectations regarding the latent structure (Costello & Osborne, 2005). In this study, the fixed-factor approach was justified by prior theoretical models of influencer characteristics, which posit a

multidimensional structure. Therefore, constraining the extraction to the theoretically expected number of factors enhances interpretability and aligns the empirical solution with established conceptual frameworks.

EFA with Promax rotation was first conducted to identify influencer characteristics. Previous research shows that many of the influencers' characteristics can be correlated (eg, Yuan & Lou, 2020b; Theocharis & Papaioannou, 2020). When theoretical or empirical evidence suggests that latent constructs are correlated, an oblique rotation method such as Promax is recommended, as it allows factors to correlate and yields a more realistic and interpretable solution than orthogonal rotations (Costello, 2005; Fabrigar et al., 1999). Kaiser normalisation further stabilises the rotation by standardising loadings prior to rotation, facilitating clearer factor structure interpretation. Therefore, the study used principal component analysis with Promax rotation and Kaiser normalisation. The Kaiser-Meyer-Olkin value is 0.977, which was above the acceptable limit of .6 (Tabachnick & Fidell, 2013). Barlett's sphericity p-value is statistically significant ($p < 0.001$). Therefore, the factors can be used for further analysis.

In EFA, factor loadings represent the strength and direction of the relationship between observed variables and underlying latent factors. Higher absolute loading values indicate that the observed variable shares more variance with the latent construct, thereby contributing meaningfully to the interpretation of that factor. The selection of a factor loading threshold depends on research objectives, sample size, and disciplinary standards. A loading of 0.6 is generally considered strong and indicates that approximately 36% of the variance in an observed variable is explained by the underlying factor, which reflects substantial practical significance (Hair et al., 2009). This study adopts 0.6 as a threshold in EFA factor loading and removed six items with a loading below the threshold, shown in Appendix 5.

After removing the items, the analysis yielded a seven-factor solution for influencer characteristics, and the rotation converged in seven iterations (Shown in Appendix 6). The extracted factors demonstrated a clear and

interpretable structure, with strong primary loadings and no substantial cross-loadings. Specifically, four items measuring trustworthiness loaded strongly on one factor (loadings ranging from .751 to 0.894), indicating a coherent trustworthiness dimension. Expertise with five items loaded highly on a separate factor (λ = 0.756 to 0.890), supporting the distinctiveness of perceived expertise. Attractiveness with five items showed strong loadings on another factor (λ = 0.743 to 0.991), confirming construct consistency. Four items of authenticity loaded substantially on a distinct factor (λ = 0.600 to 0.858), suggesting adequate representation of this dimension. Similarly, four items of homophily demonstrated very strong loadings (λ = 0.688 to 0.953), indicating a well-defined construct. Parasocial interaction with four items loaded on a separate factor (λ = 0.608 to 0.826), and congruence, including four items loaded strongly on another factor (λ = 0.868 to 0.917). Furthermore, all communality values exceeded the recommended threshold of 0.50, indicating that the extracted factors explained a substantial proportion of variance in each observed variable (Hair et al., 2010). Specifically, communalities ranged from 0.721 to 0.852, with most items exhibiting values above 0.75, indicating that the retained factors adequately captured the underlying structure of the influencer characteristic items.

The second EFA with Promax rotation was performed to identify the message credibility, perceived uncertainty of the product, attitudes, purchase intention and subjective norms (see Appendix 7). The KMO value was 0.961, well above the commonly recommended minimum of 0.60 (Tabachnick & Fidell, 2013), indicating that the correlation matrix was highly suitable for factor analysis. Furthermore, Bartlett's test of sphericity was significant ($p<.001$), indicating that sufficient correlations exist among the variables to justify the application of factor analytical procedures (Hair, 2009). Collectively, these findings demonstrate the appropriateness of the data for factor analysis. The pattern matrix revealed a clear five-factor solution, with all items loading substantially on their intended constructs and no significant cross-loadings observed (See Appendix 7). Attitudes towards the product

consisted of five items with factor loadings ranging from 0.794 to 0.918. Subjective norms comprised four items with loadings between 0.817 and 0.907. Perceived uncertainty of the product included four items loading from 0.736 to 0.876. Message credibility was represented by three items with loadings ranging from 0.829 to 0.890. Purchase Intention consisted of three items with loadings between 0.641 and 0.690. All factor loadings exceeded the recommended threshold of 0.60 (Hair et al., 2009), demonstrating adequate convergent validity and a clean factor structure that aligns with the theoretical conceptualisation of the constructs. All communality values exceeded the recommended threshold of 0.50 (Costello, 2005), indicating that the extracted factors explained a substantial proportion of variance in each observed variable. Specifically, communalities ranged from 0.715 to 0.850, with most items exhibiting values above 0.70, indicating that the retained factors adequately captured the underlying structure of the measured constructs.

The last EFA with a Promax rotation was conducted to identify the cultural dimensions. The KMO value was .951, substantially exceeding the recommended threshold of 0.60 (Tabachnick & Fidell, 2013), indicating that the correlation matrix was highly appropriate for factor analysis. Additionally, Bartlett's test of sphericity yielded a significant result ($p<.001$), rejecting the null hypothesis that the correlation matrix is an identity matrix. This finding confirms that sufficient intercorrelations exist among the variables to justify the application of factor analytical procedures (Hair, 2009). Collectively, these results provide strong evidence of the data's factorability. The pattern matrix yielded a three-factor model: long-term orientation, uncertainty avoidance and masculinity (See Appendix 8). For the long-term orientation dimension, factor loadings ranged from 0.603 to 0.834. The uncertainty avoidance items exhibited loadings between 0.713 and 0.868, while the masculinity items ranged from 0.755 to 0.887. These values indicate that each item strongly and significantly loaded onto its respective construct, with no substantial cross-loadings observed, thereby confirming a clean and interpretable factor

structure aligned with the theoretical conceptualisation of the cultural dimensions. Communality values for all items surpassed the acceptable threshold of 0.50 (Costello, 2005), ranging from 0.631 to 0.789, confirming that the extracted factors explained a substantial proportion of variance in each observed variable.

The research model was examined by applying PLS-SEM with SmartPLS4 software. The first was to assess the scales' reliability by measuring Cronbach's α. Commonly accepted guidelines suggest that α values of 0.70 or higher indicate acceptable reliability for exploratory research, whereas values of .80 or higher are considered good, and 0.90 or higher indicate excellent internal consistency (Hair, 2009). However, very high values (e.g., > 0.95) may suggest item redundancy rather than true reliability (Tavakol & Dennick, 2011). As presented in Table 7, all scales demonstrated excellent reliability, with alpha coefficients exceeding the recommended threshold of 0.70 but no more than 0.95. The values ranged from 0.861 for Perceived Uncertainty of the Product to 0.933 for Homophily (See Table 7). Specifically, the influencer characteristic scales—Trustworthiness (α = 0.927), Expertise (α = 0.929), Attractiveness (α = 0.920), Authenticity (α = 0.894), Homophily (α = 0.933), Parasocial Interaction (α = 0.917) and Congruence (α = 0.930)—all exhibited high internal consistency. The outcome variables—Message Credibility (α = 0.874), Attitudes towards the Product (α = 0.925), Purchase Intention (α = 0.915), and Subjective Norms (α = 0.926)—also demonstrated strong reliability. Furthermore, the cultural dimension scales—Masculinity (α = 0.881), Uncertainty Avoidance (α = 0.890), and Long-term Orientation (α = 0.893)—all exceeded the acceptable threshold. These results indicate that all scales possessed satisfactory to excellent internal consistency, supporting the reliability of the measurements used in this study.

Table 7. Analysis of scales' reliability and convergent validity.

Scale	Number of items	Cronbach's alpha (α)	Average variance extracted (AVE)
Trustworthiness	4	0.927	0.819
Expertise	5	0.929	0.779
Attractiveness	5	0.920	0.758
Authenticity	4	0.894	0.800
Homophily	4	0.933	0.832
Parasocial Interaction	4	0.905	0.779
Congruence	4	0.931	0.828
Message credibility	3	0.875	0.799
Attitudes towards the Product	5	0.925	0.769
Purchase Intention	3	0.915	0.855
Subjective Norms	4	0.926	0.819
Masculinity	4	0.882	0.738
Uncertainty Avoidance	5	0.890	0.696
Long-term Orientation	6	0.894	0.653

Regarding convergent validity, all AVE values surpassed the minimum acceptable criterion of 0.50 (Hair et al., 2009), confirming that each construct explained more than half of the variance in its assigned indicators. The AVE values ranged from 0.653 for Long-term Orientation to 0.855 for Purchase Intention, with the majority of constructs exhibiting AVE values well above 0.70. Furthermore, discriminant validity was assessed using the Heterotrait–Monotrait ratio (HTMT), which is considered a more reliable criterion than the Fornell–Larcker approach for detecting lack of discriminant validity (Henseler et al., 2015). The results indicate that the majority of HTMT values were below the conservative threshold of 0.85 and the more liberal threshold of 0.90 recommended in the literature (Henseler et al., 2015; Hair et al., 2019), suggesting adequate discriminant validity among all constructs (See Table 8).

Table 8. Heterotrait–Monotrait Ratio of Correlations (HTMT)

	ATTR	AUTH	AttProd	CONGR	EXPT	HOM	MC	PSI	PurInt	SubNor
ATTR										
AUTH	0.860									
AttProd	0.631	0.625								
CONGR	0.612	0.628	0.839							
EXPT	0.796	0.879	0.613	0.604						
HOM	0.682	0.690	0.632	0.655	0.696					
MC	0.742	0.745	0.768	0.773	0.733	0.744				
PSI	0.794	0.856	0.687	0.687	0.816	0.895	0.819			
PurInt	0.613	0.624	0.884	0.762	0.596	0.722	0.757	0.746		
SubNor	0.604	0.641	0.698	0.655	0.639	0.814	0.741	0.782	0.786	
TRST	0.787	0.849	0.628	0.643	0.879	0.784	0.749	0.873	0.649	0.689

To assess multicollinearity, variance inflation factor (VIF) values were examined for all indicators. All VIF values ranged from 1.0 to 3.797, well below the conservative threshold of 5.0 (Hair et al., 2019), indicating that multicollinearity was not a concern in this study. Interaction terms exhibited VIF values of exactly 1.0, which is expected by design. These results confirm that collinearity among the predictor variables is within acceptable limits.

3.3 Perception of virtual and human influencer characteristics

The hypotheses were tested using Structural Equation Modelling (SEM) in SmartPLS 4. Influencer type was operationalised as a binary variable (0 = virtual influencer; 1 = human influencer), allowing for a direct comparison between the two conditions. The results indicated that influencer type had a significant positive effect on several influencer characteristics (See Table 9). Specifically, significant effects were found for trustworthiness ($\beta = 0.311$, $t = 6.596$, $p < .001$, $f^2 = 0.045$), expertise ($\beta = 0.229$, $t = 4.890$, $p < .001$, $f^2 = 0.024$), authenticity ($\beta = 0.238$, $t = 5.055$, $p < .001$, $f^2 = 0.026$), homophily ($\beta = 0.148$, $t = 3.054$, $p = .002$, $f^2 = 0.010$), and parasocial interaction ($\beta = 0.247$, $t = 5.413$, $p < .001$, $f^2 = 0.030$), thereby **supporting hypotheses H1, H2, H4, H5, and H6.** These positive coefficients indicated that human influencers

were perceived more favourably than virtual influencers across these dimensions, with the strongest effect observed for trustworthiness, followed by parasocial interaction and authenticity. These significant results suggest that respondents consistently evaluated human influencers as more credible and relatable sources compared to virtual influencers. In particular, higher perceptions of trustworthiness and authenticity indicate that human influencers are more likely to be seen as sincere and reliable, while stronger parasocial interaction and homophily suggest a greater sense of connection and perceived similarity with the audience. Together, this pattern implies that the advantage of human influencers lies not only in their perceived expertise but also in their ability to establish stronger psychological and relational bonds with consumers.

Table 9. Path coefficients of influencer type on influencer characteristics.

No.	Path	β	t	Sig.	f^2	Decision
H1	InfluencerType -> ITrust	0.311	6.596	0.000	0.045	Accepted
H2	InfluencerType -> IExp	0.229	4.890	0.000	0.024	Accepted
H3	InfluencerType -> IAttr	0.092	1.918	0.055	0.004	Rejected
H4	InfluencerType -> IAuth	0.238	5.055	0.000	0.026	Accepted
H5	InfluencerType -> Homoph	0.148	3.054	0.002	0.010	Accepted
H6	InfluencerType -> ParaSoc	0.247	5.413	0.000	0.030	Accepted
H7	InfluencerType -> Congr	0.054	1.048	0.294	0.001	Rejected

In contrast, the effects of influencer type on attractiveness ($\beta = 0.092$, $t = 1.918$, $p = .055$, $f^2 = 0.004$) and influencer–product congruence ($\beta = 0.054$, $t = 1.048$, $p = .294$, $f^2 = 0.001$) were not statistically significant, leading to the **rejection of H3 and H7.** These non-significant results suggest that respondents evaluated virtual and human influencers similarly in terms of physical appeal and perceived fit with the endorsed product, indicating that these attributes may be less sensitive to the nature of the influencer (human vs. virtual). In other words, factors such as visual presentation and product alignment appear to be comparable across both influencer types, possibly because these elements can be effectively designed or controlled in both human and virtual contexts. It's

worth being aware that such results could also be due to the stimulus of virtual and human influencers, who are based on the same photo but with different text content. Although several relationships were statistically significant, the corresponding effect sizes were small, indicating that the overall magnitude of these effects remains limited. Overall, the findings suggest that human influencers hold an advantage over virtual influencers in shaping trustworthiness, expertise, authenticity, homophily, and parasocial interaction. In contrast, attractiveness and perceived congruence appear to be relatively stable and are not significantly influenced by influencer type.

3.4 Moderating effects of cultural values on influencer type and influencer characteristics

Analysis based on individuals' cultural values: The moderating roles of cultural masculinity, long-term orientation, and uncertainty avoidance were examined to determine whether cultural values influence the relationship between influencer type (VI vs. HI) and influencer-related perceptions. As Table 10 shown, the moderating effects of cultural masculinity on the relationship between influencer type and influencer characteristics were examined using interaction terms in the structural model. The results indicated that **masculinity** significantly moderated several of these relationships. Specifically, significant negative interaction effects were found for trustworthiness ($\beta = -0.342$, $t = 5.381$, $p < .001$, $f^2 = 0.042$), expertise ($\beta = -0.261$, $t = 3.777$, $p < .001$, $f^2 = 0.025$), authenticity ($\beta = -0.212$, $t = 3.217$, $p = .001$, $f^2 = 0.016$), homophily ($\beta = -0.161$, $t = 2.388$, $p = .017$, $f^2 = 0.009$), and parasocial interaction ($\beta = -0.245$, $t = 3.865$, $p < .001$, $f^2 = 0.023$), thereby supporting hypotheses H8 (A), H8 (B), H8 (D), H8 (E), and H8 (F). The negative coefficients indicate that the positive effect of influencer type (i.e., the advantage of human over virtual influencers) becomes weaker as masculinity increases. In other words, in more masculine cultural contexts, the differences between virtual and human influencers in these characteristics are reduced.

Table 10. The moderating effects of cultural value on influencer type and influencer characteristics.

No.	Path	β	t	Sig.	f^2	Decision
H8 (A)	Masc x InfluencerType -> ITrust	-0.342	5.381	0.000	0.042	Accepted
H8 (B)	Masc x InfluencerType -> IExp	-0.261	3.777	0.000	0.025	Accepted
H8 (C)	Masc x InfluencerType -> IAttr	-0.126	1.877	0.061	0.006	Rejected
H8 (D)	Masc x InfluencerType -> IAuth	-0.212	3.217	0.001	0.016	Accepted
H8 (E)	Masc x InfluencerType -> Homoph	-0.161	2.388	0.017	0.009	Accepted
H8 (F)	Masc x InfluencerType -> ParaSoc	-0.245	3.865	0.000	0.023	Accepted
H8 (G)	Masc x InfluencerType -> Congr	-0.132	1.761	0.078	0.006	Rejected
H9(A)	LTO x InfluencerType -> TRST	0.143	1.645	0.100	0.003	Rejected
H9 (B)	LTO x InfluencerType -> EXPT	0.233	2.505	0.012*	0.009	Rejected
H9 (C)	LTO x InfluencerType -> ATTR	0.048	0.515	0.606	0.000	Rejected
H9 (D)	LTO x InfluencerType -> AUTH	0.207	2.203	0.028*	0.007	Rejected
H9 (E)	LTO x InfluencerType -> HOM	0.017	0.187	0.852	0.000	Rejected
H9 (F)	LTO x InfluencerType -> PSI	0.124	1.429	0.153	0.003	Rejected

No.	Path	β	t	Sig.	f^2	Decision
H27 (G)	LTO x InfluencerType -> CONGR	0.200	2.099	0.036*	0.006	Rejected
H10(A)	UA x InfluencerType -> TRST	0.052	0.567	0.571	0.000	Rejected
H10 (B)	UA x InfluencerType -> EXPT	0.052	0.570	0.569	0.000	Rejected
H10 (C)	UA x InfluencerType -> ATTR	-0.068	0.689	0.491	0.001	Rejected
H10 (D)	UA x InfluencerType -> AUTH	0.046	0.474	0.636	0.000	Rejected
H10 (E)	UA x InfluencerType -> HOM	-0.121	1.229	0.219	0.002	Rejected
H10 (F)	UA x InfluencerType -> PSI	0.069	0.694	0.488	0.001	Rejected
H10 (G)	UA x InfluencerType -> CONGR	-0.018	0.202	0.840	0.000	Rejected
Note(s): * indicates the p-value was significant, but the coefficient β was at a reversed direction from the hypothesis						

In contrast, the moderating effects of masculinity on attractiveness (β = -0.126, t = 1.877, p = .061) and influencer–product congruence (β = -0.132, t = 1.761, p = .078) were not statistically significant, leading to the **rejection of hypotheses H8 (C) and H8 (G).** Similar to the main effects, the effect sizes of the interaction terms were generally small, suggesting that while masculinity plays a moderating role in shaping perceptions of influencer characteristics, the magnitude of these effects remains limited. Overall, the findings suggest that cultural masculinity reduces the perceptual advantage of human influencers over virtual influencers, particularly in trustworthiness,

expertise, authenticity, homophily, and parasocial interactions, while having no significant impact on attractiveness and perceived congruence.

The moderating effects of **long-term orientation** (LTO) on the relationship between influencer type and influencer characteristics were examined using interaction terms in the structural model. Overall, the results indicate limited support for the proposed moderating role of LTO. Most interaction effects were not statistically significant, including those for trustworthiness ($\beta = 0.143$, $p = .100$), attractiveness ($\beta = 0.048$, $p = .606$), homophily ($\beta = 0.017$, $p = .852$), and parasocial interaction ($\beta = 0.124$, $p = .153$). Although statistically significant interaction effects were observed for expertise ($\beta = 0.233$, $p = .012$), authenticity ($\beta = 0.207$, $p = .028$), and influencer–product congruence ($\beta = 0.200$, $p = .036$), **all hypotheses (H9 A–G) were rejected.** This is because the direction of the effects contradicts the proposed hypotheses. Specifically, the hypotheses predicted that higher levels of long-term orientation would weaken the advantage of human influencers over virtual influencers. However, the positive interaction coefficients indicate the opposite effect: as long-term orientation increases, the difference between human and virtual influencers becomes stronger rather than weaker. In other words, individuals with higher long-term orientation tend to perceive human influencers even more favourably compared to virtual influencers in terms of expertise, authenticity, and congruence. Therefore, despite some statistically significant moderation effects, the lack of consistency with the hypothesised direction leads to the rejection of all hypotheses related to long-term orientation. Overall, these findings suggest that long-term orientation does not function as expected in reducing the relative advantage of human influencers. Instead, it may reinforce preference for human influencers in certain dimensions, although the effect sizes remain small. This indicates that the moderating role of long-term orientation in influencer perception is limited and may operate differently from initial theoretical expectations.

The moderating effects of **uncertainty avoidance** on the relationship between influencer type and influencer characteristics were examined using

interaction terms in the structural model. The results indicated that uncertainty avoidance did not significantly moderate any of the examined relationships. Specifically, the interaction effects were not statistically significant for trustworthiness (β = 0.052, t = 0.567, p = .571), expertise (β = 0.052, t = 0.570, p = .569), attractiveness (β = -0.068, t = 0.689, p = .491), authenticity (β = 0.046, t = 0.474, p = .636), homophily (β = -0.121, t = 1.229, p = .219), parasocial interaction (β = 0.069, t = 0.694, p = .488), and influencer–product congruence (β = -0.018, t = 0.202, p = .840). Consequently, **hypotheses H10 (A) through H10 (G) were all rejected.** These findings suggest that uncertainty avoidance does not influence the extent to which influencer type affects perceptions of influencer characteristics. In other words, the differences between virtual and human influencers remain consistent regardless of individuals' levels of uncertainty avoidance. Additionally, the effect sizes associated with the interaction terms were negligible, further indicating that uncertainty avoidance does not play a meaningful moderating role in this context.

3.5 Cross-country comparison on influencer type and influencer characteristics

Although the main data analysis of culture in this dissertation is based on individual-level cultural values, the country-specific comparison is retained as a complementary robustness analysis. Cross-cultural marketing and consumer research often combines cultural-dimension analysis with country comparison because these two approaches answer different questions: cultural dimensions explain why consumers may differ, while country comparisons show whether the observed effects are stable across national contexts. This combined approach is particularly relevant in digital marketing, social media, influencer marketing, and technology-acceptance research, where consumer behaviour may be shaped both by individual cultural values and by broader country-level contexts, such as market development, technology familiarity, and social

media practices (Choi & Geistfeld, 2004; Lee et al., 2018; Parboteeah et al., 2005; Yang, 2022; Kikumori et al., 2025).

To complement the analysis of cultural comparison, a Factorial ANOVA by SPSS provided cross-country comparisons among the three countries: China, Spain and Lithuania. Post hoc Bonferroni comparisons were conducted to examine cross-country differences in cultural values (See Table 11), revealing significant effects for masculinity ($F = 42.012$, $p < .001$), uncertainty avoidance ($F = 13.168$, $p < .001$), and long-term orientation ($F = 8.024$, $p < .001$). For masculinity, Chinese respondents reported significantly higher scores than both Lithuanian (Mdiff = 1.05282, $p < .001$) and Spanish participants (Mdiff = 0.73601, $p < .001$), while Spanish respondents also scored significantly higher than Lithuanian respondents (Mdiff = 0.31681, $p = .025$), indicating a clear ranking of China > Spain > Lithuania. For uncertainty avoidance, Chinese respondents again scored significantly higher than both Lithuanian (Mdiff = 0.41061, $p < .001$) and Spanish respondents (Mdiff = 0.38237, $p < .001$), whereas no significant difference was observed between Lithuania and Spain ($p = 1.000$). A similar pattern was found for long-term orientation, where Chinese respondents reported significantly higher levels than Lithuanian (Mdiff = 0.32839, $p < .001$) and Spanish participants (Mdiff = 0.25638, $p = .009$), with no significant difference between Lithuania and Spain ($p = 1.000$). Overall, the findings indicate that Chinese participants consistently exhibit higher levels across all three cultural dimensions, while Lithuania and Spain show relatively similar profiles, differing only in masculinity. These findings are largely consistent with Hofstede's cultural dimensions framework. According to Hofstede (2010), China is characterised by relatively higher long-term orientation, and in many interpretations, stronger performance-oriented (masculinity-related) values compared to several European countries, which aligns with the significantly higher scores observed among Chinese respondents. However, the results diverge from Hofstede's national index for uncertainty avoidance, which classifies China as relatively low in uncertainty avoidance compared to many

European countries. In the present study, Chinese respondents reported the highest uncertainty avoidance, suggesting that individual-level cultural orientations in contemporary samples may differ from the national scores, as noted in prior cross-cultural research (Taras et al., 2012).

Table 11. Cultural values by countries.

