



UNIVERSIDADE CATÓLICA PORTUGUESA

Virtual Influencer marketing:

The role of perceived authenticity and social
psychological distance in consumer
behavioural intentions.

by

Joana Serra da Costa

Universidade Católica Portuguesa

November 2024



UNIVERSIDADE CATÓLICA PORTUGUESA

Virtual Influencer marketing:

The role of perceived authenticity and social psychological distance in consumer behavioural intentions.

Master's Final Assignment in the form of a Dissertation
Presented to Universidade Católica Portuguesa to obtain a master's degree in
management.

by
Joana Serra da Costa

Under supervision of
Professor Susana Costa e Silva and Professor Roberta de Cicco

Universidade Católica Portuguesa

November 2024

Acknowledgements

I want to share my love and gratitude with my wonderful parents, my sister Marta and my boyfriend Alberto, who supported me throughout the process of writing this dissertation. Thank you for motivating me every day and for believing in my decisions.

I would also like to thank my supervisors for contributing to my academic growth and for supporting me whenever I needed it.

Abstract

The present study adopts a quantitative methodology and an experimental model to investigate the differences between virtual and human influencers' perceived authenticity and social psychological distance from their followers, as well as the influence of these two variables on the purchase, recommendation, and follow intention depending on the nature of influencer. A total of 214 individuals of Portuguese nationality participated in this study by answering an online questionnaire. The results indicated that virtual influencers, as compared to human influencers, are perceived as less authentic and more social psychological distant from followers. Authenticity significantly predicted follow, recommendation, and purchase intentions, while social psychological distance only directly affected recommendation intention. Although influencer type did not directly impact behavioural intentions, follow, recommendation and purchase intentions were indirectly influenced through perceived authenticity, and recommendation intention was similarly mediated by perceived social psychological distance. These results suggest that using virtual influencers to promote brands or services does not in itself represent a disadvantage compared to using human influencers and emphasises the importance of perceived authenticity and social psychological distance. This research aimed to extend the limited scientific knowledge on virtual influencer marketing, leading to the efficient use of virtual influencers in marketing plans by brands and marketers.

Key-words: Virtual Influencer; Authenticity; Social Psychological Distance.

Resumo

O presente estudo adota uma metodologia quantitativa e um modelo experimental para investigar as diferenças entre a autenticidade percebida dos influenciadores virtuais e digitais e a distância social psicológica dos seus seguidores, bem como a influência destas duas variáveis na intenção de comprar, de recomendação e de seguir em função da natureza do influenciador. Um total de 214 indivíduos de nacionalidade portuguesa participaram neste estudo através da resposta a um questionário online. Os resultados indicaram que os influenciadores virtuais, em comparação com os influenciadores humanos, são percecionados como menos autênticos e mais distantes social-psicologicamente dos seguidores. A autenticidade previu significativamente as intenções de seguir, recomendar e comprar, enquanto a distância social psicológica apenas afetou diretamente a intenção de recomendar. Embora o tipo de influenciador não tenha tido um impacto direto nas intenções comportamentais, as intenções de seguir, recomendar e comprar foram indiretamente influenciadas pela percepção de autenticidade, e a intenção de recomendar foi igualmente mediada pela percepção de distância social psicológica. Estes resultados sugerem que a utilização de influenciadores virtuais para promover marcas ou serviços não representa, por si só, uma desvantagem em comparação com a utilização de influenciadores humanos e salienta a importância da percepção de autenticidade e da distância psicológica social. Esta investigação teve como objetivo expandir o limitado conhecimento científico sobre o marketing de influenciadores virtuais, conduzindo a uma utilização eficiente dos influenciadores virtuais nos planos de marketing por parte das marcas e dos profissionais de marketing.

Palavras-chave: Influenciador Virtual; Autenticidade; Distância Social Psicológica.

Contents

Acknowledgements.....	v
Abstract	vii
Resumo.....	ix
Contents	xi
Table of Figures.....	xiii
Table of Tables	xv
Abbreviations	xvii
Introduction.....	1
Literature Review	4
2.1 Marketing: Digital Influence	4
2.2 Authenticity	5
2.3 Social Psychological Distance	8
Methodology	11
3.1 Study Architecture.....	11
3.2 Sample Selection and Data Collection Strategy.....	11
3.3 Experimental Procedure and Questionnaire Design	12
3.4 Measures	15
Results	17
4.1. Demographic Characterization of the Sample.....	17
4.2. Reliability and Validity	20
4.3 Path Analysis	22
Discussion.....	25
Conclusions	27
6.1. Theoretical and Practical Implications.....	27
6.2 Limitations of the Investigation and Future Research	29
Bibliography	31
Appendices	36
Appendix A.1 Transcription of the online questionnaire	36
Appendix A.2 Results of the T-tests.....	46

Table of Figures

Figure 1: Research Model	10
Figure 2: Human Influencer manipulated post (source: Instagram)	14
Figure 3: Virtual Influencer manipulated post (source: Instagram).....	14
Figure 4: Path Analysis	22

Table of Tables

Table 1: Constructs and their Measures..... 16

Table 2: Demographic Characterization of the Sample 19

Table 3: Construct Reliability and Convergent Validity 20

Table 4: Discriminant Validity Cross-loading..... 21

Table 5: Discriminant Validity by Fornell-Larcker Criterion..... 21

Table 6: Path Analysis Results..... 23

Table 7: Mediation Results 24

Abbreviations

VI – Virtual Influencer

HI – Human Influencer

IT – Influencer Type

A – Authenticity

SPD – Social Psychological Distance

FI – Follow Intention

RI – Recommendation intention

PI – Purchase Intention

Chapter 1

Introduction

Are we more digitally connected than ever before? Never in human history have so many people had access to the Internet as today. An estimated 66.2 per cent of the world's population, approximately 5.35 billion individuals, use the internet and spend an average of 6 hours and 40 minutes navigating online per day (UNESCO, 2023). The world is witnessing a hyperconnectivity revolution (Gaines, 2019) that has been triggered by the transition to e-commerce and digital customer service channels due to the COVID-19 pandemic (Sands et al., 2022b), along with advances in connectivity, portability, and digitalization (Arsenyan & Mirowska, 2021). As a result, this is reflected in the introduction of non-human agents into spaces initially destined for Humans (Beer et al., 2015; Gaines, 2019), blurring the line between reality and fiction (Moustakas et al., 2020).

A human influencer (HI) is a person with a network of committed followers who exert influence by creating and publishing content on social networks (Lou & Yuan, 2019). In contrast, a virtual influencer (VI) is not a human and can be considered an interactive entity rendered in real-time through artificial or computer intelligence and can imitate at a lower or higher level the physical characteristics of human influencers and their personalities (Thomas & Fowler, 2021; Moustakas et al., 2020; Lou et al., 2022).

From a theoretical point of view, besides the comprehensive number of articles addressing social media and human influencers observed, this diversity is reduced when referring to virtual influencers (Lou et al., 2022). Until this moment, followers' intentions have been analysed in a restricted way, so conducting studies comparing virtual influencers to human influencers with similar profiles to understand the influence of perceived authenticity (Sands et

al., 2022a) and the psychological aspects of social media users and the user-virtual influencer relationships on their consumer behaviour (Kim & Baek, 2023; Zhou et al., 2024) would be crucial to understand if those who follow virtual influencers build the same kind of relationships with them as they do with human influencers (Arsenyan & Mirowska, 2021) and what are the factors that influence consumer engagement with virtual influencers (Jhawar et al., 2023).

From a managerial perspective, artificial intelligence and machine learning are transforming the marketing field in the context of social media influence (Sands et al., 2022b), causing significant changes in consumer behaviour and the design of marketing strategies (Davenport et al., 2020). Due to the increasing number of players involved in the influencer market combined with its effectiveness, it is crucial to understand the capability of this phenomenon to enhance a brand's overall strategies (Campbell & Farrell, 2020). One essential step for achieving this is paying attention to the concepts of authenticity and parasocial bonding (Dondapati & Dehury, 2024) and considering that the impact of virtual influencers as brand endorsers on business consequences, interaction intentions, and brand attitudes is largely unstudied (Li et al., 2023), producing scientific data will enable marketers and businesses to benefit from this new digital era.

To address and deepen the questions that have remained unanswered in the literature, this investigation aims to answer the following research questions: “Do social psychological distance and authenticity undermine perceptions towards virtual influencers?” and “How are these factors influencing consumer outcomes such as intention to recommend, to follow and to purchase?”.