Cultural values	(I) Country	(J) Country	Mean Difference (I-J)	Sig.	F
Masculinity	China	Lithuania	1.05282*	<.001	42.012
		Spain	.73601*	<.001	
	Lithuania	China	-1.05282*	<.001	
		Spain	-.31681*	0.025	
	Spain	China	-.73601*	<.001	
		Lithuania	.31681*	0.025	
Uncertainty Avoidance	China	Lithuania	.41061*	<.001	13.168
		Spain	.38237*	<.001	
	Lithuania	China	-.41061*	<.001	
		Spain	-0.02824	1	
	Spain	China	-.38237*	<.001	
		Lithuania	0.02824	1	
Long-term Orientation	China	Lithuania	.32839*	<.001	8.024
		Spain	.25638*	0.009	
	Lithuania	China	-.32839*	<.001	
		Spain	-0.07201	1	
	Spain	China	-.25638*	0.009	
		Lithuania	0.07201	1	

To ensure the robustness of the results, country-specific pairwise comparisons were conducted to determine whether the human influencer advantage over the virtual influencer varies across national contexts. The results show a highly consistent pattern: the HI–VI gap was pronounced in Lithuania and Spain but largely absent in China (See 5). For trustworthiness,

no significant difference emerged between HI and VI in China (ΔM = 0.124, p = .420), whereas HI was rated significantly higher than VI in Lithuania (ΔM = 0.802, p < .001) and Spain (ΔM = 0.520, p < .001). A similar pattern was observed for expertise: the HI–VI contrast was nonsignificant in China (ΔM = 0.113, p = .430) but significant in Lithuania (ΔM = 0.556, p < .001) and Spain (ΔM = 0.301, p = .040). For authenticity, the difference remained nonsignificant in China (ΔM = 0.147, p = .309) and marginal in Spain (ΔM = 0.269, p = .070) but was strong and significant in Lithuania (ΔM = 0.581, p < .001). Regarding homophily, HI did not differ from VI in China (ΔM = 0.093, p = .567), while the HI advantage was significant in Spain (ΔM = 0.390, p = .019) and borderline in Lithuania (ΔM = 0.331, p = .050). For parasocial interaction, the HI–VI difference was significant only in Spain (ΔM = 0.423, p = .009) and nonsignificant in China (ΔM = 0.058, p = .714) and Lithuania (ΔM = 0.215, p = .190). For attractiveness, HI exceeded VI only in Lithuania (ΔM = 0.376, p = .011), with no differences in China (ΔM = 0.054, p = .706) or Spain (ΔM = −0.010, p = .948). Finally, influencer–product congruence showed no significant HI–VI differences in any country (China: ΔM = 0.070, p = .658; Lithuania: ΔM = 0.197, p = .230; Spain: ΔM = 0.041, p = .799).

These country-specific comparisons align closely with the earlier moderation findings for cultural masculinity. Previously, masculinity significantly moderated the effect of influencer type on trustworthiness, expertise, authenticity, and homophily, with negative interaction coefficients (i.e., higher masculinity attenuated the HI-over-VI advantage). The country results were consistent with that pattern: the HI advantage on the above-mentioned characteristics was clearly present in Lithuania and Spain yet largely disappeared in China. In contrast, the earlier model indicated no moderation for congruence and parasocial interaction, and the country analyses similarly show no country differences for congruence and a more selective pattern for parasocial interaction (significant only in Spain). Taken together, the evidence suggests that cultural masculinity helps explain when audiences meaningfully differentiate between human and virtual influencers, particularly regarding

trustworthiness, expertise, authenticity, and homophily, whereas differences in attractiveness, parasocial interaction, and influencer–product congruence appear more limited or context-dependent.

3.6 Impact of influencer characteristics on message credibility

The relationships between influencer characteristics and message credibility were examined using Structural Equation Modeling (SEM) in SmartPLS 4. The results indicated that only a subset of influencer characteristics significantly influenced message credibility (See Table 12). Specifically, attractiveness ($\beta = 0.231$, $t = 3.655$, $p < .001$, $f^2 = 0.031$), parasocial interaction ($\beta = 0.198$, $t = 3.712$, $p < .001$, $f^2 = 0.025$), and influencer–product congruence ($\beta = 0.333$, $t = 8.773$, $p < .001$, $f^2 = 0.174$) had significant positive effects on message credibility, thereby **supporting hypotheses H13, H26, and H27.** These findings indicate that when influencers are perceived as visually appealing, when consumers experience stronger parasocial interactions with them, and when there is a higher perceived fit between the influencer and the product, the message is more likely to be regarded as credible. Among these, influencer–product congruence shows the strongest effect, suggesting that perceived alignment between the influencer and the endorsed product plays a particularly important role in shaping message credibility.

Table 12. Path coefficients of influencer characteristics and message credibility.

No.	Path	β	t	Sig.	f^2	Decision
H11	TRST -> MC	0.012	0.193	0.847	0.000	Reject
H12	EXPT -> MC	0.060	0.963	0.335	0.002	Reject
H13	ATTR -> MC	0.231	3.655	0.000	0.031	Accept
H14	AUTH -> MC	0.000	0.001	0.999	0.000	Reject
H15	HOM -> MC	0.111	1.875	0.061	0.006	Reject
H26	PSI -> MC	0.198	3.712	0.000	0.025	Accept
H27	CONGR -> MC	0.333	8.773	0.000	0.174	Accept

In contrast, trustworthiness (β = 0.012, t = 0.193, p = .847), expertise (β = 0.060, t = 0.963, p = .335), authenticity (β = 0.000, t = 0.001, p = .999), and homophily (β = 0.111, t = 1.875, p = .061) did not significantly influence message credibility, leading to the **rejection of hypotheses H11, H12, H14, and H15.** These non-significant results suggest that higher levels of perceived trustworthiness, expertise, authenticity, or similarity with the influencer do not necessarily translate into higher message credibility directly in this context. In particular, although homophily approaches significance, it does not reach the required threshold, indicating that perceived similarity alone is not sufficient to enhance message credibility. Overall, the findings suggest that message credibility is primarily influenced by attractiveness, parasocial interaction, and influencer–product congruence, whereas trustworthiness, expertise, authenticity, and homophily do not exert a direct effect.

Regarding the effect sizes, congruence demonstrated a large effect on message credibility (f^2 = 0.174), indicating that the alignment between the influencer and the product was a substantial predictor of perceived credibility. Parasocial interactions showed a small to moderate effect (f^2 = 0.025), suggesting a meaningful but more limited contribution. Attractiveness exhibited a small effect size (f^2 = 0.031), indicating a modest influence on message credibility.

Further analysis was carried out to examine the effects of influencer trustworthiness, expertise, attractiveness, authenticity and homophily on parasocial interactions. The results indicated that most influencer characteristics had a significant positive impact on parasocial interaction (See Table 13). Specifically, trustworthiness (β = 0.170, t = 3.023, p = .003, f^2 = 0.018) significantly influenced parasocial interaction, suggesting that when influencers are perceived as more reliable and honest, consumers are more likely to develop a sense of connection with them, and **H16 was accepted**. Attractiveness (β = 0.106, t = 2.165, p = .030, f^2 = 0.010) also showed a significant positive effect, indicating that visually appealing influencers are more likely to capture attention and facilitate the formation of interaction-like

relationships, which allows us to **accept H18.** Similarly, authenticity (β = 0.173, t = 3.342, p = .001, f^2 = 0.022) was found to significantly enhance parasocial interaction, implying that when influencers are perceived as genuine and sincere, consumers feel more engaged and emotionally connected, and therefore, **H19 was accepted**. Homophily (β = 0.468, t = 10.981, p < .001, f^2 = 0.209) exhibited the strongest effect among all variables, highlighting that perceived similarity between the influencer and the audience is a key driver in the development of parasocial interaction. This suggests that individuals are more likely to form stronger connections with influencers whom they perceive as sharing similar values, interests, or characteristics, and **H20 was accepted.**

Table 13. Path coefficients of influencer characteristics and parasocial interactions.

No.	Path	β	t	Sig.	f^2	Decision
H16	TRST -> PSI	0.170	3.023	0.003	0.018	Accepted
H17	EXPT -> PSI	0.102	1.945	0.052	0.008	Rejected
H18	ATTR -> PSI	0.106	2.165	0.030	0.010	Accepted
H19	AUTH -> PSI	0.173	3.342	0.001	0.022	Accepted
H20	HOM -> PSI	0.468	10.981	0.000	0.209	Accepted

In contrast, the effect of expertise on parasocial interaction (β = 0.102, t = 1.945, p = .052, f^2 = 0.008) was not statistically significant, leading to **the rejection of H17.** This non-significant result indicates that perceived knowledge or competence of the influencer does not substantially contribute to the formation of parasocial interaction. In other words, while expertise may be relevant for evaluating information quality or message credibility, it does not appear to strengthen the perceived relational bond between the influencer and the audience. Overall, the findings suggest that parasocial interaction is primarily influenced by characteristics related to perceived trust, attractiveness, authenticity, and especially homophily, whereas expertise does not play a meaningful role in this process.

Regarding the effect sizes, homophily demonstrated a large effect on parasocial interaction (f^2 = 0.209), indicating that perceived similarity

between the influencer and the audience was a substantial predictor of developing parasocial relationships. Authenticity showed a small to moderate effect (f^2 = 0.022), suggesting a meaningful but comparatively limited contribution. Trustworthiness also had a small effect (f^2 = 0.018), indicating a modest influence on parasocial interaction. Similarly, attractiveness exhibited a small effect size (f^2 = 0.010), reflecting a relatively minor role in shaping parasocial relationships.

The impacts of influencer trustworthiness, expertise, attractiveness, authenticity and homophily on influencer-product congruence were examined, and the results indicated that most influencer characteristics did not have a significant impact on influencer–product congruence (See Table 14). Specifically, trustworthiness (β = 0.087, t = 1.086, p = .277, f^2 = 0.002), expertise (β = 0.092, t = 1.254, p = .210, f^2 = 0.002), and attractiveness (β = 0.100, t = 1.483, p = .138, f^2 = 0.004) were not statistically significant, leading to the **rejection of hypotheses H21, H22, and H23.** These findings suggest that higher levels of perceived trustworthiness, expertise, or attractiveness of the influencer do not necessarily translate into a stronger perceived fit between the influencer and the endorsed product. Similarly, authenticity (β = 0.142, t = 1.824, p = .068, f^2 = 0.006) did not reach the required level of significance, resulting in the **rejection of H24,** although the effect approached the conventional threshold. This indicates that even when influencers are perceived as genuine or sincere, this does not significantly enhance perceptions of congruence in this context.

Table 14. Path coefficients of influencer characteristics and influencer-product congruence.

No.	Path	β	t	Sig.	f^2	Decision
H21	TRST -> CONGR	0.087	1.086	0.277	0.002	Rejected
H22	EXPT -> CONGR	0.092	1.254	0.210	0.002	Rejected
H23	ATTR -> CONGR	0.100	1.483	0.138	0.004	Rejected
H24	AUTH -> CONGR	0.142	1.824	0.068	0.006	Rejected
H25	HOM -> CONGR	0.284	4.487	0.000	0.031	Accepted

In contrast, homophily ($\beta = 0.284$, $t = 4.487$, $p < .001$, $f^2 = 0.031$) had a significant positive effect on influencer–product congruence, thereby **supporting hypothesis H25.** This result suggests that when consumers perceive a higher level of similarity with the influencer, they are more likely to view the influencer as a suitable and appropriate endorser of the product. Regarding the effect size, homophily demonstrated a small effect on congruence ($f^2 = 0.031$), indicating that perceived similarity between the influencer and the audience had a modest contribution to explaining congruence. Overall, the findings indicate that perceived similarity plays a key role in shaping influencer–product congruence, whereas trustworthiness, expertise, attractiveness, and authenticity do not exert a significant influence.

Additional mediating analysis was carried out to test the indirect effects of influencer trustworthiness, expertise, attractiveness, authenticity, and homophily on message credibility through parasocial interactions and influencer–product congruence. The results indicate that several influencer characteristics exert significant indirect effects on message credibility, although the patterns differ across constructs and mediating mechanisms (See Table 15).

Table 15. Total and specific indirect effects of influencer characteristics on message credibility via parasocial interactions and influencer-product congruence.

	Path	**β**	**t**	**Sig.**
Total indirect effects	TRST -> MC	0.063	1.933	0.054
	EXPT -> MC	0.051	1.922	0.055
	ATTR -> MC	0.054	2.329	0.020
	AUTH -> MC	0.081	2.865	0.004
	HOM -> MC	0.187	5.121	0.000
Specific indirect effects	TRST -> PSI -> MC	0.034	2.307	0.021
	EXPT -> PSI -> MC	0.020	1.753	0.080
	ATTR -> PSI -> MC	0.021	1.751	0.080
	AUTH -> PSI -> MC	0.034	2.465	0.014
	HOM -> PSI -> MC	0.093	3.515	0.000

	Path	β	t	Sig.
	TRST -> CONGR -> MC	0.029	1.068	0.286
	EXPT -> CONGR -> MC	0.031	1.243	0.214
	ATTR -> CONGR -> MC	0.033	1.442	0.149
	AUTH -> CONGR -> MC	0.047	1.781	0.075
	HOM -> CONGR -> MC	0.095	3.736	0.000

Further examination of specific indirect effects provides more detailed insights into the underlying mechanisms. Parasocial interactions emerged as an important mediator for several relationships. Specifically, homophily (β = 0.093, t = 3.515, p < .001), trustworthiness (β = 0.034, t = 2.307, p = .021), and authenticity (β = 0.034, t = 2.465, p = .014) had significant indirect effects on message credibility through parasocial interaction, indicating that these characteristics enhance credibility by strengthening the perceived relationship between the influencer and the audience. In contrast, expertise (β = 0.020, t = 1.753, p = .080) and attractiveness (β = 0.021, t = 1.751, p = .080) did not show significant indirect effects through this pathway.

With respect to influencer–product congruence as a mediator, homophily again demonstrated a significant indirect effect (β = 0.095, t = 3.736, p < .001), suggesting that perceived similarity also enhances credibility by increasing the perceived fit between the influencer and the product. However, the indirect effects of attractiveness (β = 0.033, t = 1.442, p = .149), authenticity (β = 0.047, t = 1.781, p = .075), expertise (β = 0.031, t = 1.243, p = .214), and trustworthiness (β = 0.029, t = 1.068, p = .286) through congruence were not statistically significant.

Overall, when considering both direct and indirect effects, the findings provide important insights into the mechanisms through which influencer characteristics shape message credibility. While attractiveness, parasocial interactions, and influencer–product congruence were found to have significant direct effects on message credibility, other characteristics such as trustworthiness, expertise, authenticity, and homophily did not demonstrate

significant direct relationships. However, the mediation analysis reveals that some of these non-significant direct effects operate indirectly through specific pathways. In particular, homophily shows a strong and consistent influence on message credibility through both parasocial interaction and influencer–product congruence, indicating a clear pattern of indirect-only mediation. Similarly, authenticity and trustworthiness, although not directly significant, exert significant indirect effects via parasocial interaction, suggesting that their influence on message credibility is transmitted through the development of a perceived relationship with the influencer. In contrast, attractiveness demonstrates both a significant direct effect and a significant total indirect effect, indicating partial mediation. Expertise, however, does not exhibit significant direct or indirect effects, suggesting a limited role in shaping message credibility within this model

3.7 The moderating role of influencer type on the relationship between influencer characteristics and message credibility

The moderating role of influencer type (virtual influencer = 0; human influencer = 1) on the relationships between influencer characteristics and outcome variables was examined using interaction terms within the PLS-SEM framework in SmartPLS 4. The results indicate that, overall, influencer type does not significantly moderate most of the examined relationships, as the majority of interaction effects are not statistically significant and exhibit negligible effect sizes (See Table 16).

Table 16. Moderating effects of influencer type (VI vs. HI) on the relationship between influencer characteristics and outcome variables.

Path	**β**	**t**	**Sig.**	**f^2**
InfluencerType x ATTR -> CONGR	0.068	0.594	0.552	0.001
InfluencerType x ATTR -> MC	-0.248	2.822	0.005	0.014
InfluencerType x ATTR -> PSI	-0.012	0.162	0.871	0.000
InfluencerType x AUTH -> CONGR	-0.030	0.252	0.801	0.000

Path	β	t	Sig.	f^2
InfluencerType x AUTH -> MC	0.074	0.792	0.428	0.001
InfluencerType x AUTH -> PSI	0.085	1.148	0.251	0.002
InfluencerType x EXPT -> CONGR	-0.113	0.946	0.344	0.001
InfluencerType x EXPT -> MC	0.158	1.713	0.087	0.004
InfluencerType x EXPT -> PSI	-0.101	1.183	0.237	0.003
InfluencerType x HOM -> CONGR	0.074	0.798	0.425	0.001
InfluencerType x HOM -> MC	0.007	0.095	0.925	0.000
InfluencerType x HOM -> PSI	-0.033	0.515	0.607	0.001
InfluencerType x TRST -> CONGR	0.140	1.121	0.263	0.002
InfluencerType x TRST -> MC	0.044	0.436	0.663	0.000
InfluencerType x TRST -> PSI	0.000	0.005	0.996	0.000

Specifically, no significant moderating effects were found for the relationships between influencer characteristics and influencer–product congruence. The interaction terms for attractiveness (β = 0.068, t = 0.594, p = .552, f^2 = 0.001), authenticity (β = -0.030, t = 0.252, p = .801, f^2 = 0.000), expertise (β = -0.113, t = 0.946, p = .344, f^2 = 0.001), homophily (β = 0.074, t = 0.798, p = .425, f^2 = 0.001), and trustworthiness (β = 0.140, t = 1.121, p = .263, f^2 = 0.002) were all non-significant, indicating that influencer type does not alter how these characteristics influence perceived congruence. Similarly, the moderating effects on parasocial interaction were not significant across all characteristics, including attractiveness (β = -0.012, t = 0.162, p = .871, f^2 = 0.000), authenticity (β = 0.085, t = 1.148, p = .251, f^2 = 0.002), expertise (β = -0.101, t = 1.183, p = .237, f^2 = 0.003), homophily (β = -0.033, t = 0.515, p = .607, f^2 = 0.001), and trustworthiness (β = 0.000, t = 0.005, p = .996, f^2 = 0.000), suggesting that the effects of these characteristics on parasocial interaction are consistent across both virtual and human influencers.

In contrast, a **significant moderating effect** was observed for the relationship between **attractiveness** and **message credibility** (β = -0.248, t = 2.822, p = .005, f^2 = 0.014). Although statistically significant, the effect size

is small, indicating a limited practical impact. The negative coefficient suggests that the positive effect of attractiveness on message credibility is weaker for human influencers compared to virtual influencers. In other words, attractiveness plays a more important role in influencing message credibility when the influencer is virtual. No other significant moderation effects were found for message credibility, as the interaction terms for authenticity (β = 0.074, t = 0.792, p = .428, f^2 = 0.001), expertise (β = 0.158, t = 1.713, p = .087, f^2 = 0.004), homophily (β = 0.007, t = 0.095, p = .925, f^2 = 0.000), and trustworthiness (β = 0.044, t = 0.436, p = .663, f^2 = 0.000) were all non-significant and associated with negligible effect sizes.

Overall, the findings indicate that influencer type has a very limited moderating role in the model. The predominantly non-significant interaction effects, combined with negligible effect sizes, suggest that the relationships between influencer characteristics and outcome variables are largely stable across virtual and human influencer conditions. The only exception is the moderating effect of attractiveness on message credibility, which, despite being statistically significant, exhibits a small effect size, indicating that its practical importance is modest. Theoretically, this finding suggests that attractiveness functions differently depending on the nature of the influencer. In the case of virtual influencers, attractiveness may serve as a more salient heuristic cue in the absence of human authenticity cues, leading consumers to rely more heavily on visual appeal when evaluating message credibility. In contrast, for human influencers, other characteristics such as trustworthiness, authenticity, or relational connection may play a more central role, thereby reducing the relative importance of attractiveness.

3.8 The impact of influencer parasocial interactions, congruence and message credibility on attitudes and purchase intention

The impacts of influencer parasocial interactions, influencer-product congruence, and massage credibility on consumers' attitudes towards the product and purchase intention were further tested by the structural equation

model. As Table 17 presents, the results showed that parasocial interactions had a positive and statistically significant effect on attitude toward the product ($\beta = 0.121$, $t = 3.380$, $p = 0.001$). This indicated that stronger parasocial relationships between influencers and followers were associated with more favourable product attitudes. Therefore, **H28 was accepted**. Congruence was found to have a positive and highly significant effect on attitude toward the product ($\beta = 0.543$, $t = 13.811$, $p < 0.001$). This suggested that a higher perceived fit between the influencer and the promoted product led to more positive consumer attitudes. Therefore, **H29 was accepted.** Message credibility also demonstrated a positive and statistically significant effect on attitude toward the product ($\beta = 0.222$, $t = 4.388$, $p < 0.001$). This finding indicated that more credible and trustworthy messages enhanced consumers' evaluations of the product. Therefore, **H30 was accepted.** Attitude toward the product had a strong and statistically significant effect on purchase intention ($\beta = 0.590$, $t = 16.563$, $p < 0.001$). This result showed that more favourable attitudes toward the product led to a higher likelihood of purchase intention. Therefore, **H31 was accepted.** Subjective norms, defined in this study as the tendency of individuals to seek information and shopping advice from influencers or virtual influencers, were also found to have a positive and significant effect on purchase intention ($\beta = 0.414$, $t = 9.143$, $p < 0.001$). This indicated that consumers who relied more on influencers for guidance and recommendations were more likely to develop stronger purchase intentions. Therefore, **H32 was accepted.**

Table 17. Path coefficients of influencer parasocial interactions, congruence, message credibility, attitudes and purchase intention.

No.	Path	β	t	Sig.	f^2	Decision
H28	PSI -> AttProd	0.121	3.380	0.001	0.019	Accepted
H29	CONGR -> AttProd	0.543	13.811	0.000	0.396	Accepted
H30	MC -> AttProd	0.222	4.388	0.000	0.041	Accepted
H31	AttProd -> PurInt	0.590	16.563	0.000	0.763	Accepted
H32	SubNor -> PurInt	0.414	9.143	0.000	0.232	Accepted

Regarding effect sizes, congruence exhibited a large effect on attitude toward the product ($f^2 = 0.396$), indicating its substantial contribution to explaining variance in attitudes. Attitude toward the product showed a very large effect on purchase intention ($f^2 = 0.763$), making it the strongest predictor in the model. Subjective norms demonstrated a moderate effect on purchase intention ($f^2 = 0.232$). In contrast, message credibility had a small-to-moderate effect on attitude toward the product ($f^2 = 0.041$), whereas parasocial interaction showed a small effect ($f^2 = 0.019$), suggesting a more limited practical contribution compared to the other predictors.

Overall, the findings consistently supported the proposed structural relationships, demonstrating that both influencer and content-related factors played important roles in shaping consumer responses. In particular, the results emphasised the dominant role of influencer-product congruence in shaping attitudes, as well as the critical influence of attitudes on purchase intention. Additionally, the significance of subjective norms highlighted the importance of influencers as sources of information and shopping advice, reinforcing their role not only in shaping perceptions but also in guiding consumer decision-making behaviour.

3.9 The mediating effects of influencer type on downstream consumer responses through influencer characteristics

The mediation analysis further examined whether influencer type affected the main downstream outcomes through indirect pathways. The results show that influencer type had a significant total indirect effect on message credibility ($\beta = 0.149$, $t = 2.810$, $p = 0.005$), indicating that the difference between human and virtual influencers was transmitted to message credibility through intervening perceptual mechanisms (See table 18). The significant specific indirect effects suggest that this effect operated mainly through parasocial interaction: influencer type influenced message credibility through authenticity and parasocial interaction ($\beta = 0.010$, $p = 0.022$), trustworthiness and parasocial interaction ($\beta = 0.011$, $p = 0.028$), and homophily and parasocial interaction ($\beta = 0.015$, $p = 0.036$). In addition, one fit-based

pathway was significant, whereby influencer type affected message credibility through homophily and influencer–product congruence (β = 0.019, p = 0.019).

Table 18. Total indirect effects and significant specific indirect effects of influencer type on downstream consumer responses via influencer characteristics.

	Path	**β**	**t**	**Sig.**
Total indirect effects	InfluencerType -> AttPr	0.073	1.611	0.107
	InfluencerType -> MC	0.149	2.810	0.005
	InfluencerType -> PI	0.043	1.599	0.110
Significant specific indirect effects	InfluencerType -> HOM -> CONGR -> MC	0.019	2.348	0.019
	InfluencerType -> AUTH -> PSI -> MC	0.010	2.298	0.022
	InfluencerType -> TRST -> PSI -> MC	0.011	2.198	0.028
	InfluencerType -> HOM -> PSI -> MC	0.015	2.097	0.036

However, the total indirect effects of influencer type on attitudes toward the product (β = 0.073, t = 1.611, p = 0.107) and purchase intention (β = 0.043, t = 1.599, p = 0.110) were not significant. This indicates that although influencer type indirectly shaped message credibility, this indirect influence did not significantly extend to attitudes towards the product or purchase intention. Therefore, the results suggest that the main mediating role of influencer type appears at the message credibility stage, rather than at the final attitudinal or behavioural outcome stage.

3.10 The moderating role of the interaction of influencer type and message frame valence

First, the moderating role of the influencer type on the relationship between message credibility, parasocial interactions, congruence, and attitudes towards the product was tested by the structural equation model using SmartPLS4. The results show that the interaction between influencer type and the three predictors was not significant in explaining attitudes toward the product (See Table 19). Specifically, influencer type did not significantly moderate the relationship between influencer–product congruence and product attitude (β = −0.047, p = 0.586), message credibility and product attitude (β = 0.120, p = 0.193), or parasocial interaction and product attitude (β = 0.065, p = 0.379).

Therefore, the effects of congruence, message credibility, and parasocial interaction on product attitude appear to be relatively stable across human and virtual influencer conditions. This suggests that once consumers perceive the message as credible, feel a relational connection with the influencer, or perceive good influencer–product fit, these factors influence product attitudes similarly regardless of whether the influencer is human or virtual.

Table 19. Moderating effect of influencer type (VI vs. HI) on the relationships between message credibility, parasocial interaction, influencer-product congruence, and attitudes towards the product.

Path	**β**	**t**	**Sig.**
InfluencerType x CONGR -> AttProd	-0.047	0.545	0.586
InfluencerType x MC -> AttProd	0.120	1.302	0.193
InfluencerType x PSI -> AttProd	0.065	0.880	0.379

The moderating effect of message valence on the relationships between influencer–product congruence, message credibility, parasocial interactions, and attitudes toward the product was examined separately for human and virtual influencers. The results show that message valence significantly moderated only the relationship between influencer–product congruence and product attitude in the human influencer condition ($\beta = -0.314$, $t = 2.877$, $p = 0.004$, $f^2 = 0.031$). This indicates that, when the influencer was human, the effect of perceived influencer–product fit on product attitude depended on whether the message was framed positively or negatively. However, message valence did not significantly moderate the effects of message credibility or parasocial interactions on product attitude for human influencers. In the virtual influencer condition, none of the moderation effects was significant, suggesting that message valence did not substantially change how congruence, message credibility, or parasocial interaction influenced product attitude.

Table 20. Moderating effect of message frame valence on the relationship of message credibility and attitudes towards the product.

Influencer type	**Path**	**β**	**t**	**Sig.**	**f^2**
Human influencer	MessageValence x CONGR -> AttProd	-0.314	2.877	0.004	0.031
	MessageValence x MC -> AttProd	0.156	1.278	0.201	0.007
	MessageValence x PSI -> AttProd	0.086	0.822	0.411	0.003
Virtual influencer	MessageValence x CONGR -> AttProd	-0.085	0.666	0.506	0.002
	MessageValence x MC -> AttProd	0.124	0.971	0.332	0.004
	MessageValence x PSI -> AttProd	-0.119	1.241	0.215	0.004

The moderating effect of the interaction between influencer type and message frame valence was examined by multi-group analysis (MGA) to determine whether the effects of message credibility, parasocial interactions, and influencer–product congruence on attitudes toward the product differ across the four experimental conditions: human influencer with positive message, human influencer with negative message, virtual influencer with positive message, and virtual influencer with negative message. The results provide evidence that the effect of message credibility on attitudes toward the product differs across specific influencer type–message valence combinations (See Table 21). The MGA results show a significant difference between a human influencer with a positive message and a virtual influencer with a negative message for the path from message credibility to product attitude (HP − VN = 0.290, p = 0.013). This suggests that message credibility translated more strongly into favourable product attitudes when the message was delivered by a human influencer with a positive frame than when it was delivered by a virtual influencer with a negative frame. Therefore, **H33(A) was accepted.**

Table 21. Multi-group analysis (MGA) of influencer type (VI vs. HI) and message frame valence (Positive vs. Negative).

Path	Comparison	Difference	p value
MC -> AttPr	HN - HP	-0.224	0.067
	HP - VN	0.290	0.013
	HN - VN	0.066	0.572
	HN - VP	-0.078	0.567
	HP - VP	0.146	0.280
	VN - VP	-0.144	0.276
CONGR -> AttPr	HN - HP	0.322	0.003
	HP - VN	-0.292	0.009
	HN - VN	0.029	0.767
	HN - VP	0.097	0.423
	HP - VP	-0.225	0.078
	VN - VP	0.067	0.579
Note: HI with a positive message (HP), HI with a negative message (HN), VI with a positive message (VP), VI with a negative message (VN).			

For influencer–product congruence, the results also indicate significant group differences. The effect of congruence on attitudes toward the product differed significantly between human influencer with negative message and human influencer with positive message (HN − HP = 0.322, p = 0.003), and between human influencer with positive message and virtual influencer with negative message (HP − VN = −0.292, p = 0.009). In addition, the subgroup moderation analysis showed that message valence significantly moderated the congruence–attitude relationship in the human influencer condition (β = −0.314, t = 2.877, p = 0.004). These findings suggest that the role of influencer–product fit in shaping product attitudes depends on both the type of influencer and the message frame. Therefore, **H33(C) is accepted**.

However, the evidence for parasocial interaction is weaker. The moderation analysis showed that message valence did not significantly moderate the relationship between parasocial interaction and product attitude in either the human influencer condition or the virtual influencer condition.

Therefore, the interaction between influencer type and message frame valence does not appear to significantly change how parasocial interaction affects attitudes toward the product. Thus, **H33(B) is rejected**.

Overall, the findings indicate that the interaction between influencer type and message frame valence matters for some persuasion pathways, but not all. Specifically, the interaction was relevant for the message credibility-attitude path and the influencer-product congruence-attitude path, whereas it was not supported for the parasocial interaction-attitude path. For message credibility, the strongest contrast emerged between the human-positive and virtual-negative conditions, suggesting that credibility is more effectively translated into favourable product attitudes when the source-message combination is more favourable. For influencer-product congruence, the results indicate that perceived fit becomes particularly important in specific message conditions, especially when other persuasive cues are less favourable. Therefore, the findings suggest that the joint effect of influencer type and message valence is selective rather than universal.

3.11 The moderating role of the interaction of influencer type and product type

First, the moderating role of the influencer type on the relationship between subjective norms and purchase intention was tested by the structural equation model using SmartPLS4. The moderating effect of influencer type on the relationship between subjective norms and purchase intention was not supported (see Table 22). The interaction between influencer type and subjective norms was not statistically significant ($\beta = -0.025$, $t = 0.638$, $p = 0.524$), indicating that the influence of subjective norms on purchase intention did not differ between human and virtual influencers. In addition, the effect size was negligible ($f^2 = 0.001$), suggesting that influencer type did not meaningfully alter this relationship. Overall, these results indicate that the

impact of subjective norms on purchase intention remained consistent regardless of whether consumers relied on human or virtual influencers.

Table 22. Moderating effect of influencer type (VI vs. HI) on the relationship between subjective norms and purchase intention.

Path	**β**	**t**	**Sig.**	**f^2**
InfluencerType x SubNor -> PurInt	-0.025	0.638	0.524	0.001

The moderating effect of product type on the relationship between subjective norms and purchase intention differed across influencer types (see Table 23). For human influencers, the interaction between product type and subjective norms was not statistically significant (β = -0.066, t = 1.247, p = 0.213), indicating that the influence of subjective norms on purchase intention did not vary between search and experience goods in this context. In contrast, for virtual influencers, product type exhibited a significant moderating effect (β = -0.199, t = 3.370, p = 0.001). This result indicated that the relationship between subjective norms and purchase intention differed depending on whether the product was a search or an experience good when information was obtained from virtual influencers. The effect size was small to moderate (f^2 = 0.034), suggesting a meaningful, though not large, moderating influence. Overall, these findings indicate that product type plays a moderating role only in the context of virtual influencers, but not for human influencers.

Table 23. Moderating effect of product type (search vs. experience goods) on the relationship between subjective norms and purchase intention.

Influencer type	**Path**	**β**	**t**	**Sig.**	**f^2**
Human influencer	ProductType x SubNor -> PurInt	-0.066	1.247	0.213	0.005
Virtual influencer	ProductType x SubNor -> PurInt	-0.199	3.370	0.001	0.034

Furthermore, MGA was conducted to examine whether the interaction between influencer type (VI vs HI) and product type (search vs experience goods) moderates the structural relationships between subjective norms and purchase intention (See table 24). No significant difference was found between human influencers promoting experience goods and search goods (HE vs. HS: $\Delta\beta = 0.011$, $p = 0.891$), nor between human influencers with experience goods and virtual influencers with experience goods (HE vs. VE: $\Delta\beta = 0.130$, $p = 0.086$), and human influencers with search goods and virtual influencers with experience goods (HS vs. VE: $\Delta\beta = 0.119$, $p = 0.180$). These results indicate that, in these conditions, the influence of subjective norms on purchase intention remained comparable.

Table 24. MGA of influencer type (VI vs. HI) and product type (search vs. experience goods).

Path	**Comparison**	**Difference**	**p value**
SubNor ->PurInt	HE - HS	0.011	0.891
	HE - VE	0.130	0.086
	HE - VS	-0.236	0.010
	HS - VE	0.119	0.180
	HS - VS	-0.247	0.018
	VE - VS	-0.365	0.000
Note: HI with search goods (HS), HI with experience goods (HE), VI with search goods (VS), VI with experience goods (VE).			

However, several significant differences emerged. The relationship was significantly stronger for virtual influencers with search goods compared to human influencers with experience goods (HE vs. VS: $\Delta\beta = -0.236$, $p = 0.010$). Similarly, a significant difference was found between human influencers with search goods and virtual influencers with search goods (HS vs. VS: $\Delta\beta = -0.247$, $p = 0.018$), indicating a stronger effect in the virtual influencer–search goods condition. Additionally, the largest difference was observed between virtual influencers with experience goods and virtual influencers with search

goods (VE vs. VS: $\Delta\beta = -0.365$, $p = 0.000$), suggesting that subjective norms had a substantially stronger impact on purchase intention when virtual influencers promoted search goods rather than experience goods. Therefore, H34 was accepted. Overall, these findings indicate that the influence of subjective norms on purchase intention is particularly enhanced in the context of virtual influencers promoting search goods, while it is comparatively weaker in other combinations, especially those involving virtual influencers promoting experience goods.

3.12 Summary of results

The study allowed to confirm most hypotheses, and this contributed to the existing scientific findings in the field of influencer marketing. Summarised results are provided in Figure 6.

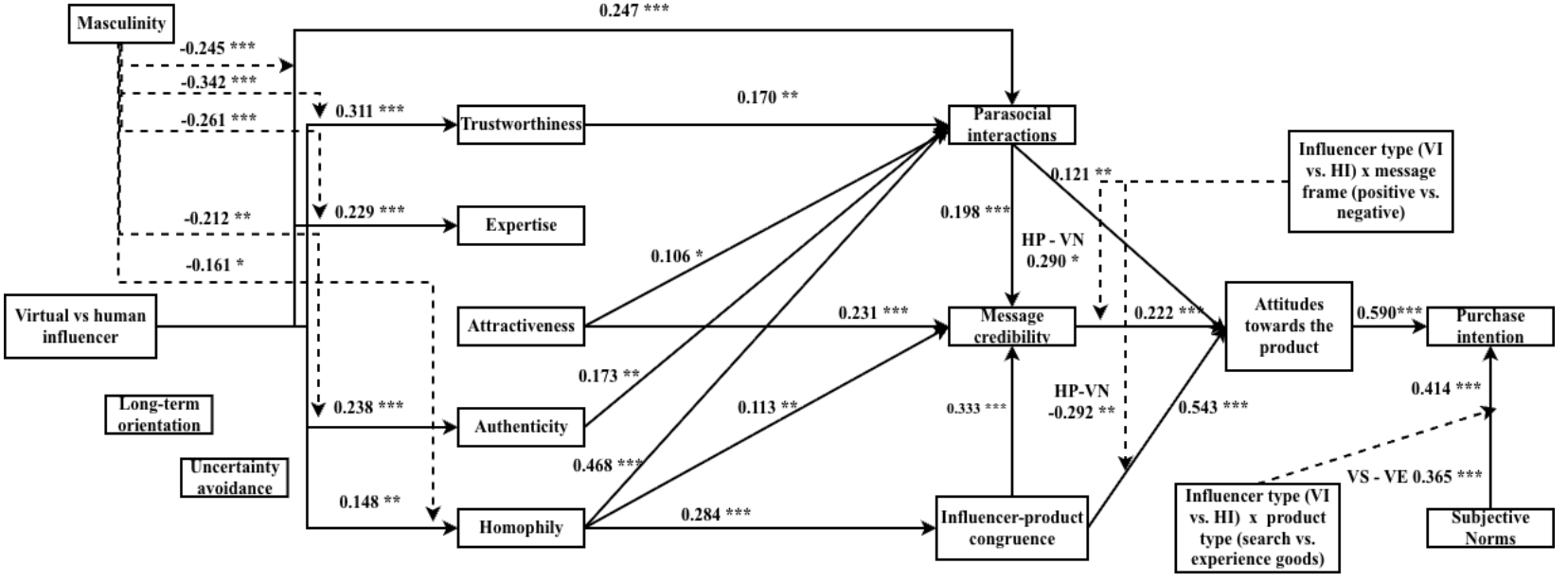


Figure 6. Summarised Results of the Impact of Virtual and Human Influencer Characteristics on Purchase Intention

Arrows show accepted hypotheses only, *p < .05; **p < .01; ***p < .0

H1 - H7 proposed that influencer type (VI vs. HI) has an impact on influencer characteristics. The results provide partial support for the direct effects of influencer type on perceived influencer characteristics. H1, H2, H4, and H5 were supported, indicating that human influencers were perceived as significantly more trustworthy, expert, authentic, and similar (homophily) than virtual influencers. However, H3 was rejected, as no significant difference was found between human and virtual influencers in terms of attractiveness. Furthermore, H6 was accepted, demonstrating that influencer type significantly affected parasocial interaction. In contrast, H7 was rejected, as influencer type did not directly influence perceptions of influencer–product congruence. Overall, these findings suggest that the persuasive advantage of human influencers is grounded primarily in parasocial interactions, homophily, authenticity, trustworthiness and expertise, rather than physical attractiveness or direct congruence perceptions.

H8 – H10 stated the moderating effects of cultural dimensions. The moderating role of masculinity (H8) received partial support. Specifically, H8(A), H8(B), H8(D), H8(E) and H8(F) were supported, indicating that masculinity significantly negatively moderated the effect of influencer type (VI vs. HI) on trustworthiness, expertise, authenticity, homophily and parasocial interactions. However, H8(C) and H8(G) were rejected, as masculinity did not significantly moderate the effects on attractiveness or congruence. Overall, results indicate that higher cultural masculinity values weaken the advantage of human influencer over virtual influencer in trustworthiness, expertise, authenticity, homophily and parasocial interactions, but have no moderating effects on attractiveness or influencer-product congruence.

The moderating role of long-term orientation H9 was unsupported. Although statistically significant interactions were observed for expertise and authenticity, the moderating direction was reversed from the hypotheses, and the effect sizes were negligible; therefore, the hypotheses were rejected. Thus, H9(A)–H9(G) were rejected overall. Similarly, uncertainty avoidance H10 did

not significantly moderate any of the proposed relationships. Therefore, H10(A)–H10(G) were rejected.

H11 to H15, together with H26 and H27, proposed that influencer characteristics influence message credibility. The results showed that H13, H26, and H27 were supported, indicating that attractiveness, parasocial interactions, and influencer-product congruence had significant positive effects on message credibility. However, H11, H12, H14, and H15 were rejected, as trustworthiness, expertise, authenticity, and homophily did not significantly affect message credibility. This suggests that consumers rely more on affective and relational cues rather than traditional credibility-based attributes when evaluating influencer messages.

H16 to H20 proposed that influencer characteristics affect parasocial interaction. The findings supported H16, H18, H19, and H20, demonstrating that trustworthiness, attractiveness, authenticity, and homophily significantly influenced parasocial interaction. In contrast, H17 was not supported, as expertise did not show a significant effect. These results highlight the importance of credibility, authenticity and relational attributes in fostering parasocial bonds between consumers and influencers.

H21 to H25 proposed that influencer characteristics influence influencer–product congruence. The results provided limited support, with only H25 being supported, indicating that homophily significantly predicted congruence. Hypotheses H21, H22, H23, and H24 were rejected, suggesting that trustworthiness, expertise, attractiveness, and authenticity did not significantly contribute to perceptions of congruence.

The mediation analysis examined the indirect effects of influencer characteristics on message credibility through parasocial interactions and influencer–product congruence. The results indicated that parasocial interactions served as a significant mediator of the effects of trustworthiness, authenticity, and homophily, whereas this mediating role was not supported for expertise and attractiveness. Mediation through influencer–product congruence was largely unsupported, except for the homophily. Overall, these

findings suggest that parasocial interactions are a more important mediating mechanism than congruence in explaining how influencer characteristics influence message credibility.

H28 to H32 proposed relationships among parasocial interactions, influencer-product congruence, message credibility, attitudes towards the product, subjective norms and purchase intention. All hypotheses in this set were supported. Parasocial interactions, congruence, and message credibility significantly influenced attitudes towards the product, while attitudes and subjective norms significantly predicted purchase intention. These findings confirm the central role of attitudinal formation and social influence in shaping consumer behavioural intentions.

The moderating role of influencer type on relationships within the model was also examined. The results indicated that influencer type alone did not significantly moderate the relationships between message credibility, parasocial interactions, influencer-product congruence, and attitudes toward the product. This suggests that, once these persuasion-related mechanisms are formed, their effects on product attitudes operate in a broadly similar way for both virtual and human influencers. Therefore, the role of influencer type is not a general moderator of these attitude-formation paths, but becomes more meaningful when it is considered together with message frame valence and product type.

H33 proposed that the relationships between message credibility, parasocial interaction, influencer-product congruence, and attitudes toward the product are moderated by the interaction between influencer type and message frame valence. The results provide partial support for this hypothesis. Specifically, the interaction significantly moderated the relationship between message credibility and product attitude, supporting H33(A), and the relationship between influencer-product congruence and product attitude, supporting H33(C). However, the interpretation of these two mechanisms differs. The credibility-attitude relationship was strongest in the human-positive condition and weakest in the virtual-negative condition, whereas

congruence showed meaningful differences across specific message and influencer-type combinations, indicating that perceived fit may become more important when other persuasive cues are weaker. The moderating effect was not significant for parasocial interaction; therefore, H33(B) was not supported. Overall, H33 was partially accepted.

H34 proposed that the interaction of influencer type and product type (search vs. experience goods) moderates the relationship between subjective norms and purchase intention. The results supported this hypothesis. Specifically, the moderation effect was not significant for human influencers, indicating that the impact of subjective norms on purchase intention did not differ between search and experience goods in the human influencer context. In contrast, a significant moderation effect was observed for virtual influencers, suggesting that the strength of the relationship between subjective norms and purchase intention varied across product types when the information source was a virtual influencer. The multi-group analysis further refined these findings. No significant differences were identified between the two human influencer conditions (search vs. experience goods), nor between human influencers and virtual influencers when both promoted experience goods. However, significant differences emerged when comparing virtual influencers promoting search goods with other conditions, including both human influencer conditions and the virtual influencer–experience goods condition. These results indicate that the relationship between subjective norms and purchase intention was strongest in the virtual influencer–search goods condition and weakest in the virtual influencer–experience goods condition, thereby supporting H34 and highlighting that the moderating role of the interaction is context-specific rather than universal across all conditions.

4. SCIENTIFIC DISCUSSION

The present study sought to examine how influencer type (virtual vs. human) shapes consumer perceptions and how influencer characteristics influence message credibility, attitudes toward the product, and purchase intention. In addition to these core relationships, subjective norms were incorporated as a key antecedent of purchase intention, capturing the role of social influence and individuals' tendency to rely on influencers for information and shopping advice. The study also accounted for cultural values as moderating factors, alongside other contextual variables. In particular, message frame valence (positive vs. negative) and product type (search vs. experience goods) were examined in interaction with influencer type to better understand how different conditions influence consumer responses. Using a comparative design between influencer type, message frame valence and product type, the study developed and tested a comprehensive framework that integrates direct, mediating, and moderating relationships. By doing so, it provides a more nuanced understanding of how consumers process influencer-driven communications across different product categories, message strategies, and cultural contexts, and how these factors jointly shape attitudinal and behavioural outcomes.

The findings related to influencer type should first be considered in light of the experimental design. In this study, the visual stimulus was held constant across conditions, with only the description of influencer type (virtual vs. human) being manipulated. This design allows for a clearer isolation of the psychological and perceptual effects of influencer type, independent of visual differences. As such, any observed differences in perceived characteristics can be attributed to the conceptual distinction between human and virtual influencers rather than to variations in appearance. The results provide important insights into how influencer type shapes consumer perceptions of influencer characteristics. The comparison between virtual and human influencers in most previous studies has been largely limited to source

credibility and downstream consequences (e.g., Lee & Ham, 2023; Li et al., 2023). This study extends the scope of research by incorporating a broader set of influencer characteristics that have been extensively examined in the context of human influencer marketing. The results indicate that human influencers demonstrated a clear advantage in most of the relational and credibility-based dimensions, including trustworthiness, expertise, and authenticity. This pattern is consistent with emerging research suggesting that consumers may perceive virtual influencers as less authentic or trustworthy because they lack real-life experiences and human identities (Sands et al., 2022; Lee & Ham, 2023). The stronger perception of homophily (perceived similarity) in human influencers as compared to virtual influencers further supports this view, as consumers are more likely to identify with human influencers, which enhances perceived closeness and social connection. The stronger effect on parasocial interaction reinforces the importance of emotional and relational bonds in influencer marketing. Human influencers appear more capable of fostering parasocial relationships, likely because their lived experiences and perceived authenticity make interactions feel more real and meaningful. This finding aligns with parasocial interaction theory, which emphasises the role of perceived intimacy and emotional engagement in shaping audience responses (Gao et al., 2025). In contrast, virtual influencers, despite their ability to form parasocial interactions with followers, may face limitations in generating the same level of emotional attachment due to their artificial nature.

Interestingly, no significant difference was found in perceived attractiveness between human and virtual influencers. This suggests that virtual influencers have reached a level of visual sophistication that allows them to compete with human influencers in terms of appearance. This finding extends prior research by indicating that attractiveness is no longer a distinguishing factor between the two types of influencers. Instead, it highlights that visual appeal alone is insufficient to drive persuasive effectiveness and that deeper relational, trustworthy and authentic related

attributes play a more critical role. The absence of a direct effect of influencer type on influencer–product congruence provides an additional theoretical insight. It suggests that consumers evaluate the fit between an influencer and a product independently of whether the influencer is human or virtual. This implies that congruence may be driven more by contextual alignment, such as brand positioning or message consistency, rather than the inherent nature of the influencer. This finding offers a more nuanced understanding of congruence formation and challenges the assumption that human influencers naturally exhibit higher levels of perceived fit. Taken together, these findings suggest that the persuasive advantage of human influencers lies primarily in their ability to establish trust, authenticity, and interpersonal connection (perceived homophily and parasocial interactions), rather than in attractiveness or influencer-product fit. This extends existing literature by highlighting the growing parity in aesthetic presentation and product matchup, while simultaneously emphasising the continued importance of psychological and social mechanisms in shaping influencer effectiveness.

Importantly, these findings help reconcile mixed results in previous research on human versus virtual influencers. Prior studies provide mixed evidence regarding the relative effectiveness of human and virtual influencers. Some studies suggest a human-influencer advantage, showing that virtual influencers may generate lower credibility, perceived persuasion effectiveness, purchase intention, source trust, or sensory-based endorsement effectiveness (Sands et al., 2022; Lee & Ham, 2023; Li et al., 2023). However, this advantage is not consistent across all outcomes, as virtual influencers may also stimulate engagement-related responses due to novelty (Sands et al., 2022; Li et al., 2023). In contrast, De Cicco et al. (2024) found no significant differences between human and virtual influencers in trust, attitudes, or perceived social presence, suggesting that the two influencer types may be similarly effective under certain conditions. The present study suggests that these inconsistencies may arise because influencer type does not create a uniform advantage across all dimensions of persuasion. Instead, the human-

virtual difference is attribute-specific. Human influencers retain a stronger advantage in characteristics that depend on perceived realness, lived experience, psychological closeness, and interpersonal connection, such as trustworthiness, authenticity, homophily, and parasocial interaction. By contrast, virtual influencers can compete more effectively with human influencers in dimensions that are visually constructed or contextually assigned, such as attractiveness and influencer-product congruence. This finding extends previous virtual influencer research by shifting the question from whether human or virtual influencers are generally more effective to identifying the specific attributes through which they differ.