This dissertation is segmented into six main chapters. The first chapter is the introduction, the second includes an extensive literature review and the third details the methodology. The fourth chapter is dedicated to presenting the results, while the fifth presents a discussion of them. The final chapter consolidates the conclusions, future research and limitations.

Chapter 2

Literature Review

2.1 Marketing: Digital Influence

Influencer marketing, as identified by Jhawar et al. (2023), represents a powerful branding and marketing tool with the objective of enhancing brand salience and generating interest among social media users with specific brands. Three essential entities play a crucial role in influencer marketing: influencers, consumers, and brands, and its utilization has been growing exponentially (Lou & Yuan, 2019), with a projected valuation of approximately \$24 billion by the end of 2024 (Influencer Marketing Hub, 2024). Virtual influencer marketing presupposes the collaboration of brands with non-human influencers, virtual influencers, who have influence over a considerable number of consumers (Mouritzen et al., 2023).

Human influencers have emerged as a new category of third-party endorsers who influence audience attitudes through social media platforms (Freberg et al., 2011), where they have the creative freedom to generate and publish advertising messages (Hudders et al., 2021). Virtual influencers also have a social media presence, but instead of humans, they are generated by computers or artificial intelligence (Moustakas et al., 2020). A study by The Influencer Marketing Factory (2022) found that 58% of participants follow at least one virtual influencer, 24% of non-followers were unaware of their existence, and 35% have purchased a product or service endorsed by a virtual influencer.

Virtual influencers provide a distinctive level of adaptability through their customisable appearance, background, and behaviour, facilitating adjustments in response to evolving marketing trends and dynamic consumer preferences

(Mouritzen et al., 2023). Their flexibility extends beyond customisation, as virtual influencers are unrestricted from the constraints typically faced by human influencers, such as fatigue, illnesses, or hunger (Appel et al., 2020). Additionally, they are not bound by geographical restrictions and can be present anywhere (Conti et al., 2022). Virtual influencers differentiate themselves in marketing by customisation, flexibility, ownership, and automation nature (Mouritzen et al., 2023). They are projected to produce effects identical to those of human influencers concerning stimulating emotional bonds and enhancing relationships, but in a more economically efficient way (Zhou et al., 2024).

In considering the utilisation of virtual influencers, it is crucial to be aware of possible disadvantages, like the potential of perpetuating unrealistic beauty standards, the imperative of transparency and authenticity, and the challenges related to creating emotive storytelling (Sands et al., 2022b). The user awareness of the fictional nature of content created by virtual influencers and the recognition of the influencer's personality as an artificial construct with financial motivations could be seen as a challenge that needs to be overcome (Moustakas et al., 2020).

In the context of influencer marketing, the concepts of social distance (Zhou et al., 2019) and authenticity (Dondapati & Dehury, 2024) are points of research interest as they influence attitudes towards influencers (Um, 2023; Edwards et al., 2009)

2.2 Authenticity

Authenticity, as described by Beverland and Farrelly (2010), refers to the sense of genuineness, trueness, and realness perceived by customers or users. From the perspective of social media, the authenticity of a post or photograph is expressed when it illustrates the characteristics of a celebrity's true self

(Kowalczyk & Pounders, 2016). Regarding the promotion of services or products by a social media influencer, transparent authenticity is visible when information based on facts is shared by that influencer (Audrezet et al., 2020). Authenticity can be generated not only by the influencers themselves but also by digital interaction with a non-human influencer who does not exist and triggers the follower's attraction, fascination, and curiosity (De Brito Silva et al., 2022).

Kim and Baek (2023) identified that factors such as language similarity, interest similarity, physical attractiveness, and attitude homophily significantly influence perceived authenticity. The congruence between an influencer's content and their personality, lifestyle, and personal narrative can provide credibility and authenticity, which will impact the connection they may be able to create with their audience (De Brito Silva et al., 2022). Accordingly, the detection of falsity and inconsistencies in an influencer's content negatively impacts the perception of authenticity (Kim & Baek, 2023). A study by Alimamy and Kuhail (2023) on intelligent virtual assistants revealed a positive correlation between perceived authenticity, commitment, and trust. Additionally, anthropomorphism, human-like conversations, transparency in purpose, learning from experience, and coherence were identified as contributing to the perception of them as authentic (Neururer et al., 2018). According to Um (2023), consumer perception of authenticity positively impacts their attitudes toward virtual influencers and advertising and the design and presentation of a virtual influencer, including its personality, values, and interactions with users, should be perceived as believable and authentic. In this sense, this investigation anticipates that human influencers would be perceived as more authentic than virtual influencers:

H1: There is a significant difference in perceived authenticity between virtual and human influencers.

Regarding the intention to follow, Sands et al. (2022a) pointed out that there is no difference perceived by followers between virtual and human influencers. Additionally, the attraction of new followers and the impact on their decision-making is higher if influencers are perceived as experts and share authentic and intimate information (Hudders et al., 2021). Considering that perceived authenticity is expected to be lower for virtual influencers, this research expects that intention to follow will differ significantly depending on the type of influencer.

H3: The perceived authenticity of virtual influencers influences the intention to follow.

The intention to recommend is related to the likelihood that an individual will recommend an account to others (Casaló et al., 2020). A decrease in an influencer's perceived authenticity is associated with a corresponding reduction in their ability to influence their followers and leads to lower engagement metrics (Hudders et al., 2021). Perceived originality and uniqueness are essential to developing opinion leadership on Instagram, which affects consumers' behavioural intentions regarding the intention to recommend (Casaló et al., 2020). A negative effect of virtual influencers in brand endorsement compared with human influencers was pointed out by Li et al. (2023), and this outcome was justified by followers reduced sensory and credibility perceptions. For that reason, this investigation formulates the following hypothesis:

H4: The perceived authenticity of virtual influencers influences the intention to recommend.

Purchase intention refers to the likelihood of consumers being willing to buy a particular product (Lou & Yuan, 2019). The lack of virtual influencer authenticity associated with a low level of human similarity and weak personal

relationships contributes to a reduced intention to purchase the products they promote (Lou et al., 2022) as well as the inability to genuinely experience the products they promote, which undermines trust in their endorsements (Lou et al., 2022). Accordingly, this investigation expects that:

H5: The perceived authenticity of virtual influencers influences the intention to purchase.

2.3 Social Psychological Distance

Edwards et al. (2009) proposed the concept of Distance as a multidimensional phenomenon that includes physical, psychological, and temporal dimensions. The psychological distance can be defined as the way individuals establish and control their behaviours to sustain relationships with others, whether they are liked/disliked and/or familiar/unfamiliar (Edwards et al., 2009). Trope & Liberman stated that psychological distance can also be perceived as the subjective understanding of the self, in the present and at a specific place, that something is close or far away, conceptualising four distance dimensions: time, space, social distance and hypotheticality, that have as a common meaning the psychological distance which individuals automatically access because of its implication's importance in the daily life decisions (2010).

Virtual influencers are perceived by their followers as being more socially distant when compared to human influencers, however it remains unclear where this type of influencer is situated on the social distance spectrum (Sands et al., 2022a). Psychological distance impacts how individuals resolve value conflicts, deal with self-control problems, negotiate, and make behavioural plans, and when faced with higher distances, individuals rely on general attitudes, fundamental values, and ideologies to decide how to react, while when faced

with lower distances, they rely on more specific attitudes, secondary values, and incidental social influences to act (Trobe & Liberman, 2010). Edwards et al. (2009) stated that the social distance between a follower with a similar/dissimilar and a familiar/unfamiliar influencer is different, being closer to who is perceived as more similar and familiar, and this impacts the level of engagement generated. Hence, this investigation predicts that:

H2: There is a significant difference in perceived social psychological distance between virtual and human influencers.

A reduction in psychological distance has been found to allow the experience of feelings perceived as real, genuine, more open and trusting and decrease the perception of danger and self-defence mechanisms (Edwards et al., 2009). A reduction in the perceived distance will result in a corresponding increase in the positive outcomes of the influencer (Sands et al., 2022a). For instance, the credibility of certain information is higher when shared by an influencer with reduced social distance (Edwards et al., 2009). Followers tend to have negative feelings when interacting with virtual influencers on social media compared to human influencers (Park et al., 2021) and human-like virtual influencers generate considerably lower positive reactions than human or anime-like virtual influencers (Arsenyan & Mirowska, 2021). Since positive attitudes towards an influencer generate higher following intentions (Casaló et al., 2020), this investigation expects that:

H6: The perceived social psychological distance of influencers influences the intention to follow.