The findings regarding the moderating role of masculinity provide nuanced insights into how cultural values shape consumer perceptions of influencer characteristics. The results indicate that masculinity weakens the advantage of human influencers over virtual influencers in terms of trustworthiness, expertise, authenticity, homophily, and parasocial interactions. This suggests that in contexts where individuals hold stronger masculine values—emphasising achievement, performance, and goal-oriented outcomes—the relational, credibility and authenticity-based advantages typically associated with human influencers become less pronounced. This finding can be interpreted through the lens of cultural value theory. Masculine cultures tend to prioritize efficiency, success, and functional outcomes over emotional connection and relational closeness (Hofstede, 2001). As a result, consumers with higher masculinity orientations may place less importance on attributes such as authenticity, similarity, and emotional bonding, which are traditionally stronger for human influencers. Instead, they may evaluate both human and virtual influencers more instrumentally, thereby reducing the perceptual gap between the two. This aligns with prior research suggesting that cultural values influence how consumers process persuasive messages and evaluate sources of information (De Mooij & Hofstede, 2010). The results coincide with the previous scholars' findings that people from masculine

cultures are more open to adopting information technology than those from feminine cultures (Venkatesh & Morris, 2000; Ford et al., 2003).

The absence of a moderating effect of masculinity on attractiveness suggests that, unlike other influencer characteristics, attractiveness was perceived at a similar level across both influencer types and did not differ according to cultural masculinity values. This finding indicates that the perceived visual appeal of an influencer is less sensitive to cultural values and less dependent on the human versus virtual distinction. While prior literature often associates human influencers with greater overall credibility (Li et al., 2023), attractiveness appears to function as a more surface-level attribute that can be equally conveyed by virtual representations. This implies that advancements in digital design and visual presentation have enabled virtual influencers to match human influencers in terms of aesthetic appeal, thereby reducing any potential advantage of human influencers in this specific dimension. Similarly, the non-significant moderating effect on influencer–product congruence suggests that perceptions of fit between the influencer and the product were not influenced by masculinity and did not differ meaningfully between human and virtual influencers. This indicates that congruence is evaluated based on factors beyond the nature of the influencer, such as the alignment between the product and the communicated message or context. In contrast to relational characteristics, which are more sensitive to cultural values and influencer type, congruence appears to be a more cognitively driven evaluation that remains stable across different influencer formats.

Furthermore, the moderating results align with the country-comparison analysis conducted in the study. Chinese respondents, with the highest masculinity level, evaluated virtual and human influencers similarly across all characteristics included, including trustworthiness, expertise, attractiveness, authenticity, homophily, parasocial interaction, and influencer–product congruence. In contrast, Lithuanian respondents rated human influencers significantly higher than virtual influencers on trustworthiness, expertise,

attractiveness, authenticity, and homophily, while no significant difference was observed for parasocial interaction and influencer–product congruence. Spanish respondents showed a more mixed pattern: human influencers were evaluated significantly higher on expertise, homophily, and parasocial interactions, while no significant differences were observed between human and virtual influencers in trustworthiness, attractiveness, authenticity, and influencer–product congruence. These cross-country differences are consistent with the moderating role of cultural masculinity identified in the structural model. These findings highlight the importance of considering cultural context when designing influencer marketing strategies across international markets.

Contrary to the initial hypothesis, long-term orientation positively moderated the relationship between influencer type and perceived expertise and authenticity, such that the perceptual advantage of human over virtual influencers was stronger in cultures characterised by higher long-term orientation. This finding diverges from technology acceptance-based reasoning, which would suggest that future-oriented societies may be more open to technological agents such as AI-related products (Chi et al., 2023). The explanation can be that consumers tend to evaluate information sources more cautiously and emphasise credibility, authenticity, and practical reliability in cultures characterised by high long-term orientation. Because virtual influencers represent technological and artificial agents, they may be perceived as less proven and less socially grounded compared to human influencers. Consequently, individuals in long-term oriented cultures may rely more heavily on human influencers who demonstrate real experience, expertise, and authenticity accumulated over time. This cautious evaluation process aligns with research suggesting that long-term oriented societies tend to adopt innovations more gradually and only after their social legitimacy and practical value have been established (Yalcinkaya, 2008; Chandrasekaran & Tellis, 2008; Lee et al., 2013). As a result, rather than increasing acceptance of technological agents such as virtual influencers, higher long-term

orientation may reinforce preferences for credible, experienced, and authentic human sources, thereby amplifying the perceptual advantage of human influencers.

The non-significant moderating effect of uncertainty avoidance suggests that individuals' cultural preference for reducing uncertainty does not substantially alter how they perceive influencer characteristics between virtual and human influencers. This challenges traditional assumptions that uncertainty avoidance consistently influences consumer responses to novel or technology-driven stimuli (Hofstede, 2001). Instead, the results indicate that virtual influencers may have become sufficiently normalised, reducing the perceived uncertainty associated with them (Appel et al., 2020). Consequently, consumers' perceived differences between virtual and human influencers are not risk-related but rather rely on perceptual and relational cues, such as authenticity and parasocial interactions.

The findings provide important implications for understanding how influencer characteristics translate into message credibility within the framework of the Information Adoption Model. Different from traditional expectations derived from source credibility theory, not all credibility-based attributes directly enhanced message credibility. Instead, only attractiveness, parasocial interactions, and influencer–product congruence exerted significant positive effects. This suggests that consumers do not rely solely on conventional credibility dimensions such as trustworthiness, expertise, and authenticity when evaluating influencer messages. Rather, the adoption of information appears to be more strongly influenced by influencer's physical attractiveness, relational cues between the influencer and consumers, and the fit between the influencer and product. The non-significant effects of trustworthiness, expertise, authenticity, and homophily on message credibility are particularly noteworthy, as they diverge from prior literature that positions these attributes as significant determinants of persuasive effectiveness (Duh & Thabethe, 2021; Theocharis & Papaioannou, 2020). One possible explanation is that these characteristics may not directly translate into

perceived message credibility but instead operate through more proximal psychological mechanisms. Consumers may first form relational or experiential connections with influencers before evaluating the credibility of the message itself. This interpretation is supported by the strong mediating role of parasocial interactions, which reflects emotional engagement and perceived interpersonal closeness.

The results related to parasocial interaction further reinforce its key role in the persuasion process. Trustworthiness, attractiveness, authenticity, and homophily all significantly contributed to the development of parasocial relationships, highlighting the importance of both credibility and relational cues in fostering emotional bonds. The mediation analysis provides further clarity on the underlying mechanisms. Parasocial interaction emerged as the primary pathway through which influencer characteristics influenced message credibility, particularly for trustworthiness, authenticity, and homophily. This finding is consistent with prior research emphasising that parasocial interaction is driven by perceived similarity, authenticity, and interpersonal connection (Yuan & Lou, 2020a; Lou & Kim, 2019) and serves as an important mediator role in persuasive process involving both human and virtual influencers (Kuo & LE, 2025).

Influencer–product congruence emerged as a highly important construct within the model, particularly because it was the strongest predictor of message credibility. This confirms the important role of influencer–product congruence in fostering consumer trust toward virtual influencers, which is consistent with the findings of Alboqami (2023). Although most influencer characteristics did not significantly influence congruence, homophily did exert a positive effect, indicating that perceived similarity between the influencer and the audience plays a critical role in shaping perceptions of fit between the influencer and the promoted product. This suggests that congruence is not broadly determined by all influencer attributes but is especially rooted in whether consumers see the influencer as someone similar to themselves. Once this sense of fit is established, however, congruence

becomes highly influential in strengthening message credibility. Therefore, the findings imply that congruence should not be viewed as a weak construct in the model; rather, it functions as a powerful proximal driver of message credibility, even though its antecedents appear to be relatively selective.

Notably, the consistently non-significant role of expertise across all relationships suggests that expertise, as operationalised in this study, may not function as a salient cue in shaping consumer responses. While prior literature often positions expertise as a key determinant of credibility (Wiedmann & Mettenheim, 2020; Alboqami, 2023), the present findings indicate that technical competence did not translate into higher message credibility, stronger parasocial interactions, or greater perceived congruence. One plausible explanation relates to the nature of the expertise cue used. The research adopted a common reality that influencers endorse products beyond their original expertise fields. Therefore, the influencer's expertise was framed in the domain of music, whereas the promoted products (a restaurant and an SSD hard drive) were unrelated to this domain. As a result, the expertise cue may not have been sufficiently salient in evaluating the influencer's relational cues and the message credibility.

The mediation analysis of influencer type on downstream consumer responses suggests that the distinction between human and virtual influencers operates mainly through intermediate evaluative mechanisms rather than directly translating into final behavioural outcomes. This finding is consistent with prior influencer marketing research showing that source-related perceptions, such as trustworthiness, authenticity, similarity, and parasocial interaction, play an important role in shaping consumers' evaluation of influencer messages (Lou & Yuan, 2019; Reinikainen et al., 2020; Sokolova & Kefi, 2020). It also aligns with research on influencer–product fit, which suggests that perceived congruence strengthens message credibility and advertising effectiveness by making the endorsement appear more appropriate and convincing (Belanche et al., 2021; Janssen et al., 2021; Kim & Kim, 2021b). The present findings extend this literature by showing that influencer

type indirectly affects message credibility through relational and fit-based pathways, particularly through parasocial interaction and influencer–product congruence. However, the non-significant indirect effects on product attitude and purchase intention suggest that differences between human and virtual influencers are more influential at the message credibility formation stage than at the final attitude or behavioural intention stage.

The findings suggest that influencer type plays different roles across the persuasion process, exhibiting limited moderating effects on the relationships between influencer characteristics and their downstream consequences, but a significant moderating effect on the relationship between message credibility and attitudes toward the product. The findings indicate that influencer type does not broadly moderate the relationships between influencer characteristics and their downstream effects, with the exception of attractiveness, although this effect is negligible. The negative moderating effect suggests that attractiveness has a weaker impact on message credibility for human influencers than for virtual influencers. This implies that attractiveness may serve as a more salient cue for virtual influencers. However, given the small effect size, this difference has limited practical significance. This partially aligns with existing literature suggesting that differences between virtual and human influencers are diminishing, particularly as virtual influencers become more sophisticated and capable of conveying credible information (De Cicco et al., 2024; Ozdemir et al., 2023). However, the results also extend prior studies by demonstrating that even when message credibility is established, consumers may respond differently depending on the influencer type. Specifically, credible messages from human influencers may be more readily internalised into favourable attitudes due to their perceived realism, whereas messages from virtual influencers may not generate the same level of attitudinal impact despite being perceived as credible. This observation aligns with previous research indicating that consumers often maintain psychological distance from virtual influencers due to their artificial nature (Moustakas et al., 2020) and not always process VI's messages deeply (De

Cicco et al., 2024). It indicates that influencer type acts as a conditional factor influencing the effectiveness of an influencer's endorsement at the message aspect, rather than as a broad moderator across influencer characteristics, thereby providing a more refined understanding of how virtual and human influencers differ in shaping consumer responses.

Building on this, the interaction between influencer type and message frame valence provides additional but more specific insights into the message credibility–attitude relationship. The results show that message valence did not consistently moderate this relationship across all conditions. A significant difference appeared only between the human influencer–positive message condition and the virtual influencer–negative message condition. This suggests that influencer type does not create a universal advantage but becomes most influential when source type and message valence are strongly contrasted. In other words, human influencers appear better able to convert message credibility into favourable product attitudes under positive communication conditions, whereas virtual influencers are less effective under negative message framing. This interpretation is consistent with Ozdemir et al. (2023), who found that virtual influencers were generally less credible and less effective than human influencers, but this difference disappeared when rational rather than emotional language was used. This supports the idea that virtual influencers are more persuasive when their communication is factual, information-based, and cognitively oriented. The present study extends this argument by showing that this fit also applies to product type: virtual influencers are more effective for search goods, where consumers rely on objective and verifiable information, but less effective for experience goods, which require sensory or personal evaluation.

Furthermore, the interaction between influencer type and message frame valence also significantly moderates the relationship between influencer–product congruence and attitudes toward the product. The results show that congruence has a stronger impact on attitudes in the virtual influencer–negative message condition compared to the human influencer–

positive message condition, suggesting that consumers rely more on perceived fit when other persuasive cues are less favourable. This indicates a compensatory effect, where congruence becomes more influential when the source (virtual influencer) and message framing (negative) are weaker, whereas its relative importance diminishes under more favourable conditions.

Finally, the findings regarding the interaction between influencer type and product type provide important insights into the boundary conditions of social influence in shaping purchase intention. While subjective norms consistently influenced purchase intention, their strength varied depending on the combination of influencer type and product type, with a significant effect observed only in the virtual influencer context. Specifically, the stronger relationship in the virtual influencer–search goods condition suggests that consumers place greater importance on others' opinions and recommendations when virtual influencers promote products with objectively verifiable attributes. This may be because virtual influencers are perceived as more suitable for conveying information about search goods, whereas for experience goods, consumers may question their ability to genuinely evaluate sensory aspects (Li et al., 2023; Lee & Yuan, 2023), thereby weakening the impact of subjective norms. In contrast, this distinction does not appear for human influencers, as they are assumed to possess real consumption experience across both product types, resulting in a more consistent influence of subjective norms. This result suggests consumers may rely more on social influence from virtual influencers when the product is information-based rather than experience-based.

Overall, the findings provide a comprehensive understanding of how influencer marketing operates across different contexts by integrating influencer characteristics, cultural factors, and behavioural frameworks. The results show that human influencers hold advantages in relational and credibility-based characteristics (e.g., trustworthiness, authenticity, homophily, and parasocial interactions), while attractiveness and congruence are perceived similarly across influencer types. Cultural values play

differentiated roles, with masculinity significantly weakening the advantage of humans over virtual influencers across most characteristics (except attractiveness and congruence), while other dimensions show limited moderating effects. Within the IAM framework, influencer characteristics influence message credibility both directly and indirectly, with parasocial interaction acting as a key mechanism and congruence emerging as the strongest predictor of credibility, whereas expertise shows limited relevance, potentially due to domain mismatch. In turn, message credibility, parasocial interactions, and congruence drive attitudes, and together with subjective norms determine purchase intention in line with TRA. The moderating analyses further indicate that influencer type plays a selective role, particularly in shaping how message credibility translates into attitudes toward the product. This effect is further conditioned by message frame valence, with the impact of message credibility on attitudes being strongest in the human influencer–positive message condition and weakest in the virtual influencer–negative message condition, suggesting that favourable source and message combinations amplify persuasion. Furthermore, the interaction between influencer type and product type reveals that the effect of subjective norms on purchase intention is strongest when virtual influencers promote search goods and weakest when virtual influencers promote experience goods, highlighting the importance of alignment between influencer capabilities and product characteristics. Collectively, these findings demonstrate that influencer effectiveness is driven by the interplay of source credibility, argument quality, cultural context, and social influence, offering an integrated extension of IAM and TRA within the influencer marketing context.

CONCLUSIONS AND IMPLICATIONS

Conclusions: This dissertation set out to examine how influencer type (virtual vs. human influencer) shapes perceived influencer characteristics in different cultural value orientations and how these characteristics translate into message credibility, attitudes toward the product, and purchase intention, under varying conditions of message framing and product type. By integrating the Information Adoption Model (IAM) and the Theory of Reasoned Action (TRA), the study developed a comprehensive framework that captures the cognitive, relational, and social mechanisms underlying influencer marketing effectiveness. The research was successfully conducted, and the stated objectives were achieved. Based on the study's findings, several conclusions are significant for both the academic community and practitioners and businesses.

The comparison between virtual and human influencers reveals that human influencers generally possess advantages in most of the relational and credibility-based characteristics. In particular, human influencers are perceived as more trustworthy, expert, authentic, and similar to the audience, and were more effective in fostering parasocial interactions. These results suggest that the strength of human influencers lies in their ability to establish psychological closeness and social connection with consumers. In contrast, no significant differences are observed in perceived attractiveness and influencer–product congruence, indicating that virtual influencers are able to match human influencers in terms of visual appeal and perceived fit with the product.

The study adopts Hofstede’s cultural theory to examine how cultural values influence influencer persuasion processes across different countries. The results demonstrate that, out of the three cultural dimensions examined, only masculinity plays a significant moderating role, while long-term orientation and uncertainty avoidance show limited moderating effect on the relationships between influencer type and the evaluated influencer

characteristics. Specifically, cultural masculinity negatively moderated the relationship between influencer type and influencer characteristics, such that the perceptual advantage of humans over virtual influencers in terms of trustworthiness, expertise, authenticity, homophily and parasocial interactions decreased in cultures characterised by higher masculinity. Cross-country comparisons supported this pattern, with Chinese respondents showing minimal differences in evaluations of human and virtual influencers across these characteristics, while Lithuanian respondents rated human influencers significantly higher and Spanish respondents displayed a more moderate pattern. These findings highlight the importance of considering cultural context when evaluating influencer effectiveness and suggest that cultural values shape how consumers interpret and evaluate key influencer characteristics.

The Information Adoption Model is proven to be a suitable theoretical framework for investigating the persuasive processes associated with both virtual and human influencers. Within the framework of IAM, influencer characteristics and message credibility operate through differentiated pathways in shaping attitudes toward the product. Influencer characteristics do not uniformly influence message credibility; instead, most characteristics, except expertise, contribute either directly or indirectly. Attractiveness, parasocial interaction, and influencer–product congruence have direct positive effects on message credibility, with congruence emerging as the strongest predictor, while trustworthiness, authenticity, and homophily influence credibility indirectly through parasocial interaction. In addition, homophily also plays a role in enhancing influencer–product congruence, indicating that perceived similarity contributes to stronger perceptions of fit between the influencer and the product. These results indicate that message credibility is formed through both source credibility cues and argument-related evaluations, consistent with IAM. In turn, message credibility, together with parasocial interaction and congruence, significantly drives attitudes toward the product, suggesting that consumers form favourable evaluations when influencer

characteristics enhance both the perceived credibility of the source and the relevance of the message.

Within the framework of the Theory of Reasoned Action (TRA), attitudes toward the product and subjective norms serve as key determinants of purchase intention. The results indicate that attitudes toward the product significantly influence purchase intention, confirming that consumers' evaluative judgments play a central role in guiding behavioural intention. At the same time, subjective norms also exert a significant effect, reflecting the importance of social influence and the role of influencers as sources of information and shopping advice. This suggests that consumers are not only driven by their own evaluations of the product but also by the perceived expectations and recommendations from others, particularly influencers. Together, these findings support the TRA framework by demonstrating that both individual attitudes and social influence jointly shape purchase intention in both virtual and human influencer marketing context.

The moderating role of influencer type appears to limited and conditional. The findings suggest that influencer type alone does not significantly change how message credibility, parasocial interactions, or influencer-product congruence influence attitudes toward the product. This means that, once these persuasion-related mechanisms are established, their effects on product attitudes operate in a broadly similar way for both virtual and human influencers. However, influencer type becomes more meaningful when it is considered together with message frame valence. The comparison across experimental conditions shows that the credibility-attitude relationship is strongest when a human influencer delivers a positive message and weakest when a virtual influencer delivers a negative message. Therefore, the conclusion is not that influencer type directly changes all attitude-formation mechanisms, but rather that its influence is conditional on the message context. This finding suggests that the persuasive role of virtual versus human influencers depends less on influencer type alone and more on how influencer type is aligned with the framing of the message.

The interaction between influencer type and product type further highlights the context-dependent nature of social influence in shaping purchase intention. The results indicate that this interaction moderates the relationship between subjective norms and purchase intention in a selective manner. Specifically, the effect of subjective norms is significantly stronger in the virtual influencer–search goods condition, while no significant differences are observed across product types in the human influencer context. This suggests that consumers place greater importance on others' opinions and recommendations when virtual influencers promote products with objectively verifiable attributes, where information-based evaluation is more relevant. In contrast, for experience goods, consumers may question the ability of virtual influencers to provide meaningful evaluations due to the lack of real consumption experience, thereby weakening the influence of subjective norms. For human influencers, however, this distinction does not emerge, as they are assumed to possess experiential knowledge across both product types, resulting in a more stable influence of subjective norms. This highlights that the effectiveness of social influence depends on the alignment between influencer capabilities and product characteristics, reinforcing the importance of considering both source and product context in understanding consumer decision-making.

Overall, the study addresses the fragmented understanding of how virtual and human influencers differ in perceptions and driving consumer responses by integrating source-related, message-related, and social influence perspectives into a single framework.

Theoretical contributions and novelty findings: The dissertation provides several theoretical contributions to the influencer marketing literature by clarifying where virtual and human influencers differ, when these differences matter, and how cultural conditions, message frame valence and product type shape the persuasion process.

First, the study contributes by identifying the specific influencer characteristics on which virtual and human influencers differ. Rather than

treating influencer type as a general source cue or comparing virtual and human influencers only in terms of overall effectiveness, the dissertation shows that differences between the two influencer types are attribute-specific. The novel findings indicate that the human–virtual influencer distinction is evident in most of the relational and credibility-based characteristics, such as trustworthiness, expertise, authenticity, homophily, and parasocial interactions, while the distinction is weaker for characteristics such as attractiveness and influencer–product congruence. This contributes to theoretical knowledge by showing that not all influencer characteristics are equally dependent on human presence. Some characteristics appear more closely connected to perceived humanness, agency, and relational capacity, whereas others may be more transferable to virtual influencers.

Second, the dissertation offers a novel contribution to empirically validate the moderating role of cultural masculinity in influencer evaluation. This represents a novel contribution, as cultural dimensions have rarely been integrated into virtual influencer research. The results show that individual-level masculinity moderates the relationship between influencer type and perceived characteristics, reducing the perceptual advantage of human influencers in more masculine cultures. Furthermore, these findings are supported by cross-country comparisons: Chinese respondents (representing higher masculinity) exhibit minimal differences in their evaluations of virtual and human influencers, whereas Lithuanian respondents show a stronger preference for human influencers, and Spanish respondents display intermediate patterns. This cross-cultural validation strengthens the generalisability of the findings and highlights the importance of cultural context in digital persuasion.

Third, the study provides a novel interaction-based finding by showing how influencer type and message frame valence jointly shape persuasion. The findings show that the effect of message credibility on attitudes toward the product depends on the combination of influencer type and message framing. More specifically, the persuasive role of message credibility is stronger under

favourable source–message conditions, such as human influencers delivering positively framed messages, and weaker under less favourable combinations, such as virtual influencers delivering negatively framed messages. In addition, the findings suggest that influencer–product congruence may become more important when message credibility is weakened, indicating that perceived fit can serve as an alternative persuasive cue. This contributes to the Information Adoption Model by showing that credibility does not influence attitudes in a fixed way; rather, its effect depends on the alignment between source and message characteristics.

Fourth, the dissertation provides a novel finding on the importance of aligning influencer type with product type. The results show that the effect of subjective norms on purchase intention varies depending on the combination of influencer type and product type. In particular, social influence appears to be more relevant when virtual influencers promote search goods, where product evaluation is based more on objective, information-based attributes. This suggests that consumers may be more willing to rely on social norms and recommendations related to virtual influencers when the product can be evaluated through clear and factual information. In contrast, for experience goods, where sensory experience and personal evaluation are more important, the role of virtual influencers may be more limited. Therefore, the novelty of this contribution lies in showing that the persuasive role of virtual influencers depends on product evaluability, and that virtual influencers may be more accepted as sources of information for search goods than for experience goods.

Managerial implications: The findings of this study provide several practical implications for businesses and marketing practitioners who employ influencers in digital marketing strategies.

The findings indicate that human influencers retain a persuasive advantage over virtual influencers, particularly in terms of perceived authenticity, trustworthiness, similarity and interactions with consumers. This has direct implications for campaign design: Human influencers are more effective in building trust, authenticity, and relational connection, which are

critical for converting message credibility into favourable attitudes. Therefore, brands aiming to strengthen brand perception and emotional engagement should prioritise human influencers. In contrast, virtual influencers can be effectively utilised in contexts where visual appeal and controlled messaging are important, particularly when relational depth is less critical.

The study highlights the importance of cultural values in shaping consumer perceptions of influencers. The moderating role of cultural masculinity suggests that the perceived characteristics of human versus virtual influencers are not universal but vary across markets. For multinational companies, this implies the need for localised influencer strategies that account for cultural values and social norms. In more masculine cultures, where performance, status, and efficiency are emphasised, the gap between human and virtual influencers may be reduced. In contrast, in more feminine cultures that value warmth, relationships, and authenticity, human influencers may be significantly more persuasive. Accordingly, global brands should avoid a "one-size-fits-all" approach and instead tailor influencer selection and communication strategies to cultural expectations.