Word of mouth is more probable to occur when messages come from a source perceived as less socially-psychologically distant (Brown & Reingen, 1987). For that reason, the following hypothesis is stated:

H7: The perceived social psychological distance of influencers influences the intention to recommend.

Given that greater perceived psychological distances lead to lower influencer outcomes (Sands et al., 2022a) and the fact that this research expects virtual influencers to be perceived as more distant than human influencers, the following hypothesis was formulated:

H8: The perceived social psychological distance of influencers influences the intention to purchase.

Based on the proposed hypothesis, the following research model (Figure 1) was created:

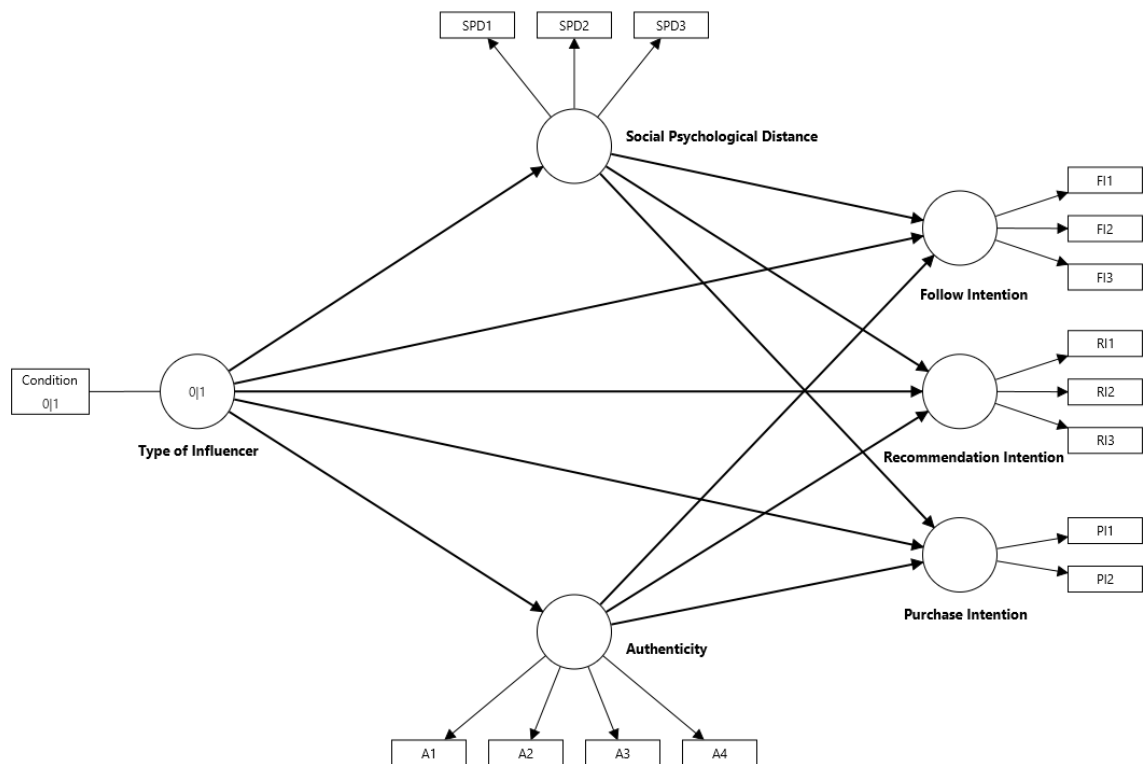


Figure 1: Research Model

Chapter 3

Methodology

3.1 Study Architecture

The study employs a quantitative approach within an experimental model, structured to objectively observe a phenomenon in a strictly controlled environment (Almeida & Freire, 2017). In experimental studies that contains measures of a mediating variable alongside the independent and dependent variables, mediation can be examined in terms of statistics (MacKinnon et al., 2007) to understand the process by which one variable influence another. Given that the research questions focus on measuring the effects of these variables in a controlled way, a quantitative approach was selected to provide standardised numerical results and enable rigorous statistical analysis (Saunders et al., 2009).

3.2 Sample Selection and Data Collection Strategy

The sampling process of this study is fundamentally non-probabilistic and convenient (Malhotrav & Birks, 2006) since participants were randomly obtained from a population of individuals most likely to participate in the study (Saunders et al., 2009). Since it suits the exploratory design and would allow obtaining a large sample in a highly economical way, the sample was obtained through the diffusion of an online questionnaire (Best & Krueger, 2004) on the social networks LinkedIn, Instagram and WhatsApp since the population targeted by the study is a user of social networks. So, in accordance with the research strategy (Fowler, 2002), the results obtained are as closely as possible associated with the experimental conditions of the investigation. The questionnaire was open to

participants from 25 February to 24 March 2024, with 214 individuals participating and 208 valid responses received. The online questionnaire was conducted via Google Forms, and the results were analysed with IBM SPSS statistical software.

3.3 Experimental Procedure and Questionnaire Design

Two influencers with public Instagram profiles, @lilmiquela (VI) and @esterinasworld (HI), have both shared individual posts in which they are wearing the same knit sweater. To serve the purpose of this investigation, using the photographs they shared, two posts were created (Figure 2 and Figure 3) with the same written content, promoting the same brand of knit sweaters. The crucial difference presented was their different nature (human vs artificial intelligence) since they both were at the beach and had similar physical characteristics such as the colour of their hair and eyes, their age appearance, and they were both wearing jeans. Instead of using the sweater brand's real name, the @Lima name was invented to avoid biasing the research results with preconceived ideas of the original brand. A unique questionnaire was applied to two conditions: participants exposed only to the virtual influencer (1:VI) and participants exposed only to the human influencer (0: HI). The aim was to analyse differences between perceptions of authenticity and social psychological distance and the influence on the intentions to purchase, recommend, and follow, depending on the nature of the influencer. Part 1 of the questionnaire was precisely the same for both conditions, and in part 2, participants saw one of the two posts depending on the condition, and the questions were the same, with only the influencer's name changing depending on the condition. The question 'Do you

know the influencer @estherinasworld?’ was exclusive to condition 0, and ‘Do you know the influencer @lilmiquela?’ was exclusive to condition 1.

The questionnaire (Appendix A.1) was written in Portuguese. It begins by informing participants about the scope of the research study and ensuring that the data collected will comply with the General Data Protection Regulation (GDPR). The questionnaire comprises closed-answer questions and is divided into two parts. The first part aims to collect demographic and contextual information, the habits of utilizing social media, and the average time per day on social media. The second part aims to explore how the perceived authenticity and social psychological distance of human and virtual influencers impact users’ behavioural intentions (Intention to Follow, Intention to Recommend, and Intention to Purchase) and access the knowledge about the brand and the two influencers that are part of the questionnaire.

To answer research question 1, “Do social psychological distance and authenticity undermine perceptions towards virtual influencers?” collected data were analysed using the independent samples T-test and Smart PLS software for partial least squares structural equation modeling (PLS-SEM). To answer research question 2, “How are these factors affecting consumer outcomes such as intention to recommend, intention to follow and intention to purchase?” partial least squares structural equation modeling (PLS-SEM) was also utilized.



Figure 2: Human Influencer manipulated post (source: Instagram)



Figure 3: Virtual Influencer manipulated post (source: Instagram).

3.4 Measures

As exposed in Table 1, the Authenticity variable was measured by four items adapted from Kim et al. (2020) using a 7-point Likert scale (1 being “I don't agree at all” and 7 being “I agree very much”). The variable Social Psychological Distance was measured using three items from Sands et al. (2022a) using a 7-point Likert scale. The variable Intention to Follow was measured by three items adapted from Casaló et al. (2017) using a 7-point Likert scale (1 being “Strongly Disagree” and 7 being “Strongly Agree”). The variable Intention to Recommend was measured by three items adapted from Casaló et al. (2017) using a 7-point Likert scale (1 being “Strongly Disagree” and 7 being “Strongly Agree”). The variable Intention to Purchase was measured by two items adapted from Colliander & Dahlén (2011) using a 7-point Likert scale (1 being “Completely Disagree” and 7 being “Completely Agree”).

Constructs	Items	Source
Authenticity	A1: Following @lilmiquela/@esterinasworld provided me with authentic experiences. A2: Following @lilmiquela/@esterinasworld provided me with genuine experiences. A3: Following @lilmiquela/@esterinasworld provided me with exceptional experiences. A4: Following @lilmiquela/@esterinasworld provided me with unique experiences.	Kim et al. (2020)
Social Psychological Distance	The influencer @lilmiquela/@esterinasworld feels... SPD1: Far - Near SPD2: Unapproachable - Approachable SPD3: Unfriendly - Friendly	Sands et al. (2022a)
Follow Intention	FI1: I have the intention to visit @lilmiquela/@esterinasworld Instagram account in the near future. FI2: I predict that I will follow @lilmiquela/@esterinasworld Instagram account. FI3: I will probably look for new content published in @lilmiquela/@esterinasworld Instagram account.	Casaló et al. (2017)
Recommendation Intention	RI1: I would likely recommend @lilmiquela/@esterinasworld Instagram account to friends and relatives. RI2: I would seldom miss an opportunity to tell others interested in fashion about @lilmiquela/@esterinasworld Instagram account on social networking sites. RI3: I would probably say positive things about @lilmiquela/@esterinasworld Instagram account on social networking sites.	Casaló et al. (2017)
Purchase Intention	PI 1: After seeing @lilmiquela/@esterinasworld post, I would like to buy something from Brand LIMA. PI2: After seeing @lilmiquela/@esterinasworld post, I would like to own something from Brand LIMA.	Colliander & Dahlén (2011)

Table 1: Constructs and their Measures

Chapter 4

Results

4.1. Demographic Characterization of the Sample

A total of 214 responses were collected, of which only 208 were considered for analysis to satisfy the minimum age requirement and to ensure homogeneity in the nationality of the participants. The experimental group subjected to condition 0 had 102 participants, while the group subjected to condition 1 had 106 participants (Table 2). All the participants are Portuguese, and 98.1% live in Portugal. Females represent 68.75% of the sample with 143 responses, compared to 31.25% of males with 65 responses. The average age of participants is 28.38 ($SD = 10.70$), and the median is 23, demonstrating that the analysis will essentially be based on the Z and Millennial generations. Concerning the education level of the sample, 9.61% of the participants had less than a 12th-grade education, 23.55% had completed a 12th-grade education or equivalent, and 66.83% had completed a university education. When analysing the frequency of online purchases, 11 participants (5.3%) have never bought online, while 1 participant (0.48%) always buys online. Among these extremes, 38.9% of participants occasionally shop online, 34.13% shop very rarely or rarely, and 21.15% shop very frequently or frequently. The most frequently selected set of social networks among the participants were Instagram, WhatsApp, Facebook, and YouTube. The following most popular set was Instagram, WhatsApp, and Facebook. The average time spent per day on social media by participants ranges from less than 30 minutes by 5.3% to more than 4 hours per day by 7.7%. The remaining 12% of participants spend between 30 minutes and 1 hour per day on Instagram, 26.9% spend between 1 and 2 hours, 31.7% spend between 2 and 3 hours, and 16.3% spend

between 3 and 4 hours. Specifically, regarding Instagram, 93.3% of the sample has a personal Instagram profile, and 22.6% of participants spend less than 30 minutes per day on Instagram, while 26.4% spend between 30 minutes and 1 hour. The remaining 6.3% of participants spend between 1 and 2 hours per day on Instagram, 13% between 2 and 3 hours, 2.9% between 3 and 4 hours, and 3.4% spend more than 4 hours per day.

Of the 208 participants, 173 follow a human influencer on Instagram (83.2%), and 35 do not (16.8%). Only 19 (9.1%) follow a virtual influencer on Instagram, and 189 participants do not (90.9%). 186 participants, 89.4%, said they understood the difference between a human influencer and a virtual influencer.

To control the bias of the results, participants were asked if they knew the brand @LIMA, and 94.7% said they did not know the brand. Of 102 participants, 4 said they knew the influencer @estherinasworld, and out of 106 participants, 5 said they knew the influencer @lilmiquela, representing a residual amount in the sample.

Sample Characteristics	Options	Frequency (%)	N
Gender	Male	31,3	65
	Female	68,8	143
Age	18 - 24	62,5	130
	25 - 34	15,4	32
	35 - 44	8,2	17
	45 - 54	11	23
	>54	2,9	6
Nationality	Portuguese	100	208
Country of residence	Portuguese	98,1	204
	Non-Portuguese	1,9	4
Education Level	Lower than 12 th grade	9.61	20
	12 th grade or equivalent	23.56	49
	Bachelor's degree	50.5	105
	Master's degree	15.9	33
	PhD	0.5	1
Average hours per day on social media	< 30 min	5.3	11
	30 min – 1h	12	25
	1h – 2h	26.9	56
	2h – 3h	31.7	66
	3h – 4h	16.3	34
	> 4h	7.7	16
Average hours per day on Instagram	< 30 min	22.6	47
	30 min – 1h	26.4	55
	1h – 2h	31.7	66
	2h – 3h	13	27
	3h – 4h	2.9	6
	> 4h	3,4	7
Personal Profile on Instagram	Yes	93.3	194
	No	6.7	14
On-line Shopping Frequency	Never	5.3	11
	Very rarely	22.6	47
	Rarely	11.5	24
	Occasionally	38.9	81
	Often	17.3	36
	Very often	3.8	8
	Always	0.5	1

Table 2: Demographic Characterization of the Sample

4.2. Reliability and Validity

To ensure the measurement model's discriminant and convergent validity and reliability, an analysis was conducted using Smart PLS software for Partial Least Squares Structural Equation Modeling (PLS-SEM). The item "RI1" did not achieve a sufficient level of distinctiveness compared to other constructs, as indicated by a Fornell-Larcker (1981) criterion and cross-loadings analysis. Accordingly, the item was deleted. Therefore, the reliability of this model was guaranteed by revealing Cronbach's alpha values superior to 0.7, considered satisfactory by Pallant (2020) (Tabel 3). The composite reliability values exceed 0.70, and the constructs demonstrated an average variance extracted beyond 0.50, which aligned with the criteria set by Hair Jr. et al. (2017) and ensured convergent validity. After the analysis of discriminant validity cross-loading and following the criteria for discriminant validity proposed by Fornell and Larcker (1981), the square roots of the average variance extracted (AVE) values beat the assumed correlation values between the variables (Table 4), securing the model's discriminant validity.

Constructs	Cronbach's Alpha	Composite reliability	AVE
A	0.958	0.970	0.889
FI	0.962	0.975	0.929
PI	0.943	0.972	0.946
RI	0.725	0.879	0.784
SPD	0.845	0.905	0.761

Table 3: Construct Reliability and Convergent Validity

	A	IT	FI	PI	RI	SPD
A1	.933	-.282	.668	.616	.595	.585
A2	.954	-.287	.683	.637	.617	.594
A3	.958	-.290	.686	.644	.627	.553
A4	.927	-.198	.643	.635	.643	.534
FI1	.675	-.237	.947	.692	.710	.481
FI2	.701	-.274	.976	.696	.734	.480
FI3	.678	-.273	.969	.716	.733	.475
PI1	.652	-.133	.674	.973	.621	.438
PI2	.654	-.135	.742	.973	.631	.441
RI2	.562	-.088	.644	.595	.871	.395
RI3	.602	-.215	.688	.548	.900	.534
SPD1	.606	-.195	.524	.439	.529	.887
SPD2	.482	-.189	.420	.412	.416	.881
SPD3	.462	-.083	.323	.311	.423	.849

Table 4: Discriminant Validity Cross-loading

	A	FI	PI	RI	SPD
A	.943				
FI	.711	.964			
PI	.671	.728	.973		
RI	.658	.753	.643	.885	
SPD	.601	.497	.452	.529	.873

Table 5: Discriminant Validity by Fornell-Larcker Criterion

4.3 Path Analysis

With the final objective of testing the research hypothesis, structural equation modelling (SEM) was applied to explore the model's structural pathways and potential mediators' effects (Figure 4).