The results highlight the importance of aligning influencers with products to maximise perceived congruence. As influencer–product congruence emerged as the strongest driver of message credibility, marketers should ensure that influencer endorsements are perceived as relevant and appropriate. This can be achieved by selecting influencers whose image, lifestyle, or audience aligns with the product, rather than relying solely on popularity or reach. This is particularly important for virtual influencers, whose credibility is more dependent on perceived fit due to the absence of real-life experience. For virtual influencers, carefully designing their persona, content, and brand associations to match the product category can help compensate for this limitation and enhance perceived authenticity. In addition, fostering parasocial interaction through authentic and engaging content can further strengthen the persuasive effectiveness of both human and virtual influencer campaigns. The findings emphasise the strategic importance of

message framing in influencer marketing. The effectiveness of influencer communication is determined not only by who delivers the message but also by how it is framed. The results suggest that positively framed messages, particularly when delivered by human influencers, can amplify the impact of message credibility on consumer attitudes. This indicates that marketers should carefully design the tone, emotional appeal, and framing of influencer content, ensuring alignment between message strategy and influencer characteristics. Integrating message framing decisions into influencer selection processes can enhance campaign coherence and effectiveness.

The findings suggest that message design should be considered jointly with influencer type. Positive message framing is particularly effective when combined with human influencers, as this combination strengthens the impact of message credibility on consumer attitudes. Conversely, less favourable combinations, such as virtual influencers delivering negatively framed messages, may weaken persuasion. This may be explained by the fact that consumers are generally less motivated to process messages from virtual influencers, possibly due to lower perceived social presence or authenticity, which reduces the extent to which message credibility is translated into favourable attitudes. As a result, the effectiveness of virtual influencer campaigns is more sensitive to message design. This implies that marketers should not treat message framing and influencer selection as independent decisions, but rather carefully align them to enhance consumer engagement and maximise campaign effectiveness.

The study demonstrates that product type plays a crucial role in determining the effectiveness of social influence. Virtual influencers are more effective in promoting search goods, where product attributes are objective and information-based, as consumers are more willing to rely on structured information and social recommendations in such contexts. However, for experience goods, where sensory evaluation and personal experience are important, human influencers are more appropriate due to their perceived ability to provide authentic and experiential insights. This highlights the

importance of matching influencer capabilities with product characteristics to enhance credibility and persuasion. For businesses, this implies that influencer selection should be strategically aligned with product type: virtual influencers can be leveraged for technology, electronics, or functional products where specifications and controlled messaging are key, while human influencers should be prioritised for products such as food, travel, or services that require experiential validation. In addition, firms using virtual influencers for experience goods may need to compensate by incorporating richer storytelling, user-generated content, or hybrid strategies that involve human endorsements to enhance perceived authenticity, while also leveraging the strong visual appeal of virtual influencers to maintain consumer attention and engagement.

Limitations and future research directions: The author has noticed these possible limitations of the research.

One limitation of the study relates to the language of the questionnaire. Although the data were collected from respondents in China, Lithuania, and Spain, the survey was administered in English. While English is widely used in online environments, especially among the followers of international influencers, respondents may interpret questions differently when answering in a non-native language. This may influence how constructs such as authenticity, trustworthiness, or homophily are understood. Future research could improve measurement accuracy by conducting surveys in respondents' native languages and applying translation–back-translation procedures.

Another limitation concerns the use of a single AI-modified image based on a real individual to represent both the human and virtual influencer conditions. Although this approach ensured experimental control, it may limit the generalisability of the findings. Different influencer appearances, personalities, or communication styles could influence consumer perceptions of credibility, authenticity, and attractiveness. Future research could incorporate multiple influencer profiles with different visual and demographic characteristics to examine whether the observed effects remain consistent across different influencer representations.

The stimulus image was based on a white male, which may have influenced participants' evaluations, particularly among Chinese respondents. Notably, Western or Caucasian individuals can sometimes be associated with status, prestige, or international legitimacy in certain Asian contexts, which may positively influence perceptions in marketing and advertising settings (Gan, 2023; Yeung, 2015). Due to these cultural perceptions, the evaluation of the influencer in this study may partially reflect ethnic or appearance-based biases rather than purely the influence of influencer type. Future research could address this limitation by including influencers from multiple ethnic backgrounds or by using ethnically neutral AI-generated avatars.

The non-significant effect of expertise may be attributed to the mismatch between the influencer's domain (music) and the promoted products (restaurant and SSD). This mismatch likely reduced the perceived relevance of expertise, leading participants to rely on alternative cues. While this design enhances ecological validity, it may attenuate the observable impact of expertise on message credibility. Future research could compare matched versus mismatched influencer-product pairings to further examine the boundary conditions under which expertise becomes a significant determinant of message credibility.

Finally, this dissertation focuses on three Hofstede cultural dimensions—masculinity, long-term orientation, and uncertainty avoidance—because they are most directly related to the evaluation of virtual influencers as artificial, technology-based, and relatively unfamiliar endorsers. Masculinity is relevant because it reflects the extent to which consumers emphasise achievement, performance, competitiveness, and status, which may shape how they evaluate the competence and persuasive value of virtual versus human influencers. Long-term orientation is included because virtual influencers represent a future-oriented and technology-driven form of marketing communication, and consumers with stronger long-term orientation may be more open to innovation, adaptation, and technologically mediated interactions. Uncertainty avoidance is also central to this research because

virtual influencers may generate ambiguity and perceived risk due to their artificial nature, lack of real experience, and unclear agency. Therefore, these three dimensions were selected because they are theoretically aligned with the main focus of the dissertation: how consumers evaluate the perceived characteristics of virtual and human influencers. Other Hofstede dimensions, such as individualism–collectivism, power distance, and indulgence, may also be relevant to influencer marketing more broadly, but they are less directly connected to the specific comparison of perceived influencer characteristics examined in this study. Although individualism–collectivism is highly relevant to social influence and peer recommendation behaviour, it was not included in the final empirical model in order to maintain model parsimony and focus on cultural values theoretically linked to technology-related evaluation. Future research should incorporate individualism–collectivism to further examine whether social influence mechanisms differ across more individualistic and collectivistic contexts.

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APPENDIXES

Appendix 1. Measurement scales

Trustworthiness scale adapted from Ohanian (1990) (five items)
This influencer is dependable
This influencer is honest
This influencer is reliable
This influencer is sincere
This influencer is trustworthy
Expertise scale adapted from Ohanian (1990) (five items)
This influencer has a good understanding of his/her field
This influencer is an expert in his/her field
This influencer is knowledgeable in his/her field
This influencer is qualified in his/her field
This influencer has experience in his/her field
Attractiveness scale adapted from Ohanian (1990) (five items)
This influencer is elegant
This influencer is attractive
This influencer is handsome
This influencer is sexy
This influencer is classy
Authenticity scale adapted from Zniva et al. (2023) (six items)
This influencer has a true passion for its business
This influencer does his/her best to share his/her experiences
This influencer loves what he/she is doing
This influencer is genuine
This influencer is real to me
This influencer is authentic
Homophily adapted from Ladhari et al. (2020) (four items)
This influencer thinks like me
This influencer behaves like me
This influencer is similar to me
This influencer is like me
Parasocial interactions adapted from Lee & Jang (2013) (seven items)
I think I can understand what kind of person this influencer is
This influencer makes me feel comfortable, as if I am with friends

I see this influencer as a natural, down-to-earth person
I look forward to hearing more news about this influencer
If there were a story about this influencer in a newspaper or magazine, I would read it
I would like to meet this influencer in person
I feel as if I have known him/her for a long time
Congruence between influencer and product adapted from Belanche et al. (2021) (four items)
This influencer has a good match with the product / service
The compatibility between this influencer and the product/service is high
The alignment between this influencer and the product / service is high
This influencer and the product / service have a high fit
Message credibility adapted from Xu (2014) (three items)
The information presented by this influencer's post is credible
The information presented by this influencer's post is believable
The information presented by this influencer's post is trustworthy
Perceived performance uncertainty adapted from Lin et al. (2023) (four items)
When making a purchase, I worry that the product / service may not meet expectations.
Considering the potential for unsatisfactory performance of a product / service, purchasing a product / service is too risky
Purchasing a product / service involves excessive uncertainty
When I purchase a product / service, I worry about its reliability
Attitude towards the product adapted from Spears & Singh (2004) (five items)
The product / service is appealing
The product / service is good
The product / service is pleasant
The product / service is favourable
The product / service is likeable
Purchase intention adapted from Gupta et al. (2023) (three items)
I will probably purchase the recommended product / service
I intend to purchase the recommended product / service
It’s possible that I will purchase the recommended product / service
Subjective norms adapted from Fitzmaurice (2005) (four items)
Most people important to me think that I should use an influencer (or virtual influencer) as source of information
Close friends and family think it’s a good idea for me to get information from an influencer (or virtual influencer)

Important people in my life want me to read information from an influencer (or virtual influencer)
People I listen to could influence me to get information from an influencer (or virtual influencer)
Masculinity adapted from Yoo et al., (2011) (four items)
It's more important for men to have a professional career than it's for women
Men usually solve problems with logical analysis; women usually solve problems with intuition
Solving difficult problems usually requires an active, forcible approach, which is typical of men
There are some jobs that a man can always do better than a woman
Uncertainty Avoidance adapted from Yoo et al., (2011) (five items)
It's important to have instructions spelled out in detail so that I always know what I am expected to do.
It's important to closely follow instructions and procedures.
Rules and regulations are important because they inform me of what is expected of me
Standardized work procedures are helpful
Instructions for operations are important
Long-term orientation adapted from Yoo et al., (2011) (six items)
I appreciated careful management of money
I will keep going on resolutely in spite of opposition
I appreciate personal steadiness and stability
I appreciate long-term planning
I am giving up today's fun for success in the future
I am working hard for success in the future

Appendix 2. Questionnaire

Dear respondent,

Researchers from Vilnius University are conducting a study on influencer characteristics' impact on consumer's purchase intention in different cultures. Your responses are anonymous and will be used solely for academic research. Answers to simple questions will take around 10 minutes.

Thank you for your participation and contribution to the development of science internationally.

1. Screening questions

	How comfortable do you feel reading and understanding English?	
1	Comfortable	only options 1 and 2 can proceed further, option 3 and 4 will drop out
2	Somewhat comfortable	
3	Not very comfortable	
4	Not at all comfortable	
	Do you follow any influencer on social media?	
1	Yes	**respondents who answer "Yes" can proceed further, those who answer "No" will drop out**
2	No	

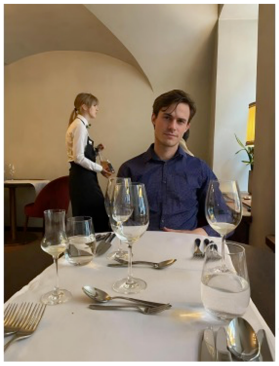
2. Stimulus of influencer type.

Virtual influencer	Human influencer
 Elvis Jackson is an **AI-generated** character and a **virtual influencer**, created by a UK company. According to his social media profile, he is a 25-year-old robot, who lives in London. With his realistic appearance, Elvis has garnered 3.5 million followers on YouTube and 5 million followers on Instagram. Elvis captivates his followers with a mix of music clips, lifestyle content, and personal stories. Despite being a fictional, computer-generated character, Elvis is treated by many as a real influencer. He actively interacts with followers as if he were a real person, discussing his thoughts, feelings and even fictional personal experiences. He collaborates with renowned brands across various industries, such as audio systems, men's fashion, and holiday resorts.	 Elvis Jackson is a 25-year-old highly talented British guitarist and vocalist who lives in London. He has built a significant presence on social media platforms, including YouTube and Instagram. With 3.5 million followers on YouTube and 5 million followers on Instagram. Elvis captivates his followers with a mix of music clips, lifestyle content, and personal stories. He actively interacts with his followers, shares his thoughts, feelings and personal experiences. He collaborates with renowned brands across various industries, such as audio systems, men's fashion, and holiday resorts.
Below is a typical social media post in which he shares his personal experience:	*Below is a typical social media post in which he shares his personal experience:*
 elvisjackson • Follow elvisjackson I spent an amazing day at the lake! Soaking up the sun and sharing some tunes! Grateful for moments like these that bring us together and inspire creativity! Liked by jp._.bs and others October 7, 2024 Add a comment... Post	 elvisjackson • Follow elvisjackson I spent an amazing day at the lake! Soaking up the sun and sharing some tunes! Grateful for moments like these that bring us together and inspire creativity! Liked by jp._.bs and others October 7, 2024 Add a comment... Post

3. Please consider the influencer or virtual influencer Elvis, whom you saw in the previous picture. We would like to get your opinions about the influencer. For each statement, choose the most appropriate answer option (1 - strongly disagree, 7 - strongly agree).

This influencer is dependable
This influencer is honest
This influencer is reliable
This influencer is sincere
This influencer is trustworthy
This influencer has a good understanding of his field
This influencer is an expert in his field
This influencer is knowledgeable in his field
This influencer is qualified in his field
This influencer has experience in his field
This influencer is elegant
This influencer is attractive
This influencer is good-looking
This influencer is charming
This influencer is nice
This influencer has a true passion for his business
This influencer does his best to share his experiences
This influencer loves what he is doing
This influencer is genuine
This influencer is real to me
This influencer is authentic
This influencer thinks like me
This influencer behaves like me
This influencer is similar to me
This influencer is like me
I think I can understand what kind of person this influencer is
This influencer makes me feel comfortable, as if I am with friends
I see this influencer as a natural, down-to-earth person
I look forward to hearing more news about this influencer
If there were a story about this influencer in a newspaper or magazine, I would read it
I would like to meet this influencer in person
I feel as if I have known him/her for a long time

4. Stimulus of the message frame valence and product type

Experience goods and positive message frame	
Experience goods and negative message frame	
Search goods and positive message frame	
Search goods and negative message frame	

5. Please consider the influencer Elvis and his post about the restaurant or SSD hard drive, we would like to get your opinions about the influencer and his post message. For each statement, choose the most appropriate answer option (1 - strongly disagree, 7 - strongly agree)

This influencer has a good match with the restaurant / SSD hard drive
The compatibility between this influencer and the restaurant / SSD hard drive is high
The alignment between this influencer and the restaurant / SSD hard drive is high
This influencer and the restaurant / SSD hard drive have a high fit
The message presented by this influencer's post is credible
The message presented by this influencer's post is believable
The message presented by this influencer's post is trustworthy

6. Please think about how you generally feel when choosing a restaurant or SSD hard drive. For each statement choose the most appropriate answer option (1 - strongly disagree, 7 - strongly agree)

When making a decision, I worry that the restaurant / SSD hard drive may not meet expectations.
Considering the potential for unsatisfactory performance of a restaurant / SSD hard drive, choosing a restaurant is too risky
Choosing a restaurant / SSD hard drive involves excessive uncertainty
When I choose a restaurant / SSD hard drive, I worry about its reliability

7. Please consider the restaurant / SSD hard drive mentioned in Elvis's post, we would like to know your opinions about the restaurant. For each statement choose the most appropriate answer option (1 - strongly disagree, 7 - strongly agree)

The restaurant is appealing
The restaurant is good
The restaurant is pleasant
The restaurant is favourable
The restaurant is likeable
I will probably choose the recommended restaurant
I intend to choose the recommended restaurant
It’s possible that I will choose the recommended restaurant

8. We would like to know how people feel about getting information from an influencer / virtual influencer in your society. For each statement, choose the most appropriate answer option (1 - strongly disagree, 7 - strongly agree)

Most people important to me think that I should use an influencer / virtual influencer as source of information
Close friends and family think it's a good idea for me to get information from an influencer / virtual influencer
Important people in my life want me to read information from an influencer / virtual influencer
People I listen to could influence me to get information from an influencer / virtual influencer

9. We would like to know your attitude to life in general. For each statement, choose the most appropriate answer option (1 - strongly disagree, 7 - strongly agree)

It's more important for men to have a professional career than it's for women
Men usually solve problems with logical analysis; women usually solve problems with intuition
Solving difficult problems usually requires an active, forcible approach, which is typical of men
There are some jobs that a man can always do better than a woman
It's important to have instructions spelled out in detail so that I always know what I am expected to do.
It's important to closely follow instructions and procedures.
Rules and regulations are important because they inform me of what is expected of me
Standardized work procedures are helpful
Instructions for operations are important
I appreciated careful management of money
I will keep going on resolutely in spite of opposition
I appreciate personal steadiness and stability
I appreciate long-term planning
I am giving up today's fun for success in the future
I am working hard for success in the future

10. Demographic questions:

Your gender is
Man
Woman
Your income level is
1 - Much lower than the country's average
2 - Lower than the country's average
3 - Slightly lower than the country's average
4 - On the country's average
5 - Slightly higher than the country's average
6 - Higher than the country's average
7 - Much higher than the country's average
Please indicate your age:

It's completed! Thank you very much, your participation is very important for us!

Appendix 3. Responses split per group, influencer type (VI vs. HI) x message frame (Positive vs. Negative) x product type (Search vs. Experience)

Influencer Type			Message Frame Valence		Total
			Positive	Negative	
Human influencer	Product Type	Experience	121	117	238
		Search	106	116	222
	Total		227	233	460
Virtual influencer	Product Type	Experience	108	121	229
		Search	118	120	238
	Total		226	241	467
Total	Product Type	Experience	229	238	467
		Search	224	236	460
	Total		453	474	927

Appendix 4. Skewness and Kurtosis

Descriptive Statistics					
Items	N	Mean	Std. Deviation	Skewness	Kurtosis
TRST1	Valid	4.51	1.593	-0.481	-0.348
TRST2	927	4.56	1.666	-0.553	-0.435
TRST3	927	4.48	1.563	-0.499	-0.344
TRST4	927	4.52	1.578	-0.549	-0.298
TRST5	927	4.46	1.61	-0.496	-0.36
EXPT1	927	4.8	1.545	-0.669	-0.07
EXPT2	927	4.68	1.535	-0.58	-0.046
EXPT3	927	4.76	1.493	-0.62	-0.014
EXPT4	927	4.76	1.464	-0.663	0.025
EXPT5	927	4.8	1.506	-0.7	0.027
ATTRACT1	927	4.88	1.522	-0.71	0.009
ATTRACT2	927	4.87	1.529	-0.686	-0.027
ATTRACT3	927	4.96	1.483	-0.72	0.156
ATTRACT4	927	4.81	1.468	-0.635	0.099
ATTRACT5	927	4.96	1.443	-0.775	0.415
AUTH1	927	4.77	1.539	-0.569	-0.153
AUTH2	927	4.82	1.524	-0.684	0.07
AUTH3	927	4.99	1.512	-0.761	0.172
AUTH4	927	4.67	1.598	-0.551	-0.26
AUTH5	927	4.47	1.699	-0.419	-0.664
AUTH6	927	4.55	1.64	-0.474	-0.511
HOMO1	927	4.3	1.682	-0.332	-0.715
HOMO2	927	4.23	1.683	-0.289	-0.705
HOMO3	927	4.12	1.727	-0.23	-0.859
HOMO4	927	4.09	1.757	-0.212	-0.92
PSI1	927	4.51	1.567	-0.491	-0.284
PSI2	927	4.47	1.622	-0.402	-0.505
PSI3	927	4.58	1.593	-0.544	-0.322
PSI4	927	4.34	1.673	-0.377	-0.663
PSI5	927	4.46	1.685	-0.404	-0.625
PSI6	927	4.34	1.744	-0.418	-0.731
PSI7	927	4.16	1.776	-0.256	-0.856
CONG1	927	4.54	1.692	-0.518	-0.522
CONG2	927	4.56	1.599	-0.464	-0.492

Descriptive Statistics					
Items	N	Mean	Std. Deviation	Skewness	Kurtosis
CONG3	927	4.55	1.592	-0.432	-0.541
CONG4	927	4.61	1.554	-0.527	-0.325
IC1	927	4.64	1.452	-0.48	-0.105
IC2	927	4.67	1.507	-0.509	-0.198
IC3	927	4.63	1.507	-0.514	-0.214
PUNC1	927	4.72	1.466	-0.541	-0.059
PUNC2	927	4.46	1.447	-0.234	-0.438
PUNC3	927	4.61	1.44	-0.326	-0.261
PUNC4	927	4.74	1.43	-0.519	-0.099
ATT1	927	4.76	1.458	-0.382	-0.296
ATT2	927	4.78	1.492	-0.578	-0.201
ATT3	927	4.74	1.479	-0.519	-0.228
ATT4	927	4.71	1.455	-0.461	-0.262
ATT5	927	4.77	1.465	-0.536	-0.21
PI1	927	4.56	1.603	-0.475	-0.452
PI2	927	4.56	1.586	-0.43	-0.441
PI3	927	4.55	1.554	-0.459	-0.462
SN1	927	4.31	1.716	-0.357	-0.736
SN2	927	4.28	1.731	-0.353	-0.789
SN3	927	4.24	1.759	-0.252	-0.916
SN4	927	4.39	1.688	-0.43	-0.687
MSC1	927	4.12	1.849	-0.29	-0.954
MSC2	927	4.32	1.766	-0.378	-0.811
MSC3	927	4.23	1.773	-0.33	-0.86
MSC4	927	4.48	1.764	-0.546	-0.596
UA1	927	4.84	1.442	-0.565	-0.047
UA2	927	5.02	1.347	-0.689	0.298
UA3	927	5.06	1.372	-0.718	0.299
UA4	927	5.19	1.293	-0.74	0.511
UA5	927	5.3	1.351	-0.931	0.777
LTO1	927	5.27	1.332	-0.905	0.783
LTO2	927	4.93	1.315	-0.511	0.102
LTO3	927	5.3	1.324	-0.81	0.362
LTO4	927	5.2	1.324	-0.764	0.465
LTO5	927	4.87	1.426	-0.533	-0.181
LTO6	927	5.16	1.351	-0.785	0.414

Appendix 5. Removed Scale Items.

Scale	**Removed item**
Trustworthiness	This influencer is dependable
Authenticity	This influencer is real to me
Authenticity	This influencer is authentic
Parasocial interaction	I think I can understand what kind of person this influencer is
Parasocial interaction	This influencer makes me feel comfortable, as if I am with friends
Parasocial interaction	I see this influencer as a natural, down-to-earth person

Appendix 6. EFA for influencer characteristics.

	Pattern Matrix							
	Component							
	1	2	3	4	5	6	7	λ
HOM1	0.953							0.852
HOM2	0.951							0.841
HOM3	0.851							0.831
HOM4	0.688							0.794
EXPT1		0.890						0.804
EXPT2		0.865						0.804
EXPT3		0.850						0.799
EXPT4		0.804						0.768
EXPT5		0.756						0.755
ATTR1			0.991					0.805
ATTR2			0.891					0.789
ATTR3			0.770					0.766
ATTR4			0.745					0.751
ATTR5			0.743					0.721
CONGR1				0.917				0.846
CONGR2				0.914				0.815
CONGR3				0.899				0.847
CONGR4				0.868				0.814
TRST1					0.894			0.845
TRST2					0.829			0.823
TRST3					0.790			0.815
TRST4					0.751			0.813
AUTH1						0.858		0.804
AUTH2						0.815		0.782
AUTH3						0.689		0.766
AUTH4						0.600		0.745
PSI1							0.826	0.844
PSI2							0.718	0.789
PSI3							0.648	0.804
PSI4							0.608	0.794
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 7 iterations.								

Appendix 7. EFA for message credibility, perceived uncertainty of the product, attitudes towards the product, purchase intention and subjective norms.

	Pattern Matrix					
		Component				
	1	2	3	4	5	λ
AttPr1	0.918					0.796
AttPr 2	0.839					0.766
AttPr 3	0.806					0.803
AttPr 4	0.795					0.734
AttPr 5	0.794					0.767
SN1		0.907				0.829
SN2		0.905				0.822
SN3		0.884				0.839
SN4		0.817				0.814
PUNC1			0.876			0.728
PUNC2			0.862			0.734
PUNC3			0.832			0.730
PUNC4			0.736			0.715
MC1				0.890		0.823
MC2				0.851		0.794
MC3				0.829		0.803
PI1					0.690	0.850
PI2					0.649	0.825
PI3					0.641	0.827
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalisation. Rotation converged in 6 iterations.						

Appendix 8. Results of EFA for cultural dimensions.

	Pattern Matrix			
	Component			
	1	2	3	λ
LTO1	0.834			0.703
LTO2	0.821			0.655
LTO3	0.798			0.704
LTO4	0.710			0.631
LTO5	0.686			0.682
LTO6	0.603			0.640
UA1		0.868		0.738
UA2		0.803		0.677
UA3		0.776		0.736
UA4		0.725		0.673
UA5		0.713		0.710
MSC1			0.887	0.748
MSC2			0.878	0.754
MSC3			0.859	0.789
MSC4			0.755	0.653
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalisation. Rotation converged in 5 iterations.				

Appendix 9. Pairwise comparison of influencer characteristics among China, Lithuania and Spain.