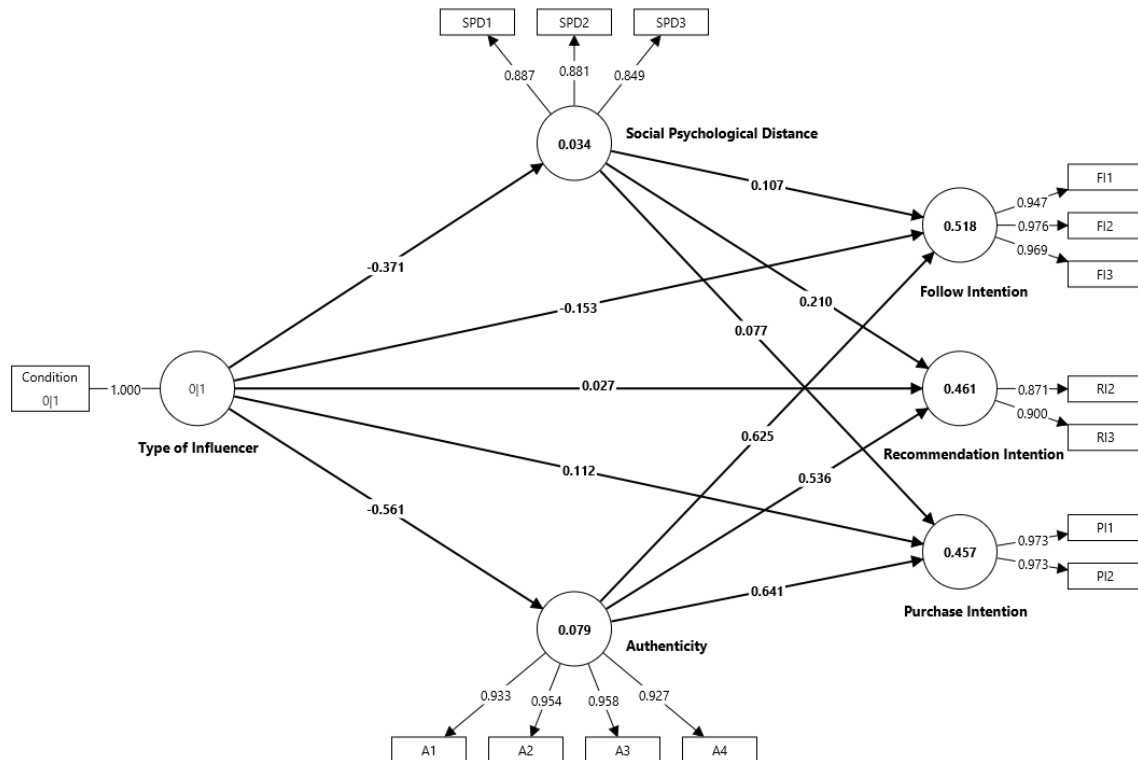


Figure 4: Path Analysis

The analysis of direct effects (Table 6) uncovers two significant findings. Influencer type exerts a negative and statistically significant influence ($p = 0.000$) on authenticity and social psychological distance, with the effect on authenticity being stronger, suggesting that virtual influencers are perceived as significantly less authentic and, to a lower degree, more psychologically distant compared to human influencers, thereby validating Hypotheses 1 and 2. Furthermore, this information was double checked as a student t-test for independent samples was

conducted through IBM SPSS (Appendix A.2). Based on the Central Limit Theorem (Kwak & Kim, 2017), the normality of the subsamples was assumed. Levene's Test indicated the non-homogeneity of variances and significant differences were observed between the perceived authenticity of virtual ($M=1.89$, $SD=1.13$) and human influencers ($M=2.65$, $SD=1.48$), with large effect size, $t(189, 255) = 4.15$, $p<.001$, $d=1.31$. Also, it was verified that significant differences were observed between the perceived social psychological distance of virtual ($M=3.06$, $SD=1.34$) and human influencers ($M=3.60$, $SD=1.70$) with a large effect size, $t(206) = 2.59$, $p=0.005$, $d=1.57$. In this case, a higher average social psychology distance should be interpreted as more proximity between followers and influencers. Additionally, it was possible to verify that influencer type does not have a direct significant statistical effect on follow intention ($p=.184$), recommendation intention ($p=.800$) and purchase intention ($p=.303$).

H	Path	Path coefficients	SD	t-values	p-values	Decision
	A->FI	.625	.067	9.352	.000	
	A->PI	.641	.064	10.021	.000	
	A->RI	.536	.070	7.615	.000	
	SPD->FI	.107	.058	1.851	.064	
	SPD->PI	.077	.059	1.318	.187	
	SPD->RI	.210	.063	3.316	.001	
1	IT->A	-.561	.126	4.466	.000	Accepted
	IT->FI	-.153	.115	1.330	.184	
	IT->PI	.112	.109	1.030	.303	
	IT->RI	.027	.107	0.253	.800	
2	IT->SPD	-.371	.137	2.697	.007	Accepted

Table 6: Path Analysis Results

In consideration of the mediating effects (Table 7), the findings highlight the significant ($p=0.000$) negative indirect role of authenticity in the relation between the type of influencer and follow intention (H3), recommendation intention (H4) and purchase intention (H5). These findings confirm the validity

of the proposed hypothesis. Social psychological distance fails to significantly influence the relation between influencer type and follow intention ($p=0.145$) and influencer type and purchase intention ($p=0.258$), contributing to the rejection of H6 and H8. On the other hand, Influencer type significantly and negatively impacted the recommendation intention ($p=0.041$) through the indirect influence of perceived social psychological distance, thereby validating H7. Hence, because the virtual influencer was perceived as less authentic, she led to lower purchase, follow, and recommendation intentions. Additionally, as the virtual influencer was also perceived as more socially and psychological distant, participants were less likely to recommend her to others.

H	Path	Path coefficients	SD	<i>t</i> - values	<i>p</i> - values	Type of Mediation	Decision
3	IT->A->FI	-.351	.091	3.867	.000	Total	Accepted
4	IT->A->RI	-.301	.081	3.731	.000	Total	Accepted
5	IT->A->PI	-.360	.089	4.035	.000	Total	Accepted
6	IT->SPD->FI	-.040	.027	1.459	.145	None	Rejected
7	IT->SPD->RI	-.078	.038	2.039	.041	Partial	Accepted
8	IT->SPD->PI	-.029	.025	1.131	.258	None	Rejected

Table 7: Mediation Results

For mediation analysis, PLS-SEM software was chosen since it uses a nonparametric bootstrap method (Efron & Tibshirani, 1986; Davison & Hinkley, 1997) to assess the significance of the estimated path coefficients, which included bootstrapping resampling rounds (5000) and provides 95% confidence intervals for significance testing.

Chapter 5

Discussion

The results of this investigation demonstrate that human influencers are perceived as more authentic than virtual influencers, consistent with Park et al.'s (2021) expectation that followers tend to react less positively to virtual influencers than to human influencers. The influencer's virtual or human nature does not directly impact the three behavioural intentions analysed. Instead, these intentions are indirectly influenced by the perception of authenticity, as stated by Um (2023) and Hudders (2021), suggesting that authenticity is a crucial variable in consumer intentions, whether presented by virtual or human influencers. In this sense, the results of this research regarding the intention to purchase and authenticity are in line with Thomas and Fowler (2021) and Lou et al. (2022), the intention to follow and authenticity are aligned with Sands et al. (2022a) and the intention to recommend and authenticity are consistent with Casaló et al. (2020), who defended that the perceived originality and uniqueness on Instagram affect consumers' likelihood of recommendation. Furthermore, the findings partially contrast with the studies of Li et al. (2023), who said that virtual influencers have a negative effect on brand endorsement since, by itself, the nature of influencers did not significantly impact behavioural intentions.

The results also demonstrate that human influencers are perceived as closer in terms of social psychological distance than virtual influencers, consistent with Sands et al.'s (2022a) findings. This study highlights that social psychological distance directly impacts the intention to recommend and mediates the effect of influencer type on recommendation intention, in line with Brown and Reingen (1987). However, social psychological distance does not

indirectly influence the intention to follow and to purchase, contrary to initial expectations (Sands et al., 2022a; Casaló et al., 2020). This unexpected result may be because, although @lilmiquel was perceived as more social psychological distant compared to @estherinasworld, participants may still view her as a fashion expert, potentially influencing the intention to follow her despite the distance perceived (Hudders et al., 2021). Similarly, the anticipated negative effect of a virtual influencer compared to a human influencer on purchase intentions may not be observed if the promoted products are related to the virtual influencers' expertise (Lou et al., 2022). The findings of Edwards et al. (2009) were partially replicated in this study as the human influencer, who appeared more similar and familiar to followers, was perceived as less social psychological distant compared to the virtual influencer, however, this didn't significantly impact the purchase and following intention. Ultimately, it was possible to understand that social psychological distance and authenticity undermine perceptions towards virtual influencers. Authenticity directly affects consumer outcomes, including intention to recommend, to follow and to purchase, while social psychological distance affects only intention to recommend.