Dependent Variable	Country	Influencer Type		Mean Difference	SE	Sig.[b]
Trustworthinss	China	HI	VI	0.124	0.154	0.420
		VI	HI	-0.124	0.154	0.420
	Lithuania	HI	VI	.802*	0.16	<.001
		VI	HI	-.802*	0.16	<.001
	Spain	HI	VI	.520*	0.157	<.001
		VI	HI	-.520*	0.157	<.001
Expertise	China	HI	VI	0.113	0.143	0.430
		VI	HI	-0.113	0.143	0.430
	Lithuania	HI	VI	.556*	0.149	<.001
		VI	HI	-.556*	0.149	<.001
	Spain	HI	VI	.301*	0.146	0.040
		VI	HI	-.301*	0.146	0.040
Attractiveness	China	HI	VI	0.054	0.142	0.706
		VI	HI	-0.054	0.142	0.706
	Lithuania	HI	VI	.376*	0.148	0.011
		VI	HI	-.376*	0.148	0.011
	Spain	HI	VI	-0.01	0.145	0.948
		VI	HI	0.01	0.145	0.948
Authenticity	China	HI	VI	0.147	0.145	0.309
		VI	HI	-0.147	0.145	0.309
	Lithuania	HI	VI	.581*	0.15	<.001
		VI	HI	-.581*	0.15	<.001
	Spain	HI	VI	0.269	0.148	0.070
		VI	HI	-0.269	0.148	0.070
Homophily	China	HI	VI	0.093	0.163	0.567
		VI	HI	-0.093	0.163	0.567
	Lithuania	HI	VI	.331*	0.169	0.050
		VI	HI	-.331*	0.169	0.05

Dependent Variable	Country	Influencer Type		Mean Difference	SE	Sig.[b]
	Spain	HI	VI	.390*	0.166	0.019
		VI	HI	-.390*	0.166	0.019
Parasocial Interactions	China	HI	VI	0.058	0.158	0.714
		VI	HI	-0.058	0.158	0.714
	Lithuania	HI	VI	0.215	0.164	0.19
		VI	HI	-0.215	0.164	0.19
	Spain	HI	VI	.423*	0.161	0.009
		VI	HI	-.423*	0.161	0.009
Congruence	China	HI	VI	0.07	0.158	0.658
		VI	HI	-0.07	0.158	0.658
	Lithuania	HI	VI	0.197	0.164	0.23
		VI	HI	-0.197	0.164	0.23
	Spain	HI	VI	0.041	0.161	0.799
		VI	HI	-0.041	0.161	0.799
Based on estimated marginal means. *. The mean difference is significant at the .05 level. b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).						

Appendix 10. Summary of hypotheses.

	Hypothesis	**Result**
H1	Perceived trustworthiness is lower for virtual influencers compared to human influencers.	Accepted
H2	Perceived expertise is lower for virtual influencers compared to human influencers.	Accepted
H3	Perceived attractiveness is lower for virtual influencers compared to human influencers.	Rejected
H4	Perceived authenticity is lower for virtual influencers compared to human influencers.	Accepted
H5	Perceived homophily is lower for virtual influencers compared to human influencers.	Accepted
H6	Perceived parasocial interactions are lower for virtual influencers compared to human influencers.	Accepted
H7	Perceived influencer-product congruence is lower for virtual influencers compared to human influencers.	Rejected
H8(A)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived trustworthiness.	Accepted
H8(B)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived expertise.	Accepted
H8(C)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived attractiveness.	Rejected
H8(D)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived authenticity.	Accepted
H8(E)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived homophily.	Accepted
H8(F)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived parasocial interactions.	Accepted
H8(G)	Cultural masculinity weakens human influencers' advantage over virtual influencers in perceived influencer-product congruence.	Rejected
H9(A)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived trustworthiness.	Rejected

	Hypothesis	Result
H9(B)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived expertise.	Rejected (opposite direction)
H9(C)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived attractiveness.	Rejected
H9(D)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived authenticity.	Rejected (opposite direction)
H9(E)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived homophily.	Rejected
H9(F)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived parasocial interactions.	Rejected
H9(G)	Cultural long-term orientation weakens human influencers' advantage over virtual influencers in perceived influencer-product congruence.	Rejected
H10(A)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived trustworthiness.	Rejected
H10(B)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived expertise.	Rejected
H10(C)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived attractiveness.	Rejected
H10(D)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived authenticity.	Rejected
H10(E)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived homophily.	Rejected
H10(F)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived parasocial interactions.	Rejected
H10(G)	Cultural uncertainty avoidance amplifies human influencers' advantage over virtual influencers in perceived influencer-product congruence.	Rejected

	Hypothesis	Result
H11	Influencer's perceived trustworthiness positively impacts message credibility.	Rejected
H12	Influencer's perceived expertise positively impacts message credibility.	Rejected
H13	Influencer's perceived attractiveness positively impacts message credibility.	Accepted
H14	Influencer's perceived authenticity positively impacts message credibility.	Rejected
H15	Influencer's perceived homophily positively impacts message credibility.	Rejected
H16	Influencer's perceived trustworthiness positively impacts perceived parasocial interactions.	Accepted
H17	Influencer's perceived expertise positively impacts perceived parasocial interactions.	Rejected
H18	Influencer's perceived attractiveness positively impacts perceived parasocial interactions.	Accepted
H19	Influencer's perceived authenticity positively impacts perceived parasocial interactions.	Accepted
H20	Influencer's perceived homophily positively impacts perceived parasocial interactions.	Accepted
H21	Influencer's perceived trustworthiness positively impacts perceived influencer-product congruence.	Rejected
H22	Influencer's perceived expertise positively impacts perceived influencer-product congruence.	Rejected
H23	Influencer's perceived attractiveness positively impacts perceived influencer-product congruence.	Rejected
H24	Influencer's perceived authenticity positively impacts perceived influencer-product congruence.	Rejected
H25	Influencer's perceived homophily positively impacts perceived influencer-product congruence.	Accepted
H26	Influencer's parasocial interaction positively impacts message credibility.	Accepted
H27	Influencer-product congruence positively impacts message credibility.	Accepted
H28	Influencer's parasocial interaction positively impacts consumers' attitudes towards the product.	Accepted

	Hypothesis	Result
H29	Influencer-product congruence positively impacts consumers' attitudes towards the product.	Accepted
H30	Message credibility is positively associated with consumers' attitudes towards the product.	Accepted
H31	Consumers' attitudes towards the product positively impact purchase intention.	Accepted
H32	Subjective norms positively impact purchase intention.	Accepted
H33(A)	The relationship between message credibility and attitudes towards the product is moderated by the interaction of influencer type (VI vs. HI) and message frame valence (positive vs. negative).	Accepted
H33(B)	The relationship between parasocial interactions and attitudes towards the product is moderated by the interaction of influencer type (VI vs. HI) and message frame valence (positive vs. negative).	Rejected
H33(C)	The relationship between influencer-product congruence and attitudes towards the product is moderated by the interaction of influencer type (VI vs. HI) and message frame valence (positive vs. negative).	Accepted
H34	The relationship between subjective norms and purchase intention is moderated by the interaction of influencer type (VI vs. HI) and product type (search vs. experience goods).	Accepted

SANTRAUKA

Įvadas

Influencerių rinkodara tapo viena svarbiausių skaitmeninės rinkodaros komunikacijos formų, nes vartotojai, formuodami produktų vertinimus ir pirkimo ketinimus, vis dažniau remiasi socialinių tinklų turiniu, internetinėmis rekomendacijomis ir influencerių kuriama informacija (Lou & Yuan, 2019; Vrontis et al., 2021). Socialinių tinklų influenceriai veikia kaip komunikacijos tarpininkai tarp prekių ženklų ir vartotojų, derindami investįtikinamąją komunikaciją. Skirtingai nei tradicinė reklama, influencerių rinkodara grindžiama ne tik komunikatoriaus matomumu, bet ir suvokiamu pasitikėjimu, panašumu, autentiškumu, kompetencija bei ryšiu tarp influencerio ir jo sekėjų (Casaló et al., 2018; Schouten et al., 2020). Šios savybės leidžia influenceriams formuoti vartotojų požiūrį į prekių ženklus ir produktus, daryti įtaką nuostatoms bei paveikti elgsenos ketinimus.

Pastaraisiais metais dirbtinio intelekto, kompiuterinės grafikos ir skaitmeninio turinio kūrimo raida lėmė virtualių influencerių atsiradimą. Virtualūs influenceriai yra skaitmeniniu būdu sukurti personažai, valdomi asmenų, agentūrų arba prekių ženklų, tačiau jie dažnai imituoja žmogaus išvaizdą, asmenybę, gyvenimo būdą ir komunikacinę elgseną (Moustakas et al., 2020; Sands et al., 2022). Jie veikia socialinių tinklų platformose, sąveikauja su sekėjais, reklamuoja produktus ir dalyvauja prekės ženklų kampanijose panašiai kaip žmogaus influenceriai. Didėjantis virtualių influencerių komercinis naudojimas kelia svarbų klausimą, ar vartotojai virtualius influencerius suvokia ir į juos reaguoja taip pat kaip į žmogaus influencerius. Nors virtualūs influenceriai prekių ženklams suteikia tokių privalumų kaip kontroliuojamumas, naujumas, vizualinis nuoseklumas ir mažesnė reputacinė rizika, jų dirbtinė prigimtis taip pat gali kelti abejonių dėl autentiškumo, patikimumo, gebėjimo įgyti realią produkto patirtį ir emocinio ryšio (Lou et al., 2023; Robinson, 2020).

Ankstesniuose tyrimuose virtualūs ir žmogaus influenceriai buvo lyginami, tačiau gauti rezultatai išlieka nevienareikšmiai ir fragmentiški. Vieni tyrimai rodo, kad virtualūs influenceriai gali generuoti įsitraukimą ir įtikinamąjį poveikį dėl naujumo, vizualinio patrauklumo ir technologinio pažangumo (Sands et al., 2022). Kiti tyrimai teigia, kad žmogaus influenceriai gali būti suvokiami kaip autentiškesni, patikimesni, įtikinamesni ir labiau gebantys pateikti tikrą produkto naudojimo patirtį (Lee & Ham, 2023; Li et al., 2023). Tokie prieštaringi rezultatai rodo, kad virtualių influencerių veiksmingumo negalima paaiškinti vien bendru influencerių tipų palyginimu. Būtina analizuoti, kurios konkrečios influencerio savybės skiriasi tarp virtualių ir žmogaus influencerių, kaip šios savybės formuoja įtikinimo rezultatus ir kokiomis kontekstinėmis sąlygomis šie poveikiai sustiprėja arba susilpnėja.

Šioje disertacijoje dėmesys skiriamas virtualių ir žmogaus influencerių suvokiamoms savybėms ir jų poveikiui vartotojų įtikinimui. Tyrime nagrinėjamos pagrindinės influencerių rinkodaros literatūroje aptariamos savybės: patikimumas, kompetencija, patrauklumas, autentiškumas, homofiliškumas, parasocialinė sąveika ir influencerio–produkto atitikimas (Ohanian, 1990; Lou & Yuan, 2019; Belanche et al., 2021). Šios savybės svarbios, nes jos padeda paaiškinti, kaip vartotojai vertina influencerius kaip informacijos šaltinius ir kaip tokie vertinimai virsta žinutės patikimumu, požiūriu į produktą ir pirkimo ketinimu. Todėl disertacijoje influencerio tipas nėra traktuojamas tik kaip bendras signalas; vietoj to nagrinėjama, kaip virtualūs ir žmogaus influenceriai skiriasi konkrečių suvokiamų savybių lygmeniu.

Be influencerių savybių, disertacijoje nagrinėjamos žinutės, produkto ir kultūros sąlygos. Žinutės rėminimo valentingumas įtraukiamas todėl, kad teigiamos ir neigiamos žinutės gali veikti nevienodai žmogaus ir virtualaus influencerio kontekstuose (O'Keefe & Jensen, 2008; Septianto et al., 2019). Produkto tipas taip pat svarbus, nes vartotojai skirtingai vertina paieškos ir patirties prekes. Paieškos prekės gali būti įvertinamos remiantis objektyvia ir

faktine informacija iki pirkimo, o patirties prekės dažnai reikalauja jutiminės patirties arba asmeninio naudojimo (Nelson, 1970, 1974). Šis skirtumas ypač aktualus virtualiems influenceriams, nes jie negali turėti tikros kūniškos produktų naudojimo patirties (Li et al., 2023). Kultūrinės vertybės taip pat įtraukiamos, nes vartotojų virtualių influencerių priėmimas gali skirtis skirtinguose kultūriniuose kontekstuose, ypač kai virtualūs influenceriai suvokiami kaip dirbtiniai, neįprasti ar technologijomis grindžiami nuomonės formuotojai (De Mooij & Hofstede, 2010; Hofstede et al., 2010).

Šioje disertacijoje nagrinėjama tyrimo spraga susijusi su ribotu supratimu apie tai, kaip virtualūs ir žmogaus influenceriai skiriasi suvokiamomis savybėmis, kaip šios savybės veikia vartotojų įtikinimą ir kaip žinutės valentingumas, produkto tipas bei kultūrinės vertybės sąlygoja šiuos mechanizmus. Esami tyrimai dažnai sutelkia dėmesį į pavienius konstruktus arba tiesioginį influencerių veiksmingumo palyginimą, tačiau mažiau dėmesio skiriama mechanizmams, per kuriuos influencerio tipas veikia žinutės patikimumą, požiūrį į produktą ir pirkimo ketinimą. Be to, kultūrinių dimensijų vaidmuo aiškinant virtualių ir žmogaus influencerių vertinimo skirtumus išlieka nepakankamai ištirtas.

Šios disertacijos tikslas – ištirti virtualių ir žmogaus influencerių savybių poveikį pirkimo ketinimui, analizuojant, kaip influencerio tipas veikia suvokiamas influencerio savybes ir kaip šios savybės formuoja įtikinimo mechanizmus skirtingomis žinutės, produkto ir kultūros sąlygomis. Siekiant šio tikslo, disertacijoje apžvelgiama ir susisteminama literatūra apie influencerių rinkodarą, virtualius influencerius, influencerių savybes, žinutės patikimumą, produkto tipą ir kultūrines dimensijas. Remiantis Informacijos priėmimo modeliu, Pagrįsto veiksmo teorija ir Hofstede kultūrinių dimensijų sistema, sukuriamas tyrimo modelis (Ajzen & Fishbein, 1980; Hofstede, 1980; Sussman & Siegal, 2003). Empirinėje dalyje lyginami virtualūs ir žmogaus influenceriai, tiriamas influencerių savybių poveikis žinutės patikimumui ir tolesnėms vartotojų reakcijoms, taip pat analizuojamas kultūrinių vertybių, žinutės rėminimo valentingumo ir produkto tipo moderuojantis vaidmuo.

Siekiant įgyvendinti disertacijos tikslą, buvo atlikta sisteminė influencerių rinkodaros literatūros analizė, konceptualizuotos pagrindinės virtualiems ir žmogaus influenceriams aktualios savybės, integruoti Informacijos priėmimo modelio, Pagrįsto veiksmo teorijos ir Hofstede kultūrinių dimensijų teoriniai pagrindai, palyginti virtualūs ir žmogaus influenceriai, išanalizuoti žinutės patikimumo, žinutės rėminimo, produkto tipo ir kultūrinių vertybių vaidmenys, sukurta tyrimo metodologija bei empiriškai patikrintas pasiūlytas modelis. Disertacijoje taip pat siekiama paaiškinti mediacijos ir moderacijos mechanizmus, per kuriuos influencerių savybės veikia vartotojų požiūrį ir pirkimo ketinimą, bei pateikti teorines ir praktines įžvalgas tolesniems tyrimams ir verslo praktikai.

Disertacija grindžiama kiekybiniu tyrimo dizainu, taikant internetinę apklausą ir eksperimentinius stimulus. Tyrime naudotas tarpgrupinis faktorialinis dizainas, apimantis influencerio tipą, žinutės rėminimo valentingumą ir produkto tipą. Surinkti duomenys buvo analizuojami taikant PLS-SEM, mediacijos analizę, moderacijos analizę ir kelių grupių analizę. Šis metodologinis požiūris leidžia tirti ne tik tiesioginius poveikius, bet ir netiesioginius bei sąlyginius ryšius pasiūlytame įtikinimo modelyje (Hair et al., 2022).

Disertacija prisideda prie influencerių rinkodaros literatūros, aiškindama, kuo virtualūs ir žmogaus influenceriai skiriasi ir kada šie skirtumai yra reikšmingi vartotojų įtikinimui. Tyrimo naujumas pasireiškia identifikuojant suvokiamas savybes, kurios skiria virtualius ir žmogaus influencerius, paaiškinant, kaip influencerių savybės prisideda prie žinutės patikimumo, ir parodant, kaip žinutės valentingumas, produkto tipas ir kultūrinės vertybės sąlygoja įtikinimo procesą. Rezultatai taip pat turi praktinę vertę rinkodaros specialistams, nes padeda suprasti, kada virtualūs influenceriai gali būti tinkama alternatyva žmogaus influenceriams, kaip influencerio tipas turėtų būti derinamas su produkto tipu ir kaip žinutės strategijos gali būti pritaikomos tarpkultūriniame influencerių rinkodaros kontekste.

Virtualių ir žmogaus influencerių savybių poveikio pirkimo ketinimui teorinis pagrindas

Disertacijos teorinis pagrindas remiasi influencerių rinkodaros literatūra, virtualių influencerių tyrimais, informacijos priėmimo teorija, elgsenos ketinimo teorija, produkto tipo teorija, žinutės rėminimo literatūra ir kultūrinių vertybių teorija. Šios literatūros kryptys integruojamos siekiant paaiškinti, kaip vartotojai vertina virtualius ir žmogaus influencerius ir kaip šie vertinimai veikia įtikinimo rezultatus.

Influenceriai gali būti suprantami kaip socialinių tinklų veikėjai, kurie kuria matomumą ir įtaką per turinio kūrimą, sąveiką su sekėjais ir suvokiamą kompetenciją konkrečioje srityje (De Veirman et al., 2017; Lou & Yuan, 2019). Skirtingai nei tradicinės įžymybės, influenceriai dažnai atrodo prieinamesni, artimesni ir labiau asmeniškai susiję su savo auditorija (Schouten et al., 2020). Jų įtikinamoji galia priklauso ne tik nuo populiarumo ar sekėjų skaičiaus, bet ir nuo suvokiamų savybių, tokių kaip patikimumas, kompetencija, patrauklumas, autentiškumas, homofiliškumas, parasocialinė sąveika ir atitikimas reklamuojamam produktui (Ohanian, 1990; Belanche et al., 2021). Šios savybės daro įtaką tam, kaip vartotojai vertina influencerių kuriamas žinutes ir ar priima jų teikiamą informaciją.

Virtualūs influenceriai yra nauja skaitmeninių nuomonės formuotojų forma. Jie yra kompiuteriu ar skaitmeniniu būdu sukurti personažai, kurių tikslas – imituoti žmogaus išvaizdą, elgesį, asmenybę ir komunikaciją socialinių tinklų platformose (Moustakas et al., 2020; Mouritzen et al., 2024). Nors virtualūs influenceriai gali būti panašūs į žmogaus influencerius išvaizda ir turinio stiliumi, jie iš esmės skiriasi tuo, kad neturi realios gyvenimiškos patirties, fizinio kūniškumo ar tikros vartojimo patirties (Li et al., 2023; Sands et al., 2022). Tai sukuria teorinę įtampą: virtualūs influenceriai gali būti vizualiai patrauklūs ir labai kontroliuojami, tačiau kartu jie gali būti suvokiami kaip mažiau autentiški, mažiau patikimi ar mažiau emociškai pajėgūs nei žmogaus influenceriai (Lou et al., 2023; Robinson, 2020). Todėl virtualių ir

žmogaus influencerių palyginimui būtina analizuoti konkrečias suvokiamas savybes, o ne vien bendrą veiksmingumą.

Šaltinio patikimumo teorija suteikia svarbų teorinį pagrindą influencerių veiksmingumui suprasti. Tradiciškai šaltinio patikimumas konceptualizuojamas per patikimumą, kompetenciją ir patrauklumą (Hovland et al., 1953; McGuire, 1985; Ohanian, 1990). Patikimumas reiškia, kiek šaltinis suvokiamas kaip sąžiningas, patikimas ir nuoširdus. Kompetencija reiškia suvokiamas žinias, gebėjimus ir patirtį atitinkamoje srityje. Patrauklumas apima vizualinį patrauklumą ir mėgstamumą. Virtualių influencerių kontekste šios savybės gali veikti kitaip, nes auditorija žino, kad virtualūs influenceriai yra skaitmeniniu būdu sukurti ir valdomi kitų asmenų. Patikimumą ir kompetenciją virtualiems influenceriams gali būti sunkiau įtvirtinti, o patrauklumą galima sąmoningai suprojektuoti ir kontroliuoti.

Autentiškumas taip pat yra centrinis influencerių rinkodaros konstruktas. Žmogaus influencerio kontekste autentiškumas dažnai siejamas su tikru savęs pristatymu, asmenine patirtimi ir nuoširdžiu rekomendavimu (Audrezet et al., 2020; Moulard et al., 2015). Virtualių influencerių atveju autentiškumas tampa sudėtingesnis, nes jų tapatybės, istorijos ir elgesys yra sukonstruoti kūrėjų. Nors virtualūs influenceriai gali būti sukurti taip, kad atrodytų autentiški, vartotojai gali abejoti, ar jų rekomendacijos atspindi tikrą patirtį, ar komercinį scenarijų (Lou et al., 2023; Robinson, 2020). Todėl autentiškumas yra svarbi savybė lyginant virtualius ir žmogaus influencerius.

Homofiliškumas reiškia suvokiamą panašumą tarp influencerio ir jo sekėjų. Vartotojai gali suvokti influencerius kaip įtikinamesnius, kai jie dalijasi panašiomis vertybėmis, interesais, gyvenimo būdu ar socialine tapatybe (Lazarsfeld & Merton, 1954; Lou & Yuan, 2019). Žmogaus influenceriai gali turėti pranašumą homofiliškumo požiūriu, nes jie dalijasi žmogiškomis patirtimis ir emocijomis su auditorija. Virtualiems influenceriams gali būti sunkiau sukurti tokį patį suvokiamo panašumo lygį, nes jie yra dirbtiniai agentai. Vis dėlto jų sukonstruotos tapatybės ir pasakojimai tam tikriems sekėjams gali sudaryti galimybę su jais tapatintis.

Parasocialinė sąveika reiškia vienpusį psichologinį ryšį, kurį vartotojai formuoja su medijų veikėjais ar influenceriais (Horton & Wohl, 1956; Rubin & McHugh, 1987). Socialinių tinklų aplinkoje parasocialinė sąveika gali būti stiprinama per pakartotinį turinio matymą, asmeninį turinį, interaktyvią komunikaciją ir emocinį įsitraukimą (Yuan & Lou, 2020). Žmogaus influenceriai gali būti pajėgesni kurti parasocialinę sąveiką, nes sekėjai jų emocijas ir patirtis suvokia kaip realias. Tačiau virtualūs influenceriai taip pat gali sukelti parasocialines reakcijas, jei jie sukurti su žmogui būdinga išvaizda, asmenybe ir komunikacijos stiliumi (Stein et al., 2022). Todėl parasocialinė sąveika yra teoriškai svarbus mechanizmas lyginant virtualius ir žmogaus influencerius.

Influencerio–produkto atitikimas reiškia suvokiamą influencerio ir reklamuojamo produkto dermę. Atitikimas svarbus todėl, kad vartotojai dažniau suvokia rekomendacijas kaip patikimas ir įtikinamas, kai influenceris atrodo natūraliai susijęs su produkto kategorija (Kamins, 1990; Belanche et al., 2021). Virtualių influencerių rinkodaroje atitikimas gali būti ypač svarbus, nes virtualūs influenceriai negali pateikti tikros produkto naudojimo patirties. Stiprus virtualaus influencerio įvaizdžio ir produkto atitikimas gali kompensuoti šį ribotumą, nes rekomendacija atrodo tinkamesnė ir patikimesnė.

Antropomorfizmas aptariamas kaip teorinis fonas, nes virtualūs influenceriai yra ne žmonės, tačiau jie sukurti su žmogui būdinga išvaizda, elgesiu, asmenybe ir komunikacija. Antropomorfizmas reiškia žmogui būdingų savybių, ketinimų, emocijų ir elgesio priskyrimą nežmogiškoms būtybėms ar objektams (Epley et al., 2007; Guthrie, 2005). Ši sąvoka padeda paaiškinti, kodėl vartotojai gali suvokti virtualius influencerius kaip socialinius veikėjus. Tačiau antropomorfizmas nėra įtrauktas kaip empirinis konstruktas, nes disertacijoje lyginami virtualūs ir žmogaus influenceriai, o ne skirtingi virtualūs influenceriai pagal jų žmogaus panašumo lygį. Kadangi antropomorfizmas konceptualiai taikomas nežmogiškiems agentams, jo negalima prasmingai matuoti žmogaus influencerio sąlygoje (Waytz et al., 2010).

Informacijos priėmimo modelis yra pagrindinis teorinis pagrindas, aiškinantis, kaip influencerių savybės formuoja žinutės patikimumą ir įtikinimo rezultatus. Pagal šį modelį informacijos priėmimą lemia šaltinio savybės ir informacijos kokybė (Sussman & Siegal, 2003). Šioje disertacijoje influencerių savybės traktuojamos kaip su šaltiniu susiję signalai, o žinutės patikimumas atspindi suvokiamą influencerio sukurtos informacijos patikimumą, tikslumą ir įtikinamumą. Tikimasi, kad žinutės patikimumas veikia požiūrį į produktą, o požiūris į produktą veikia pirkimo ketinimą. Tokia struktūra leidžia tirti, kaip suvokiamos influencerio savybės virsta tolesnėmis vartotojų reakcijomis.

Pagrįsto veiksmo teorija papildo Informacijos priėmimo modelį, aiškindama pirkimo ketinimą per požiūrį ir subjektyvias normas (Ajzen & Fishbein, 1980). Požiūris į produktą atspindi bendrą vartotojų produkto vertinimą, o subjektyvios normos reiškia suvokiamą socialinį spaudimą ar socialinius lūkesčius, susijusius su influencerio informacijos ir rekomendacijų naudojimu. Influencerių rinkodaroje subjektyvios normos yra aktualios, nes socialinių tinklų aplinka yra labai matoma ir socialiai interaktyvi. Patiktukai, komentarai, sekėjų skaičius ir auditorijos įsitraukimas gali signalizuoti, ar influenceris ir jo rekomendacijos yra socialiai priimtini (Halim & Karami, 2020; Li & Peng, 2021). Tai ypač svarbu virtualiems influenceriams, nes vartotojai gali remtis socialiniu pritarimu vertindami, ar skaitmeniniu būdu sukurti nuomonės formuotojai yra legitimuoti informacijos šaltiniai.

Žinutės rėminimo valentingumas įtraukiamas kaip kontekstinis veiksnys, nes teigiamos ir neigiamos žinutės gali skirtingai veikti patikimumą ir įtikinimą. Teigiamos žinutės pabrėžia naudą ir palankius rezultatus, o neigiamos žinutės akcentuoja riziką, trūkumus ar neigiamas pasekmes (O'Keefe & Jensen, 2008). Ankstesni tyrimai rodo, kad žinutės valentingumo veiksmingumas priklauso nuo šaltinio savybių ir konteksto (Septianto et al., 2019). Šioje disertacijoje žinutės valentingumas nagrinėjamas kartu su influencerio tipu, siekiant nustatyti, ar teigiamos ir neigiamos žinutės stiprina arba silpnina ryšį tarp žinutės patikimumo ir požiūrio į produktą.

Produkto tipas yra dar vienas svarbus kontekstinis veiksnys. Paieškos prekės yra produktai, kurių savybės gali būti įvertintos iki pirkimo remiantis faktine ar objektyvia informacija. Patirties prekės reikalauja tiesioginio naudojimo, jutiminio vertinimo ar asmeninės patirties, kad jų kokybė būtų iki galo įvertinta (Nelson, 1970, 1974). Šis skirtumas ypač aktualus virtualiems influenceriams. Kadangi virtualūs influenceriai negali iš tikrųjų patirti produktų, jie gali būti tinkamesni paieškos prekėms, kur objektyvi informacija yra svarbesnė, nei patirties prekėms, kur svarbesnė jutiminė ir asmeninė patirtis (Li et al., 2023; Zhang et al., 2022). Todėl tikimasi, kad influencerio tipo ir produkto tipo sąveika formuos socialinės įtakos vaidmenį pirkimo ketinimui.

Hofstede kultūrinių dimensijų sistema naudojama siekiant nustatyti, ar kultūrinės vertybės moderuoja vartotojų virtualių ir žmogaus influencerių suvokimą. Iš Hofstede dimensijų pasirinktos vyriškumo, neapibrėžtumo vengimo ir ilgalaikės orientacijos dimensijos, nes jos glaudžiausiai susijusios su virtualių influencerių, kaip dirbtinių ir technologijomis grindžiamų nuomonės formuotojų, vertinimu (Hofstede, 1980; Hofstede et al., 2010). Vyriškumas atspindi pasiekimų, veiklos rezultatų, konkurencijos ir statuso vertybes. Neapibrėžtumo vengimas atspindi diskomfortą neaiškumo ir nepažįstamumo sąlygomis, kuris gali būti svarbus vertinant dirbtinius influencerius. Ilgalaikė orientacija atspindi į ateitį orientuotas vertybes ir atvirumą technologiniam vystymuisi. Šios dimensijos naudojamos siekiant ištirti, ar kultūrinės vertybės formuoja influencerių savybių suvokimą virtualių ir žmogaus influencerių sąlygomis (De Mooij & Hofstede, 2010).

Virtualių ir žmogaus influencerių savybių poveikio pirkimo ketinimui metodologija

Empiriniame tyrime taikytas kiekybinis tyrimo dizainas, pagrįstas internetinės apklausos eksperimentu. Metodologijos tikslas buvo patikrinti pasiūlytą tyrimo modelį ir ištirti ryšius tarp influencerio tipo, suvokiamų influencerio

savybių, žinutės patikimumo, požiūrio į produktą, subjektyvių normų ir pirkimo ketinimo. Tyrime taip pat tikrinti kultūrinių vertybių, žinutės rėminimo valentingumo ir produkto tipo moderuojantys poveikiai, taip pat mediacijos mechanizmai, per kuriuos influencerio tipas veikia tolesnes vartotojų reakcijas. Siekiant šio tikslo, suformuluotos šios hipotezės:

H1: Suvokiamas patikimumas yra žemesnis virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H2: Suvokiama kompetencija yra žemesnė virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H3: Suvokiamas patrauklumas yra žemesnis virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H4: Suvokiamas autentiškumas yra žemesnis virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H5: Suvokiamas homofiliškumas yra žemesnis virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H6: Suvokiamos parasocialinės sąveikos yra žemesnės virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H7: Suvokiamas influencerio–produkto atitikimas yra žemesnis virtualių influencerių atveju, palyginti su žmogaus influenceriais.

H8: Kultūrinis vyriškumas silpnina žmogaus influencerių pranašumą prieš virtualius influencerius suvokiamo patikimumo (A), kompetencijos (B), patrauklumo (C), autentiškumo (D), homofiliškumo (E), parasocialinių sąveikų (F) ir influencerio–produkto atitikimo atžvilgiu (G).

H9: Kultūrinė ilgalaikė orientacija silpnina žmogaus influencerių pranašumą prieš virtualius influencerius suvokiamo patikimumo (A), kompetencijos (B), patrauklumo (C), autentiškumo (D), homofiliškumo (E), parasocialinių sąveikų (F) ir influencerio–produkto atitikimo atžvilgiu (G).

H10: Kultūrinis neapibrėžtumo vengimas sustiprina žmogaus influencerių pranašumą prieš virtualius influencerius suvokiamo

patikimumo (A), kompetencijos (B), patrauklumo (C), autentiškumo (D), homofiliškumo (E), parasocialinių sąveikų (F) ir influencerio–produkto atitikimo atžvilgiu (G).

H11: Influencerio suvokiamas patikimumas teigiamai veikia žinutės patikimumą.

H12: Influencerio suvokiama kompetencija teigiamai veikia žinutės patikimumą.

H13: Influencerio suvokiamas patrauklumas teigiamai veikia žinutės patikimumą.

H14: Influencerio suvokiamas autentiškumas teigiamai veikia žinutės patikimumą.

H15: Influencerio suvokiamas homofiliškumas teigiamai veikia žinutės patikimumą.

H16: Influencerio suvokiamas patikimumas teigiamai veikia suvokiamas parasocialines sąveikas.

H17: Influencerio suvokiama kompetencija teigiamai veikia suvokiamas parasocialines sąveikas.

H18: Influencerio suvokiamas patrauklumas teigiamai veikia suvokiamas parasocialines sąveikas.

H19: Influencerio suvokiamas autentiškumas teigiamai veikia suvokiamas parasocialines sąveikas.

H20: Influencerio suvokiamas homofiliškumas teigiamai veikia suvokiamas parasocialines sąveikas.

H21: Influencerio suvokiamas patikimumas teigiamai veikia suvokiamą influencerio–produkto atitikimą.

H22: Influencerio suvokiama kompetencija teigiamai veikia suvokiamą influencerio–produkto atitikimą.

H23: Influencerio suvokiamas patrauklumas teigiamai veikia suvokiamą influencerio–produkto atitikimą.

H24: Influencerio suvokiamas autentiškumas teigiamai veikia suvokiamą influencerio–produkto atitikimą.

H25: Influencerio suvokiamas homofiliškumas teigiamai veikia suvokiamą influencerio–produkto atitikimą.

H26: Influencerio parasocialinė sąveika teigiamai veikia žinutės patikimumą.

H27: Influencerio–produkto atitikimas teigiamai veikia žinutės patikimumą.

H28: Influencerio parasocialinė sąveika teigiamai veikia vartotojų požiūrį į produktą.

H29: Influencerio–produkto atitikimas teigiamai veikia vartotojų požiūrį į produktą.

H30: Žinutės patikimumas yra teigiamai susijęs su vartotojų požiūriu į produktą.

H31: Vartotojų požiūris į produktą teigiamai veikia pirkimo ketinimą.

H32: Subjektyvios normos teigiamai veikia pirkimo ketinimą.

H33: Ryšius tarp žinutės patikimumo (A), parasocialinių sąveikų (B), influencerio ir produkto atitikmens (C) ir požiūrio į produktą sąlygoja influencerio tipo (VI ir HI) ir žinutės rėmelio valentingumo (teigiamas ir neigiamas) sąveika.

H34: Ryšį tarp subjektyvių normų ir pirkimo ketinimo moderuoja influencerio tipo (VI ir HI) ir produkto tipo (paieškos ir patirties prekės) sąveika.

Taikytas tarpgrupinis faktorialinis eksperimentinis dizainas. Dizainą sudarė trys manipuliuojami veiksniai: influencerio tipas, žinutės rėminimo valentingumas ir produkto tipas. Influencerio tipas turėjo du lygius: virtualus influenceris ir žmogaus influenceris. Žinutės rėminimo valentingumas turėjo du lygius: teigiama žinutė ir neigiama žinutė. Produkto tipas turėjo du lygius: paieškos prekės ir patirties prekės. Tai sudarė aštuonias eksperimentines grupes. Respondentai buvo atsitiktinai priskirti vienai iš šių grupių ir supažindinti su socialinio tinklo įrašo stimulu. Eksperimentinis dizainas leido

tirti ne tik pagrindinius poveikius, bet ir sąveikos poveikius tarp influencerio tipo, žinutės valentingumo ir produkto tipo.

Duomenys buvo renkami iš respondentų Kinijoje, Ispanijoje ir Lietuvoje. Šios šalys pasirinktos siekiant užtikrinti tarpkultūrinę įvairovę ir sudaryti galimybę tirti kultūrines vertybes kaip ryšio tarp influencerio tipo ir suvokiamų influencerio savybių moderatorius. Klausimynas visose trijose šalyse buvo pateiktas anglų kalba. Pagrindiniams konstruktams matuoti buvo pritaikytos ankstesnėje literatūroje naudotos matavimo skalės. Konstruktai apėmė patikimumą, kompetenciją, patrauklumą, autentiškumą, homofiliškumą, parasocialinę sąveiką, influencerio–produkto atitikimą, žinutės patikimumą, požiūrį į produktą, subjektyvias normas, pirkimo ketinimą ir kultūrines vertybes.

Klausimyne buvo įtraukti manipuliacijos patikrinimo klausimai, siekiant nustatyti, ar respondentai teisingai identifikavo jiems parodyto influencerio tipą. Respondentai, kurie neteisingai atsakė į manipuliacijos patikrinimo klausimą, buvo svarstomi kaip pašalintini iš analizės, siekiant užtikrinti eksperimentinės manipuliacijos validumą. Matavimo modelis buvo vertinamas pagal patikimumo ir validumo kriterijus, įskaitant vidinį nuoseklumą, konvergentinį validumą, diskriminantinį validumą ir multikolinearumo vertinimą (Hair et al., 2022). Tiriamoji faktorinė analizė buvo taikyta kaip preliminarus diagnostinis etapas, o matavimo modelis toliau vertintas taikant PLS-SEM procedūras.

Duomenų analizė atlikta taikant PLS-SEM, mediacijos analizę, moderacijos analizę ir kelių grupių analizę. Mediacijos analizė naudota siekiant nustatyti, ar influencerio savybės paaiškina netiesioginius influencerio tipo poveikius žinutės patikimumui, požiūriui į produktą ir pirkimo ketinimui. Moderacijos analizė naudota siekiant patikrinti, ar kultūrinės vertybės, influencerio tipas, žinutės valentingumas ir produkto tipas keičia ryšių stiprumą modelyje. Kelių grupių analizė naudota siekiant palyginti skirtumus tarp eksperimentinių sąlygų.

Empirinė analizė pradėta nuo aprašomosios statistikos ir matavimo modelio vertinimo. Patikimumo ir validumo rezultatai iš esmės patvirtino matavimo skalių tinkamumą. Vidinis nuoseklumas buvo patvirtintas, o konvergentinis validumas nustatytas remiantis tinkamais sudėtinio patikimumo ir vidutinės išskirtos dispersijos rodikliais. Diskriminantinis validumas vertintas taikant heterotrait–monotrait santykį. Nors kai kurie konstruktai konceptualiai susiję, matavimo modelis suteikė pakankamą pagrindą struktūriniam modeliui testuoti (Henseler et al., 2015).

Pirmoji pagrindinė rezultatų dalis susijusi su virtualių ir žmogaus influencerių palyginimu pagal suvokiamas influencerių savybes. Rezultatai parodė, kad žmogaus influenceriai apskritai buvo vertinami palankiau nei virtualūs influenceriai keliose santykių ir patikimumo dimensijose. Tiksliau, žmogaus influenceriai buvo suvokiami kaip patikimesni, kompetentingesni, autentiškesni, panašesni į auditoriją ir labiau gebantys sukurti parasocialinę sąveiką. Šie rezultatai rodo, kad žmogaus influencerių pranašumas daugiausia susijęs su jų suvokiama žmogiška tapatybe, realia patirtimi, emociniu pajėgumu ir gebėjimu kurti psichologinį artumą su vartotojais.

Vis dėlto ne visos savybės reikšmingai skyrėsi tarp virtualių ir žmogaus influencerių. Rezultatai neparodė reikšmingo skirtumo suvokiamo patrauklumo ir influencerio–produkto atitikimo atžvilgiu. Tai leidžia teigti, kad virtualūs influenceriai gali konkuruoti su žmogaus influenceriais vizualinio patrauklumo ir suvokiamo atitikimo reklamuojamam produktui požiūriu. Kadangi virtualūs influenceriai gali būti kruopščiai suprojektuoti, jie gali pasiekti aukštą estetinį patrauklumą. Panašiai jų personažas ir prekės ženklo asociacijos gali būti strategiškai sukonstruoti taip, kad atitiktų produkto kategoriją. Todėl skirtumas tarp žmogaus ir virtualių influencerių nėra universalus visoms savybėms, bet labiau pasireiškia santykių ir patikimumo dimensijose.

Antroji pagrindinė rezultatų dalis susijusi su kultūrinių vertybių moderuojančiu poveikiu. Iš trijų nagrinėtų kultūrinių dimensijų svarbiausią moderuojantį vaidmenį atliko vyriškumas. Vyriškumas neigiamai moderavo ryšį tarp influencerio tipo ir kelių suvokiamų influencerio savybių. Konkrečiai, žmogaus influencerių pranašumas prieš virtualius influencerius sumažėjo kultūriniuose kontekstuose, pasižyminčiuose aukštesniu vyriškumu. Tai reiškia, kad vartotojai, pasižymintys stipresnėmis vyriškumo vertybėmis, rodė mažesnius skirtumus tarp žmogaus ir virtualių influencerių patikimumo, kompetencijos, autentiškumo, homofiliškumo ir parasocialinės sąveikos požiūriu. Ilgalaikė orientacija ir neapibrėžtumo vengimas turėjo ribotesnius moderuojančius poveikius. Šie rezultatai rodo, kad kultūrinės vertybės gali formuoti virtualių influencerių interpretaciją, tačiau ne visos kultūrinės dimensijos veikia vienodai.

Tarpšalinis palyginimas patvirtino kultūrinio konteksto svarbą, nors jis buvo traktuojamas kaip papildomas kultūrinių vertybių analizės elementas. Kinijos respondentai parodė mažiau skirtumų tarp virtualių ir žmogaus influencerių, Lietuvos respondentai keliose savybėse stipriau pirmenybę teikė žmogaus influenceriams, o Ispanijos respondentai pasižymėjo nuosaikesniu modeliu. Šie skirtumai leidžia manyti, kad kultūrinis kontekstas gali veikti vartotojų pasirengimą priimti virtualius influencerius kaip patikimus ir socialiai prasmingus komunikacijos šaltinius. Vis dėlto disertacijoje pagrindiniu teoriniu paaiškinimu laikomos kultūrinės dimensijos, o ne šalių palyginimas.

Trečioji rezultatų dalis analizavo, kaip influencerio savybės veikia žinutės patikimumą. Rezultatai parodė, kad influencerio–produkto atitikimas buvo stipriausias žinutės patikimumo prediktorius. Tai reiškia, kad vartotojai labiau linkę suvokti influencerio kuriamą informaciją kaip patikimą, kai influenceris atrodo tinkamas reklamuojamam produktui. Šis rezultatas ypač svarbus virtualių influencerių rinkodaroje, nes virtualūs influenceriai gali neturėti realios produkto naudojimo patirties; todėl suvokiamas atitikimas tampa kritiniu žinutės patikimumo signalu. Parasocialinė sąveika taip pat

atliko svarbų vaidmenį formuojant patikimumą. Kelios influencerio savybės veikė žinutės patikimumą netiesiogiai per parasocialinę sąveiką. Tai rodo, kad santykinis įsitraukimas yra svarbus kelias, per kurį influencerio savybės formuoja vartotojų žinutės vertinimą.

Mediacijos analizė suteikė išsamesnį supratimą apie tai, kaip influencerio tipas veikia tolesnes vartotojų reakcijas. Bendras netiesioginis influencerio tipo poveikis žinutės patikimumui buvo reikšmingas, tačiau bendri netiesioginiai poveikiai požiūriui į produktą ir pirkimo ketinimui nebuvo reikšmingi. Tai rodo, kad skirtumai tarp virtualių ir žmogaus influencerių daugiausia perduodami žinutės patikimumo formavimo etape, o ne tiesiogiai pereina į galutinius požiūrio ar elgsenos rezultatus per influencerio savybes. Reikšmingi specifiniai netiesioginiai poveikiai parodė, kad homofiliškumas, autentiškumas ir patikimumas veikia žinutės patikimumą per parasocialinę sąveiką ir influencerio–produkto atitikimą. Šis rezultatas svarbus, nes rodo, kad influencerio savybės labiausiai reikšmingos formuojant žinutės patikimumą, o vėlesni įtikinimo etapai priklauso ir nuo kitų mechanizmų.

Ketvirtoji rezultatų dalis nagrinėjo žinutės patikimumo, parasocialinės sąveikos ir influencerio–produkto atitikimo poveikį požiūriui į produktą ir pirkimo ketinimui. Rezultatai parodė, kad žinutės patikimumas teigiamai veikia požiūrį į produktą. Parasocialinė sąveika ir influencerio–produkto atitikimas taip pat prisidėjo prie požiūrio formavimo. Požiūris į produktą stipriai teigiamai veikė pirkimo ketinimą, patvirtindamas, kad palankūs produkto vertinimai yra centriniai vartotojų elgsenos ketinimui. Subjektyvios normos taip pat teigiamai veikė pirkimo ketinimą, rodydamos, kad socialinė įtaka išlieka aktuali influencerių rinkodaros kontekste.

Penktoji rezultatų dalis nagrinėjo influencerio tipo moderuojantį vaidmenį ryšiuose tarp influencerio savybių ir žinutės patikimumo. Rezultatai parodė, kad influencerio tipas plačiai nemoderuoja ryšių tarp influencerio savybių ir žinutės patikimumo. Tai leidžia teigti, kad mechanizmai, per kuriuos patikimumas, autentiškumas, homofiliškumas, parasocialinė sąveika

ir atitikimas formuoja žinutės patikimumą, iš esmės nesiskiria tarp žmogaus ir virtualių influencerių. Pagrindinis skirtumas tarp virtualių ir žmogaus influencerių yra šių savybių suvokimo lygis, o ne tai, kaip šios savybės veikia susiformavusios.

Šeštoji rezultatų dalis skirta influencerio tipo ir žinutės rėminimo valentingumo sąveikai. Rezultatai parodė, kad ši sąveika svarbi kai kuriems, bet ne visiems įtikinimo keliams. Žinutės patikimumo poveikis požiūriui į produktą buvo stipriausias žmogaus influencerio ir teigiamos žinutės sąlygoje, o silpniausias virtualaus influencerio ir neigiamos žinutės sąlygoje. Tai rodo, kad palankūs šaltinio ir žinutės deriniai sustiprina įtikinimą, o mažiau palankūs deriniai jį susilpnina. Kai žmogaus influenceris pateikia teigiamą žinutę, vartotojai gali suvokti ją kaip patikimą ir suderinamą su autentiškos rekomendacijos lūkesčiais. Priešingai, kai virtualus influenceris pateikia neigiamą žinutę, vartotojai gali tapti skeptiškesni, nes dirbtinis šaltinis ir neigiamas rėminimas kartu sumažina žinutės patikimumo įtikinamąją galią.

Influencerio tipo ir žinutės rėminimo valentingumo sąveika nuosekliai nemoderavo parasocialinės sąveikos ir influencerio–produkto atitikimo poveikių požiūriui į produktą. Tai rodo, kad patikimumo ir požiūrio kelias yra jautresnis bendrai šaltinio tipo ir žinutės rėminimo įtakai nei santykių ar atitikimo keliai. Papildomas svarbus rezultatas yra tai, kad influencerio–produkto atitikimas gali tapti ypač svarbus, kai žinutės patikimumas susilpnėja, pavyzdžiui, virtualaus influencerio ir neigiamos žinutės sąlygoje. Tokiais atvejais suvokiamas atitikimas gali veikti kaip alternatyvus įtikinimo signalas, padedantis vartotojams įvertinti rekomendacijos tinkamumą.

Septintoji rezultatų dalis nagrinėjo influencerio tipo ir produkto tipo sąveiką. Rezultatai parodė, kad ryšys tarp subjektyvių normų ir pirkimo ketinimo buvo stipriausias, kai virtualūs influenceriai reklamavo paieškos prekes, ir silpniausias, kai virtualūs influenceriai reklamavo patirties prekes. Tai reiškia, kad vartotojai gali būti labiau linkę remtis socialinėmis normomis ir rekomendacijomis, susijusiomis su virtualiais influenceriais, kai produktas gali būti įvertinamas remiantis objektyviais, faktiniais ir informaciniais

atributais. Priešingai, patirties prekių atveju, kai svarbi jutiminė patirtis ir asmeninis naudojimas, vartotojai gali abejoti, ar virtualūs influenceriai gali pateikti prasmingus vertinimus. Žmogaus influencerių atveju subjektyvių normų poveikis buvo stabilesnis tarp produktų tipų, tikėtina, todėl, kad žmogaus influenceriai suvokiami kaip turintys realią patirtį ir jutiminį pajėgumą abiejose produktų kategorijose.

Apibendrinant, duomenų analizė rodo, kad virtualių ir žmogaus influencerių veiksmingumas priklauso nuo šaltinio savybių, žinutės patikimumo, santykinių mechanizmų, kultūrinių vertybių, žinutės valentingumo ir produkto tipo sąveikos. Rezultatai nerodo, kad virtualūs influenceriai visais atvejais yra tiesiog mažiau veiksmingi nei žmogaus influenceriai. Jie veikiau rodo, kad virtualūs influenceriai vertinami kitaip, jų ribotumai labiausiai matomi santykio ir autentiškumo savybėse, o jų įtikinamasis potencialas stipriai priklauso nuo kontekstinio atitikimo.

Išvados

Disertacijoje nagrinėta, kaip influencerio tipas, t. y. virtualus ir žmogaus influenceris, formuoja suvokiamas influencerio savybes ir kaip šios savybės veikia žinutės patikimumą, požiūrį į produktą ir pirkimo ketinimą. Integruojant Informacijos priėmimo modelį, Pagrįsto veiksmo teoriją ir Hofstede kultūrinių dimensijų sistemą, buvo sukurtas ir patikrintas modelis, aiškinantis tiesioginius ir sąlyginius įtikinimo mechanizmus influencerių rinkodaroje (Ajzen & Fishbein, 1980; Hofstede, 1980; Sussman & Siegal, 2003).