Chapter 6

Conclusions

6.1. Theoretical and Practical Implications

From a theoretical point of view, the present study aimed to expand the limited scientific knowledge on the differences between virtual and human influencers' perceived authenticity and social psychological distance and their influence on consumer behaviours. The present research revealed several key insights. First, virtual influencers, compared to human influencers, are currently perceived as less authentic and more social psychological distant from their followers. Additionally, authenticity emerged as a significant predictor of follow, recommendation, and purchase intentions, while social psychological distance significantly impacted recommendation intention. Although the type of influencer did not directly influence behaviour intentions, the relation between type of influencer and follow, recommendation, and purchase intentions were indirectly influenced when mediated by perceived authenticity, and the relation between the type of influencer and recommendation intention was also influenced when mediated by perceived social psychological distance. These findings contribute to a more comprehensive understanding of how followers evaluate virtual and human influencers in terms of authenticity and social psychological distance and cement their mediating role in the relationship between influencer type and followers' behavioural intentions, increasing the awareness of these complex interactions.

From a managerial point of view, the present study emphasises that brands and marketers should be empowered with knowledge and be ready to

use them when virtual influencers are chosen in their marketing mix, as they can improve overall brand strategies (Sands et al., 2022b) and do not use these influencers blindly (Meng et al., 2024). Therefore, this study and similars will enable the establishment of operational lines for the design of efficient marketing plans (Meng et al., 2024). Building on the present research, a new horizon of opportunities opens up regarding the use of virtual influencers in the promotion of a brand or product since the origin of the influencer alone does not predetermine the follower's behaviour responses. Consequently, marketing managers can control the way they present virtual influencers, generating greater authenticity and decreasing the psychological social distance with followers so they can use them as effective brand endorsers. For instance, congruence between influencer content and personality, personal narratives, human-like conversations, anthropomorphism, and the capacity to learn from experience contribute to higher perceptions of authenticity (De Brito Silva et al., 2022; Neururer et al., 2018).

Social psychological distance conception is constituted by four dimensions, time, space, social distance and hypotheticality, that are cognitively interrelated, meaning that the perception of more or less distance in one dimension can make the perception of another more or less important since all the dimensions are influenced by and influence the level of mental construal, but there is the possibility of interchangeability in the effects of this perception concerning prediction, self-control and preference (Trope & Liberman, 2010), so resignification the notion of the distance of an object, person or situation is possible. This perspective can benefit brands and companies that work with influencer marketing since it emphasizes the possibility of changing the way influencers are seen in a spectrum of distance and leveraging influencer outputs. For example, the perception of proximity with virtual influencers can be promoted if followers see them more familiarly (Edwards et al., 2009).

6.2 Limitations of the Investigation and Future Research

Although this study presents itself as a significant advance in the field of virtual influencer marketing, this research is not without limitations. The limited collection of quantitative data through online questionnaires opens the door to the future collection of qualitative data that provides more personalised information on how users perceive virtual influencers. So, in future research, mixed methodologies could be an advantage in gaining a more holistic understanding of this phenomenon. This study only analysed consumer behaviour concerning the two types of influencers on Instagram, which restricts the use of these results in the application of marketing strategies on other types of platforms that are also widely used, such as TikTok, YouTube, and X. The type of product advertised was textile, but it is not known if the same results would be obtained if the product category were different, for instance, food products, cosmetics, and electronics. The same study could also be applied to a larger sample size and to different cultures to understand whether culture is a mediating variable in how consumers perceive virtual and human influencers and the impact it could have on consumer behaviour. Another factor that should be analysed in the future is the effect of getting used to contact with virtual influencers since their presence is expected to increase in consumers' daily lives, and their reactions to them over time may change (Um, 2023). The analysis in this study was carried out through the manipulation of two posts on Instagram in the format of a photograph, however it would be important to analyse if, in different formats, the results remained the same. Also, it would be interesting to carry out the same investigation comparing human influencers with virtual influencers who are more similar and less similar to humans, to understand whether appearance could also impact the variables studied. To conclude, even though the variables chosen were authenticity and social psychological distance, this

investigation need does not end here, and other variables must be studied in the future to understand their impact, for instance, advertising literacy and followers' persuasion knowledge (Lou & Yuan, 2019).

Bibliography

- Alimamy, S., & Kuhail, M. A. (2023). I will be with you Alexa! The impact of intelligent virtual assistant's authenticity and personalization on user reusage intentions. *Computers in Human Behavior*, 143, 107711. <https://doi.org/10.1016/j.chb.2023.107711>
- Almeida, L. S., & Freire, T. (2017). *Metodologia da investigação em psicologia e educação* (5th ed.). Psiquilíbrios.
- Appel, G., Grewal, L., Hadi, R., & Stephen, A. T. (2019). The future of social media in marketing. *Journal of the Academy of Marketing Science*, 48(1), 79–95. <https://doi.org/10.1007/s11747-019-00695-1>
- Arsenyan, J., & Mirowska, A. (2021). Almost human? A comparative case study on the social media presence of virtual influencers. *International Journal of Human-Computer Studies*, 155, 102694. <https://doi.org/10.1016/j.ijhcs.2021.102694>.
- Audrezet, A., De Kerviler, G., & Moulard, J. G. (2018). Authenticity under threat: When social media influencers need to go beyond self-presentation. *Journal of Business Research*, 117, 557–569. <https://doi.org/10.1016/j.jbusres.2018.07.008>
- Beer, J. M., Smarr, C.-A., Fisk, A. D., & Rogers, W. A. (2015). Younger and older users' recognition of virtual agent facial expressions. *International Journal of Human-Computer Studies*, 75, 1–20. <https://doi.org/10.1016/j.ijhcs.2014.11.005>
- Best, S. J., & Krueger, B. S. (2004). *Internet data collection*. SAGE Publications, Inc. <https://doi.org/10.4135/9781412984553>
- Beverland, M., & Farrelly, F. (2010). The quest for authenticity in consumption: consumers' purposive choice of authentic cues to shape experienced outcomes. *Journal of Consumer Research*, 36(5), 838–856. <https://doi.org/10.1086/615047>
- Brown, J.J., & Reingen, P.H. (1987). Social ties and word-of-mouth referral behavior. *Journal of Consumer Research*, 14 (3), pp. 350-362. <https://doi.org/10.1086/209118>
- Campbell, C., & Farrell, J. R. (2020). More than meets the eye: The functional components underlying influencer marketing. *Business Horizons*, 63(4), 469–479. <https://doi.org/10.1016/j.bushor.2020.03.003>
- Campbell, C., & Grimm, P. E. (2019). The Challenges Native Advertising Poses: Exploring Potential Federal Trade Commission Responses and Identifying Research Needs. *Journal of Public Policy & Marketing*, 38(1), 110-123. <https://doi.org/10.1177/0743915618818576>