Pirmoji pagrindinė išvada yra ta, kad virtualūs ir žmogaus influenceriai skiriasi daugumoje santykių ir patikimumo dimensijų. Žmogaus influenceriai buvo suvokiami kaip patikimesni, kompetentingesni, autentiškesni, panašesni į sekėjus ir labiau gebantys sukurti parasocialines sąveikas. Šie rezultatai rodo, kad žmogaus influenceriai išlaiko pranašumą savybėse, kurios priklauso nuo suvokiamo žmogiškumo, tikros patirties, emocinio ryšio ir socialinio artumo.

Vis dėlto virtualūs influenceriai reikšmingai nesiskyrė nuo žmogaus influencerių patrauklumo ir influencerio–produkto atitikimo požiūriu. Tai rodo, kad virtualūs influenceriai gali prilygti žmogaus influenceriams vizualinėse ir atitikimo dimensijose, kai jie kruopščiai suprojektuoti ir tinkamai pozicionuoti.

Antroji išvada yra ta, kad kultūrinės vertybės veikia vartotojų virtualių ir žmogaus influencerių vertinimą. Vyriškumas buvo svarbiausias kultūrinis moderatorius. Kultūrose, pasižyminčiose aukštesniu vyriškumu, suvokiami skirtumai tarp žmogaus ir virtualių influencerių tapo mažesni. Tai leidžia manyti, kad vartotojai, pasižymintys stipresnėmis vyriškumo vertybėmis, gali būti labiau linkę vertinti virtualius influencerius per veiklos rezultatų, statuso ir kompetencijos kriterijus, o ne per šilumos, autentiškumo ar santykinio artumo kriterijus. Ilgalaikė orientacija ir neapibrėžtumo vengimas veikė mažiau nuosekliai, todėl ne visos kultūrinės dimensijos yra vienodai aktualios virtualių influencerių vertinimui.

Trečioji išvada yra ta, kad influencerio savybės pirmiausia veikia žinutės patikimumą, o ne tiesiogiai lemia vėlesnius vartotojų rezultatus. Influencerio–produkto atitikimas buvo stipriausias žinutės patikimumo prediktorius, o parasocialinė sąveika veikė kaip svarbus santykinis mechanizmas. Mediacijos analizė parodė, kad influencerio tipas netiesiogiai veikė žinutės patikimumą per influencerio savybes, tačiau reikšmingai neveikė požiūrio į produktą ar pirkimo ketinimo per šias savybes. Tai reiškia, kad pagrindinis influencerio tipo poveikis pasireiškia patikimumo formavimo etape, kai vartotojai vertina, ar influencerio žinutė yra patikima ir įtikinama.

Ketvirtoji išvada yra ta, kad žinutės patikimumas, parasocialinė sąveika ir influencerio–produkto atitikimas yra svarbūs požiūrio į produktą veiksniai. Požiūris į produktą, savo ruožtu, stipriai veikia pirkimo ketinimą. Subjektyvios normos taip pat teigiamai veikia pirkimo ketinimą, patvirtindamos socialinės įtakos aktualumą influencerių rinkodaroje. Šie rezultatai pagrindžia Informacijos priėmimo modelio ir Pagrįsto veiksmo

teorijos derinimą, nes žinutės vertinimas, santykinis ryšys, produkto atitikimas, požiūris ir socialinė įtaka kartu paaiškina vartotojų pirkimo ketinimus.

Penktoji išvada yra ta, kad influencerio tipo ir žinutės rėminimo valentingumo sąveika selektyviai formuoja įtikinimą. Ryšys tarp žinutės patikimumo ir požiūrio į produktą buvo stipriausias tada, kai žmogaus influenceris pateikė teigiamą žinutę, ir silpniausias tada, kai virtualus influenceris pateikė neigiamą žinutę. Šis rezultatas rodo, kad šaltinio tipas ir žinutės rėminimas neturėtų būti vertinami kaip izoliuoti veiksniai. Jų bendras poveikis lemia, ar žinutės patikimumas yra labiau ar mažiau svarbus formuojant požiūrį.

Šeštoji išvada yra ta, kad influencerio tipo ir produkto tipo sąveika yra svarbi socialinei įtakai. Subjektyvios normos stipriausiai veikė pirkimo ketinimą, kai virtualūs influenceriai reklamavo paieškos prekes, ir silpniausiai, kai virtualūs influenceriai reklamavo patirties prekes. Tai rodo, kad virtualūs influenceriai gali būti priimtinesni kaip informacijos šaltiniai tada, kai produktus galima vertinti remiantis objektyvia ir patikrinama informacija. Produktams, kuriems reikalinga asmeninė patirtis, jutiminis vertinimas ar kūniškas naudojimas, virtualūs influenceriai gali susidurti su didesniais ribotumais.

Bendrai disertacijoje daroma išvada, kad virtualių ir žmogaus influencerių veiksmingumo negalima suprasti tik per paprastą influencerio tipo palyginimą. Influencerio tipo įtikinamasis vaidmuo priklauso nuo suvokiamų savybių, patikimumo formavimo, santykinių mechanizmų, kultūrinių vertybių, žinutės rėminimo ir produkto tipo. Virtualūs influenceriai gali būti veiksmingi tam tikromis sąlygomis, ypač kai svarbus vizualinis patrauklumas, produkto atitikimas ir informacija grindžiamas vertinimas. Tačiau žmogaus influenceriai išlaiko svarbius pranašumus pasitikėjimo, autentiškumo, panašumo ir parasocialinio ryšio dimensijose.

Disertacija pateikia kelias naujas išvadas ir teorinius indėlius į influencerių rinkodaros literatūrą. Pirma, ji siūlo sistemingą virtualių ir žmogaus influencerių palyginimą per kelias suvokiamas influencerio savybes. Ankstesni tyrimai dažnai lygino virtualius ir žmogaus influencerius pagal bendrą veiksmingumą arba ribotus konstruktus, tokius kaip šaltinio patikimumas (Lee & Ham, 2023; Li et al., 2023). Šioje disertacijoje parodoma, kad skirtumas tarp virtualių ir žmogaus influencerių yra specifinis pagal savybes. Žmogaus influenceriai vertinami palankiau patikimumo, kompetencijos, autentiškumo, homofiliškumo ir parasocialinės sąveikos požiūriu, o virtualūs influenceriai gali prilygti žmogaus influenceriams patrauklumo ir influencerio–produkto atitikimo požiūriu. Šis rezultatas prisideda prie teorinių žinių, parodydamas, kad ne visos influencerio savybės vienodai priklauso nuo žmogiškumo. Kai kurios savybės glaudžiai susijusios su realia žmogaus patirtimi ir emociniu ryšiu, o kitos gali būti suprojektuotos ir perkeltos virtualiems influenceriams.

Antra, disertacija pateikia naują įžvalgą apie kultūrinių vertybių vaidmenį formuojant virtualių ir žmogaus influencerių suvokimą. Rezultatai rodo, kad kultūrinis vyriškumas mažina žmogaus influencerio pranašumą. Tai leidžia teigti, kad kultūrinės vertybės daro įtaką tam, kaip vartotojai vertina dirbtinius nuomonės formuotojus, o virtualių influencerių priėmimas yra kultūriškai sąlygotas. Tai prisideda prie tarpkultūrinių influencerių rinkodaros tyrimų, parodydama, kad virtualių influencerių veiksmingumo negalima laikyti universaliu visose rinkose (De Mooij & Hofstede, 2010; Hofstede et al., 2010).

Trečia, disertacija prisideda prie Informacijos priėmimo modelio, paaiškindama, kaip influencerio savybės formuoja žinutės patikimumą. Rezultatai rodo, kad influencerio–produkto atitikimas yra stipriausias žinutės patikimumo veiksnys, o parasocialinė sąveika veikia kaip santykinis kelias, per kurį kitos savybės veikia patikimumą. Ši išvada rodo, kad vartotojai

influencerio kuriamą informaciją vertina ne tik pagal tradicinius patikimumo signalus, tokius kaip kompetencija ar patikimumas. Vietoj to suvokiamas atitikimas ir santykinis įsitraukimas atlieka esminį vaidmenį formuojant patikimumą (Belanche et al., 2021; Sussman & Siegal, 2003).

Ketvirta, mediacijos rezultatai suteikia dar vieną naują teorinį indėlį. Influencerio savybės medijuoja ryšį tarp influencerio tipo ir žinutės patikimumo, tačiau šis mediacijos mechanizmas reikšmingai neišsiplečia iki požiūrio į produktą ar pirkimo ketinimo. Tai rodo, kad skirtumai tarp virtualių ir žmogaus influencerių daugiausia perduodami patikimumo formavimo etape, o ne tiesiogiai formuoja galutinius požiūrio ar elgsenos rezultatus per influencerio savybes. Ši išvada patikslina supratimą apie tai, kaip influencerio tipas veikia įtikinimą, ir identifikuoja žinutės patikimumą kaip pagrindinį etapą, kuriame žmogaus ir virtualių influencerių skirtumai yra labiausiai matomi.

Penkta, disertacija pateikia naują sąveika grindžiamą išvadą apie influencerio tipą ir žinutės rėminimo valentingumą. Rezultatai rodo, kad žinutės patikimumo poveikis požiūriui į produktą priklauso nuo influencerio tipo ir žinutės rėminimo derinio. Konkrečiai, patikimumo ir požiūrio ryšys stipriausias žmogaus influencerio ir teigiamos žinutės sąlygoje, o silpniausias virtualaus influencerio ir neigiamos žinutės sąlygoje. Ši išvada prisideda prie influencerių rinkodaros teorijos, parodydama, kad žinutės patikimumas neveikia fiksuotai; jo įtikinamoji galia priklauso nuo šaltinio ir žinutės rėminimo atitikimo (O'Keefe & Jensen, 2008; Septianto et al., 2019).

Šešta, disertacija pateikia naują išvadą apie influencerio tipo ir produkto tipo suderinimo svarbą. Rezultatai rodo, kad socialinė įtaka stipriausia tada, kai virtualūs influenceriai reklamuoja paieškos prekes, ir silpniausia tada, kai virtualūs influenceriai reklamuoja patirties prekes. Tai leidžia teigti, kad vartotojai labiau linkę pasitikėti virtualiais influenceriais, kai produktus galima įvertinti remiantis objektyvia informacija, tačiau mažiau linkę tai daryti, kai produktams būtinas tikras jutiminis ar patirtinis vertinimas. Ši

išvada prisideda prie šaltinio–produkto atitikimo supratimo virtualių influencerių rinkodaroje (Nelson, 1974; Li et al., 2023).

Apibendrinant, disertacijos naujumas pasireiškia parodant, kad virtualių influencerių veiksmingumas priklauso ne tik nuo to, ar influenceris yra žmogus, ar virtualus, bet ir nuo to, kurios savybės vertinamos, kuris įtikinimo kelias aktyvuojamas ir kokios kontekstinės sąlygos egzistuoja. Todėl disertacija peržengia paprastus virtualių ir žmogaus influencerių palyginimus ir pateikia mechanizmais grindžiamą paaiškinimą, kada ir kodėl virtualūs influenceriai gali veikti panašiai kaip žmogaus influenceriai arba skirtis nuo jų.

Ribotumai, būsimos tyrimų kryptys ir vadybinės implikacijos

Disertacija turi kelis ribotumus, į kuriuos reikėtų atsižvelgti interpretuojant rezultatus. Pirma, empiriniame tyrime naudoti pasirinkti stimulai žmogaus ir virtualiam influenceriui reprezentuoti. Nors vizualinis stimulas buvo kontroliuojamas siekiant izoliuoti influencerio tipo psichologinį poveikį, vieno ar riboto influencerių reprezentacijų skaičiaus naudojimas gali riboti rezultatų apibendrinamumą. Būsimi tyrimai galėtų naudoti kelis žmogaus ir virtualius influencerius su skirtingomis išvaizdomis, etniniais fonais, stiliais ir realizmo lygiais, siekiant patikrinti, ar rezultatai išlieka stabilūs skirtinguose influencerių dizainuose.

Antra, tyrime naudotas anglų kalbos klausimynas Kinijoje, Ispanijoje ir Lietuvoje. Nors tas pats klausimynas užtikrino nuoseklumą tarp šalių ir sudarė galimybę palyginti rezultatus, kalba galėjo paveikti tai, kaip respondentai interpretavo kai kuriuos klausimus. Būsimi tyrimai galėtų naudoti išverstus ir atgal išverstus klausimynus vietinėmis kalbomis, siekiant pagerinti kultūrinį ir lingvistinį ekvivalentiškumą. Papildomas matavimo invariantiškumo testavimas taip pat galėtų sustiprinti būsimų tyrimų tarpkultūrinį validumą (Steenkamp & Baumgartner, 1998).

Trečia, tyrime nagrinėtos trys Hofstede kultūrinės dimensijos: vyriškumas, neapibrėžtumo vengimas ir ilgalaikė orientacija. Šios dimensijos pasirinktos, nes jos teoriškai aktualios vertinant virtualius influencerius kaip dirbtinius ir technologijomis grindžiamus nuomonės formuotojus (Hofstede et al., 2010). Vis dėlto kitos kultūrinės dimensijos, pavyzdžiui, individualizmas–kolektyvizmas ar galios distancija, kituose kontekstuose taip pat gali veikti reakcijas į influencerius. Būsimi tyrimai galėtų nagrinėti papildomas kultūrines dimensijas arba palyginti Hofstede sistemą su kitomis kultūros teorijomis.

Ketvirta, tyrime antropomorfizmas traktuotas kaip teorinis fonas, o ne empirinis konstruktas. Šis sprendimas priimtas todėl, kad disertacijoje lyginami virtualūs ir žmogaus influenceriai, o ne skirtingi virtualūs influenceriai pagal jų antropomorfizmo lygį. Kadangi antropomorfizmas reiškia žmogiškų savybių priskyrimą nežmogiškiems objektams ar agentams, jo negalima prasmingai matuoti žmogaus influencerio sąlygoje (Epley et al., 2007; Guthrie, 2005). Ateities tyrimai, orientuoti tik į virtualius influencerius, galėtų nagrinėti, kaip skirtingi antropomorfinės išvaizdos, elgesio, emocionalumo ir moralinės agentiškumo lygiai veikia vartotojų reakcijas.

Penkta, produkto tipo manipuliacija apėmė skirtingus produktus, reprezentuojančius paieškos ir patirties prekes. Nors šis požiūris atitinka produkto tipo teoriją (Nelson, 1970, 1974), jis gali įtraukti vizualinius ar kategorinius skirtumus, viršijančius numatytą manipuliaciją. Būsimi tyrimai galėtų manipuliuoti produkto tipu per aprašymus, išlaikydami vizualinius stimulus pastovius, arba naudoti kelis produktus kiekvienoje kategorijoje siekiant padidinti rezultatų patikimumą.

Šešta, tyrime matuotas pirkimo ketinimas, o ne faktinis pirkimo elgesys. Pirkimo ketinimas plačiai naudojamas vartotojų elgsenos tyrimuose, tačiau jis ne visada virsta faktiniu elgesiu. Ateities tyrimai galėtų naudoti elgsenos matavimus, paspaudimų duomenis, simuliuotas pirkimo užduotis ar lauko eksperimentus, siekiant nustatyti, ar pastebėti poveikiai veikia realius vartotojų veiksmus.

Tyrimo rezultatai suteikia kelias vadybines implikacijas. Pirma, įmonės neturėtų manyti, kad virtualūs influenceriai gali paprastai pakeisti žmogaus influencerius visose kampanijose. Žmogaus influenceriai išlieka veiksmingesni, kai kampanijos tikslas yra kurti pasitikėjimą, autentiškumą, panašumą ir emocinį ryšį. Prekių ženklai, siekiantys stiprinti santykinį įsitraukimą, patikimumą ir vartotojų identifikaciją, turėtų ir toliau prioritetą teikti žmogaus influenceriams.

Antra, virtualūs influenceriai gali būti naudingi, kai kampanijos centre yra vizualinis patrauklumas, kontroliuojama komunikacija, naujumas ir produkto atitikimas. Kadangi virtualūs influenceriai gali prilygti žmogaus influenceriams patrauklumo ir influencerio–produkto atitikimo požiūriu, jie gali būti veiksmingi kampanijose, kuriose svarbus estetinis pateikimas ir nuoseklus prekės ženklo įvaizdis. Prekių ženklai gali didinti virtualių influencerių veiksmingumą kurdami personažą, kuris atitinka produkto kategoriją ir tikslinę auditoriją.

Trečia, influencerio–produkto atitikimas turėtų būti laikomas strateginiu prioritetu. Tyrimas rodo, kad atitikimas yra stipriausias žinutės patikimumo prediktorius. Todėl rinkodaros specialistai neturėtų rinktis influencerių vien pagal sekėjų skaičių ar populiarumą. Vietoj to jie turėtų užtikrinti, kad influencerio įvaizdis, gyvenimo būdas, kompetencija ir auditorijos lūkesčiai atitiktų reklamuojamą produktą. Tai ypač svarbu virtualiems influenceriams, nes suvokiamas atitikimas gali kompensuoti realios produkto patirties stoką.

Ketvirta, rinkodaros specialistai turėtų pritaikyti žinutės rėminimą pagal influencerio tipą. Teigiamos žinutės, pateiktos žmogaus influencerių, atrodo ypač veiksmingos stiprinant žinutės patikimumo poveikį požiūriui į produktą. Priešingai, neigiamos žinutės, pateiktos virtualių influencerių, gali susilpninti patikimumo ir požiūrio ryšį. Todėl prekių ženklai, naudojantys virtualius influencerius, turėtų atsargiai naudoti neigiamas ar riziką akcentuojančias žinutes ir pateikti stiprią informacinę paramą bei produkto atitikimo signalus.

Penkta, produkto tipas turėtų lemti influencerio pasirinkimą. Virtualūs influenceriai gali būti tinkamesni paieškos prekėms, kur objektyvi ir faktinė informacija padeda vartotojui vertinti produktą. Patirties prekėms, kur svarbi jutiminė patirtis ir asmeninis naudojimas, žmogaus influenceriai gali būti įtikinamesni, nes jie gali pateikti tikrus patirties signalus. Todėl prekių ženklai turėtų derinti influencerio tipą su produkto vertinamumo pobūdžiu.

Šešta, globalūs prekių ženklai turėtų atsižvelgti į kultūrines vertybes kurdami influencerių rinkodaros kampanijas. Rezultatai rodo, kad suvokiamas atotrūkis tarp virtualių ir žmogaus influencerių skiriasi kultūriniuose kontekstuose. Rinkose, pasižyminčiose stipresnėmis vyriškumo vertybėmis, virtualūs influenceriai gali susidurti su mažesniu nepalankumu palyginti su žmogaus influenceriais. Rinkose, kuriose svarbesni autentiškumas, šiluma ir santykinis artumas, žmogaus influenceriai gali išlikti įtikinamesni. Todėl tarptautinės influencerių rinkodaros strategijos turėtų būti pritaikomos prie kultūrinių lūkesčių, o ne taikomos kaip vienas universalus globalus sprendimas.

Apibendrinant, disertacija parodo, kad virtualūs influenceriai yra svarbi, tačiau kontekstiškai sąlygota influencerių rinkodaros raidos kryptis. Jų veiksmingumas priklauso nuo suvokiamų savybių, patikimumo formavimo, žinutės rėminimo, produkto tipo ir kultūrinių vertybių. Žmogaus influenceriai išlieka stipresni santykių ir autentiškumo pagrindu grindžiamame įtikinime, o virtualūs influenceriai gali būti veiksmingi tada, kai kampanijos remiasi vizualiniu patrauklumu, informacija grindžiamu produkto vertinimu ir kruopščiai sukonstruotu šaltinio–produkto atitikimu. Ateities tyrimai gali plėtoti šias išvadas, nagrinėdami platesnį virtualių influencerių dizainų, kultūrinių kontekstų, produktų kategorijų ir elgsenos rezultatų spektrą.

INFORMATION ABOUT DOCTORAL STUDENT

Yiyuan Ying is a PhD candidate and lecturer in Marketing at the Faculty of Economics and Business Administration at Vilnius University. She is also a seasoned practitioner with experience in strategic intelligence, start-up business development, public relations, and international journalism in China and Europe. Her research interests encompass influencer marketing, virtual influencers, AI-driven influence, the use of AI in marketing, consumer behaviour, and cross-cultural comparison in marketing. Yiyuan has published in Science – Future of Lithuania. Economics and Management and Tiltai, and her research has been presented at several international scientific conferences, including the 13th International Scientific Conference "Business and Management 2023", the 28th Conference for Young Researchers "Science – Future of Lithuania. Economics and Management", and the 2026 Academy of Marketing Science World Marketing Congress. She teaches International Marketing, Integrated Marketing Communications, and Fundamentals of Marketing and supervise thesis for the Bachelor's and Master's students.

INFORMACIJA APIE DOKTORANTĘ

Yiyuan Ying yra Vilniaus universiteto Ekonomikos ir verslo administravimo fakulteto rinkodaros krypties doktorantė ir lektorė. Ji taip pat yra patyrusi praktikė, turinti strateginės žvalgybos, startuolių verslo plėtros, viešųjų ryšių ir tarptautinės žurnalistikos patirties Kinijoje ir Europoje. Jos mokslinių tyrimų interesai apima influencerių rinkodarą, virtualius influencerius, dirbtiniu intelektu grindžiamą poveikį, dirbtinio intelekto naudojimą rinkodaroje, vartotojų elgseną ir tarpkultūrinius palyginimus rinkodaroje. Yiyuan yra publikavusi mokslo žurnaluose „Science – Future of Lithuania. Economics and Management" ir „Tiltai", o jos tyrimai buvo pristatyti keliose tarptautinėse mokslinėse konferencijose, įskaitant 13-ąją tarptautinę mokslinę konferenciją „Business and Management 2023", 28-ąją jaunųjų mokslininkų konferenciją „Science – Future of Lithuania. Economics and Management" ir 2026 m. Academy of Marketing Science World Marketing Congress. Ji dėsto tarptautinę rinkodarą, integruotąją rinkodaros komunikaciją ir rinkodaros pagrindus, taip pat vadovauja bakalauro ir magistro studentų baigiamiesiems darbams.

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LIST OF PUBLICATIONS

The author's contribution to the preparation of scientific publications and participation in scientific conferences related to the dissertation research on the impact of virtual and human influencer characteristics on purchase intention.

Articles in international peer-reviewed scientific publications:

1. Ying, Y., Sungailaitė, D., & Dikčius, V. (2026). Impact of influencer's authenticity and credibility on purchase intention: case of virtual vs. human influencer, *Science – Future of Lithuania. Economics and management.* Vilnius: Vilnius Gediminas Technical University. ISSN 2029-2341. eISSN 2029-2252. 2026, vol. 18, art. no. mla.2026.25048, p. [1-11]. DOI: 10.3846/mla.2026.25048.
2. Sungailaitė, D., Ying, Y., & Dikčius, V. (2025). Virtual influencers: are they the same? A systematic literature review. *Tiltai.* ISSN 1392-3137. eISSN 2351-6569. 2025, vol. 95, iss. 2, p. 106-117. DOI: 10.15181/tbb.v95i2.2772.
3. Ying, Y., & Dikčius, V. (2023). Influencer characteristics in social media influencer marketing: a systematic literature review. *13th International scientific conference "Business and Management 2023"*, Vilnius: Vilnius Gediminas Technical University, May 11–12, 2023. ISBN 9786094763335. eISBN9786094763342. ISSN 2029-4441. eISSN 2029-929X. p. 620-633. DOI: 10.3846/bm.2023.1024.

Reports at international scientific conferences:

1. Ying, Y., & Dikčius, V. (2026). The role of cultural masculinity in shaping perceptions of virtual vs. human influencers: Credibility, authenticity, and purchase intention. Structured abstract presented at the 2026 Academy of Marketing Science World Marketing Congress, Vilnius University,

Vilnius, Lithuania, July 7–10, 2026.

2. Ying, Y., Sungailaitė, D., & Dikčius, V. (2026). Impact of influencer's authenticity and credibility on purchase intention: case of virtual vs. human influencer. Paper presented at 28th Conference for Young Researchers "Science – Future of Lithuania. Economics and Management", Vilnius: Vilnius Gediminas Technical University, October 21, 2025.
3. Ying, Y., & Dikčius, V. (2023). Influencer characteristics in social media influencer marketing: a systematic literature review. Paper presented 13th International scientific conference "Business and Management 2023", Vilnius: Vilnius Gediminas Technical University, May 11–12, 2023.

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