- Casaló, L. V., Flavián, C., & Ibáñez-Sánchez, S. (2017). Antecedents of consumer intention to follow and recommend an Instagram account. *Online Information Review*, 41(7), 1046-1063. <https://doi.org/10.1108/OIR-09-2016-0253>
- Casaló, L. V., Flavián, C., & Ibáñez-Sánchez, S. (2020). Influencers on Instagram: Antecedents and consequences of opinion leadership. *Journal of Business Research*, 117, 510–519. <https://doi.org/10.1016/j.jbusres.2018.07.005>
- Colliander, J., & Dahmén, M. (2011). Following the fashionable friend: the power of social media: Weighing publicity effectiveness of blogs versus online magazines. *Journal of Advertising Research*, 51(1), 313 – 320. <https://doi.org/10.2501/JAR-51-1-313-320>.
- Conti, M., Gathani, J., & Tricomi, P. P. (2022). Virtual Influencers in Online Social Media. *IEEE Communications Magazine*, 60(8), 86–91. <https://doi.org/10.1109/mcom.001.2100786>
- Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), 24–42. <https://doi.org/10.1007/s11747-019-00696-0>
- Davison, A. C., & Hinkley, D. V. (1997). *Bootstrap Methods and Their Application*. Cambridge University Press.
- De Brito Silva, M. J., De Oliveira Ramos Delfino, L., Cerqueira, K. A., & De Oliveira Campos, P. (2022). Avatar marketing: a study on the engagement and authenticity of virtual influencers on Instagram. *Social Network Analysis and Mining*, 12(1). <https://doi.org/10.1007/s13278-022-00966-w>
- Dondapati, A., & Dehury, R. K. (2024). Virtual vs. Human influencers: The battle for consumer hearts and minds. *Computers in Human Behavior Artificial Humans*, 100059. <https://doi.org/10.1016/j.chbah.2024.100059>
- Efron, B., & Tibshirani, R. J. (1993). *An Introduction to the Bootstrap*, Chapman Hall.
- European Union Agency for Fundamental Rights. (2019). *The General Data Protection Regulation – One year on – Civil society: awareness, opportunities and challenges*, Publications Office. <https://data.europa.eu/doi/10.2811/538633>
- Edwards, S. M., Lee, J. K., & La Ferle, C. (2009). Does place matter when shopping online? Perceptions of similarity and familiarity as indicators of psychological distance. *Journal of Interactive Advertising*, 10(1), 35–50. <https://doi.org/10.1080/15252019.2009.10722161>
- Fornell, C., & Larcker, D. F. (1981) Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (1), 39-50. <https://doi.org/10.2307/3151312>
- Fowler, F.J. (2002). *Survey Research Methods* (3rd ed.). Sage.
- Freberg, K., Graham, K., McGaughey, K., & Freberg, L. A. (2010). Who are the social media influencers? A study of public perceptions of personality. *Public Relations Review*, 37(1), 90–92. <https://doi.org/10.1016/j.pubrev.2010.11.001>

- Gaines, B. R. (2019). From facilitating interactivity to managing hyperconnectivity: 50 years of human-computer studies. *International Journal of Human-Computer Studies*, 131, 4–22. <https://doi.org/10.1016/j.ijhcs.2019.05.007>
- Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1 (2), 107-123. <https://doi.org/10.1504/IJMDA.2017.10008574>
- Hudders, L., De Jans, S., & De Veirman, M. (2021). The commercialization of social media stars: a literature review and conceptual framework on the strategic use of social media influencers. *International Journal of Advertising*, 40(3), 327-375. <https://doi.org/10.1080/02650487.2020.1836925>
- Influencer Marketing Factory (2022) *Virtual influencers survey* + INFOGRAPHIC. <https://theinfluencermarketingfactory.com/virtual-influencers-survey-infographic/>
- Influencer Marketing Hub. (2024). *The State of Influencer Marketing Benchmark Report 2024*. <https://influencermarketinghub.com/influencer-marketing-benchmark-report/>
- Jhawar, A., Kumar, P., & Varshney, S. (2023). The emergence of virtual influencers: a shift in the influencer marketing paradigm. *Young Consumers: Insight and Ideas for Responsible Marketers*, 24(4), 468–484. <https://doi.org/10.1108/yc-05-2022-1529>
- Kim, M., & Baek, T. H. (2023). Are virtual influencers friends or foes? Uncovering the perceived creepiness and authenticity of virtual influencers in social media marketing in the United States. *International Journal of Human-computer Interaction*, 1–14. <https://doi.org/10.1080/10447318.2023.2233125>
- Kim, M. J., Lee, C., & Preis, M. W. (2020). The impact of innovation and gratification on authentic experience, subjective well-being, and behavioral intention in tourism virtual reality: The moderating role of technology readiness. *Telematics and Informatics*, 49, 101349. <https://doi.org/10.1016/j.tele.2020.101349>
- Kowalczyk, C. M., & Pounders, K. R. (2016). Transforming celebrities through social media: The role of authenticity and emotional attachment. *Journal of Product & Brand Management*, 25(4), 345–356. <https://doi.org/10.1108/jpbm-09-2015-0969>
- Kwak, S. G., & Kim, J. H. (2017). Central limit theorem: the cornerstone of modern statistics. *Korean Journal of Anesthesiology*, 70(2), 144. <https://doi.org/10.4097/kjae.2017.70.2.144>
- Li, H., Lei, Y., Zhou, Q., & Yuan, H. (2023). Can you sense without being human? Comparing virtual and human influencers endorsement effectiveness. *Journal of Retailing and Consumer Services*, 75, 103456. <https://doi.org/10.1016/j.jretconser.2023.103456>

- Lim, R. E., & Lee, S. Y. (2023). "You are a virtual influencer!": Understanding the impact of origin disclosure and emotional narratives on parasocial relationships and virtual influencer credibility. *Computers in Human Behavior*, 148, 107897. <https://doi.org/10.1016/j.chb.2023.107897>
- Lou, C., Kiew, S. T. J., Chen, T., Lee, T. Y. M., Ong, J. E. C., & Phua, Z. (2022). Authentically fake? How consumers respond to the influence of virtual influencers. *Journal of Advertising*, 1–18. <https://doi.org/10.1080/00913367.2022.2149641>
- Lou, C., & Yuan, S. (2019). Influencer Marketing: How message value and credibility affect consumer trust of branded content on social media. *Journal of Interactive Advertising*, 19(1), 58–73. <https://doi.org/10.1080/15252019.2018.1533501>
- Malhotra, N. K., & Birks, D. (2006). *Marketing Research: An Applied Approach* (3rd ed.). Prentice Hall.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58(1), 593–614. <https://doi.org/10.1146/annurev.psych.58.110405.085542>
- Meng, L., Bie, Y., Yang, M., & Wang, Y. (2024). Watching it motivates me to become stronger: virtual influencers' impact on consumer self-improvement product preferences. *Journal of Business Research*, 178, 114654. <https://doi.org/10.1016/j.jbusres.2024.114654>
- Mouritzen, S. L. T., Penttinen, V., & Pedersen, S. (2023). Virtual influencer marketing: the good, the bad and the unreal. *European Journal of Marketing*, 58(2), 410–440. <https://doi.org/10.1108/ejm-12-2022-0915>
- Moustakas, E., Lamba, N., Mahmoud, D., & Ranganathan, C. (2020). Blurring lines between fiction and reality: Perspectives of experts on marketing effectiveness of virtual influencers. In *Proceedings of the 2020 International Conference on Cyber Security and Protection of Digital Services*. Institute of Electrical and Electronics Engineers. <https://doi.org/10.1109/CyberSecurity49315.2020.9138861>
- Neururer, M., Schlögl, S., Brinkschulte, L., & Groth, A. (2018). Perceptions on authenticity in chat bots. *Multimodal Technologies and Interaction*, 2(3), 60. <https://doi.org/10.3390/mti2030060>
- Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS*. McGraw-Hill Education (UK). <https://doi.org/10.4324/9781003117452>
- Park, G., Nan, D., Park, E., Kim, K. J., Han, J., & del Pobil, A. P. (2021). Computers as social actors? Examining how users perceive and interact with virtual influencers on social media. In *2021 15th International Conference on Ubiquitous Information Management and Communication (IMCOM)* (pp. 1–6). IEEE. <https://doi.org/10.1109/IMCOM51814.2021.9377397>

- Sands, S., Campbell, C., Plangger, K., & Ferraro, C. (2022a). Unreal influence: leveraging AI in influencer marketing. *European Journal of Marketing*, 56(6), 1721–1747. <https://doi.org/10.1108/ejm-12-2019-0949>
- Sands, S., Ferraro, C., Demsar, V., & Chandler, G. (2022b). False idols: Unpacking the opportunities and challenges of falsity in the context of virtual influencers. *Business Horizons*. <https://doi.org/10.1016/j.bushor.2022.08.002>
- Saunders, M., Lewis, P., & Tornhill, A. (2009). *Research methods for business students*. Prentice Hall.
- Thomas, V. L., & Fowler, K. (2021). Close encounters of the AI kind: Use of AI influencers as brand endorsers. *Journal of Advertising*, 50(1), 11-25. <https://doi.org/10.1080/00913367.2020.1810595>
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, 117(2), 440–463. <https://doi.org/10.1037/a0018963>
- Um, N. (2023). Predictors Affecting Effects of Virtual Influencer Advertising among College Students. *Sustainability*, 15(8), 6388. <https://doi.org/10.3390/su15086388>
- UNESCO. (2023). *Digital: Global Overview Report*. <https://www.unesco.org/en/world-media-trends/digital-global-overview-report>
- Zhou, F., Chen, L., & Su, Q. (2019). Understanding the impact of social distance on users' broadcasting intention on live streaming platforms: A lens of the challenge-hindrane stress perspective. *Telematics and Informatics*, 41, 46–54. <https://doi.org/10.1016/j.tele.2019.03.002>
- Zhou, Q., Li, B., Li, H., & Lei, Y. (2024). Mere copycat? The effects of human versus human-like virtual influencers on brand endorsement effectiveness: A moderated serial-mediation model. *Journal of Retailing and Consumer Services*, 76, 103610. <https://doi.org/10.1016/j.jretconser.2023.103610>

Appendices

Appendix A.1 Transcription of the online questionnaire

Dear participant,

My name is Joana Costa, and I am a master's student in management at Católica Porto Business School. I request your collaboration in completing an online survey as part of the development of my dissertation, which is crucial for the conclusion of my master's degree. This study aims to understand the role of authenticity and perceived psychological distance in relation to virtual influencers (VI) and human influencers (HI) in the behavioural intentions of social media users.

This survey is intended for individuals aged 18 years or older and has been designed to be clear and easily accessible, with an average duration of 5 minutes. You may respond to this survey from any advice with internet access. All information collected will be anonymous and confidential, used exclusively for the production of scientific knowledge within the academic scope. There are no known risks. By responding to this survey, you declare that you agree to the use of your data as described.

If you have any questions, please contact s-josecosta@ucp.pt.

Part I: Demographic and Contextual Information

Part I of the questionnaire is beginning, which will consist of multiple-choice questions and short answer questions.

1. Please indicate your age in the space below:

2. Please indicate your gender identification:

- Female.
- Male.
- Not binary.
- Prefer not to say.

3. Please indicate your nationality in the space below.

3.1. Is it your country of residence?

- Yes.
- No.

4. Please indicate your highest level of education:

- Less than 12th year of schooling.
- 12th year of schooling or equivalent.
- Bachelor's Degree.
- Master's Degree.
- PhD.
- Other.

5. Please indicate how many hours you spend on social media per day, on average.

- Less than half an hour.
- Between half an hour and 1 hour.
- Between 1 and 2 hours.
- Between 2 and 3 hours.
- Between 3 and 4 hours.
- More than 4 hours.

6. Please select which social media platforms you use on your daily basis:

- Facebook.
- Instagram.
- X (Formerly Known as Twitter).
- Tik Tok.
- LinkedIn.
- Telegram.
- YouTube.
- Reddit.
- WhatsApp.
- Pinterest.
- Other.

7. Do you have a personal profile on Instagram?

- Yes.
- No.

8. Please indicate how many hours you spend on Instagram per day, on average.

- Less than half an hour.
- Between half an hour and 1 hour.
- Between 1 and 2 hours.
- Between 2 and 3 hours.
- Between 3 and 4 hours.
- More than 4 hours.

9. How often do you shop online?

Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
1	2	3	4	5	6	7

Part II: Influencers

(Human influencer's condition) The second part of the questionnaire is starting. You will be shown a post from an Influencer on Instagram, which you should observe and read carefully and take into consideration when answering the following questions.

A digital influencer is a **real person** who has a network of committed followers in which they exert influence through the creation and publication of content on social networks.

Influencer Post:



(Virtual influencer's condition) The second part of the questionnaire is starting. You will be shown a post from a Virtual Influencer on Instagram, which you should observe and read carefully and take into consideration when answering the following questions.

Present on social networks, virtual influencers **are not human** and can be considered interactive entities rendered in real time more or less similar to humans. They are **generated through artificial or computer intelligence**. Virtual influencers can imitate the physical characteristics of human influencers, as well as their personalities.

Influencer Post:



Instructions: Imagine that you follow the influencer @estherinasworld/ @lilmiquela and position yourself in relation to the following statements.

When answering, use a scale from 1 to 7, where 1 means 'I don't agree at all' and 7 means 'I agree a lot'. Choose the number that best reflects your opinion.

10. Following @estherinasworld/ @lilmiquela provides me with authentic experiences.

I don't agree at all.						I agree very much.
1	2	3	4	5	6	7

11. Following @estherinasworld/ @lilmiquela provides me with genuine experiences.

I don't agree at all.						I agree very much.
1	2	3	4	5	6	7

12. Following @estherinasworld/ @lilmiquela provides me with exceptional experiences.

I don't agree at all.						I agree very much.
1	2	3	4	5	6	7

13. Following @estherinasworld/ @lilmiquela provides me with unique experiences.

I don't agree at all.						I agree very much.
1	2	3	4	5	6	7

Instructions: When answering, use a scale from 1 to 7, where 1 means 'Distant'/ 'Inaccessible'/ 'Unfriendly' and 7 means 'Close'/ 'Accessible'/ 'Friendly'. Choose the number that best reflects your opinion.

14. The influencer @estherinasworld/ @lilmiquela feels...

Far.						Near.
1	2	3	4	5	6	7

15. The influencer @estherinasworld/ @lilmiquela feels...

Unapproachable.						Approachable.
1	2	3	4	5	6	7

16. The influencer @estherinasworld/ @lilmiquela feels...

Unfriendly.						Friendly.
1	2	3	4	5	6	7

Instructions: When answering, use a scale from 1 to 7, where 1 means 'Strongly Disagree' and 7 means 'Strongly Agree'. Choose the number that best reflects your opinion.

17. I have the intention to visit @estherinasworld/ @lilmiquela Instagram account in the near future.

Strongly Disagree.						Strongly Agree.
1	2	3	4	5	6	7

18. I predict that I will follow @estherinasworld/ @lilmiquela Instagram account.

Strongly Disagree.						Strongly Agree.
1	2	3	4	5	6	7

19. I will probably look for new content published in @estherinasworld/ @lilmiquela Instagram account.

Strongly Disagree.						Strongly Agree.
1	2	3	4	5	6	7

20. I would likely recommend @estherinasworld/ @lilmiquela Instagram account to friends and relatives.

Strongly Disagree.						Strongly Agree.
1	2	3	4	5	6	7

21. I would rarely miss an opportunity to tell other people interested in fashion about the @estherinasworld/ @lilmiquela Instagram account on social networking sites.

Strongly Disagree.						Strongly Agree.
1	2	3	4	5	6	7

22. I would probably say positive things about @estherinasworld/
@lilmiquela Instagram account on social networking sites.

Strongly Disagree.						Strongly Agree.
1	2	3	4	5	6	7

Instructions: When answering, use a scale from 1 to 7, where 1 means 'Strongly Disagree' and 7 means 'Strongly Agree'. Choose the number that best reflects your opinion.

23. After seeing @estherinasworld/ @lilmiquela post, I would like to buy something from Brand LIMA.

Completely Disagree.						Completely Agree.
1	2	3	4	5	6	7

24. After seeing @estherinasworld/ @lilmiquela post, I would like to own something from Brand LIMA.

Completely Disagree.						Completely Agree.
1	2	3	4	5	6	7

Instructions: The following questions will be multiple choice, choose one of the two options.

25. Do you understand the difference between a **human** influencer and a **virtual** influencer (**created via computer or artificial intelligence**)?

- Yes.
- No.

26. Do you follow any Human Influencer on Instagram?

- Yes.

- No.

27. Do you follow any Virtual Influencer on Instagram?

- Yes.
- No.

28. Do you know the influencer @lilmiquela? (this question is exclusive to the questionnaire about virtual influencers)

- Yes.
- No.

29. Do you know the influencer @ esterinasworld? (this question is exclusive to the questionnaire about human influencers)

- Yes.
- No.

30. Are you aware of the brand @LIMA's existence?

- Yes.
- No.

Appendix A.2 Results of the T-tests

											95% Interval Confidence	
		Mean	SD	Z	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Stand. Error Difference	Lower	Upper
Authentic Experience	Human Influencer	2.6544	1.47841	11.740	<.001	4.153	189.255	<.001	.76054	.18312	.39932	1.12177
	Virtual influencer	1.8939	1.8939									
Social Psychological Distance	Human Influencer	3.6046	1.69756	5.438	0.21	2.587	206	0.010	.54797	.21178	.13044	.96551
	Virtual influencer	3.0566	1.34241									