



Human vs. Virtual Influencers: A Comparative Study of Brand Endorsement Effects on Purchase Intention

Elana Krüger

Dissertation written under the supervision of Prof. Paulo Romeiro.

Dissertation submitted in partial fulfillment of requirements for the MSc in Management with Specialization in Strategic Marketing at the Universidade Católica Portuguesa, January 2024.

ABSTRACT

Title: Human vs. Virtual Influencers: A Comparative Study of Brand Endorsement Effects on Purchase Intention

Author: Elana Krüger

Brands continuously strive to match their marketing efforts with evolving societal trends. That being said, the rise of virtual influencers generated by artificial intelligence (AI) did not go unnoticed as brands started recognizing their potential for promotional activities. While these technologies are causing a sensation, little research has been done to uncover the implications on consumers' attitudes and behavior.

This paper aimed to reveal the effects of different types of endorsers – human, virtual, and no endorser – on consumers' purchase intention. The research included an exploration of the brand image's role amidst this relationship, as well as the product's value proposition and the endorser's perceived authenticity.

A mixed methods approach was adopted for the study. After identifying the product category based on the reviewed literature and existing campaigns, a focus group was chosen as a qualitative instrument to confirm the stimuli. The main study was carried out quantitatively through an online survey.

The research found that brand endorsement does not positively impact purchase intention and indicated that virtual endorsers lead to a higher purchase intention than human endorsers. Moreover, neither the value proposition nor the perceived authenticity moderated the relationship between the endorsement and the purchase intention. However, the brand image proved to be a mediator in the model. These findings contradict the literature that supports the effectiveness of brand endorsement and highlight the potential of virtual endorsers for driving purchase intention through brand image. Thus, managers should be aware of virtual endorsers' potential.

Keywords: artificial intelligence, consumer attitudes, endorsement, brand image, product value proposition, perceived authenticity, purchase intention

SUMÁRIO

Título: Influenciadores Humanos vs. Virtuais: Um Estudo Comparativo dos Efeitos da Promoção da Marca na Intenção de Compra

Autor: Elana Krüger

As marcas esforçam-se continuamente por acompanhar as tendências sociais. Sendo assim, a ascensão de influencers virtuais gerados com inteligência artificial (IA) não passou despercebida, tendo as marcas começado a reconhecer o seu potencial no marketing. Embora estas tecnologias estejam a causar sensação, pouca investigação foi feita acerca das suas implicações.

Este artigo teve como objetivo revelar os efeitos de diferentes tipos de promotores - humanos, virtuais e sem promotor - na intenção de compra dos consumidores. A investigação explorou o papel da imagem da marca nesta relação, bem como a proposta de valor do produto e a autenticidade reconhecida no promotor.

Neste estudo, foi realizada uma revisão de literatura e de campanhas existentes para identificar a categoria do produto. Seguidamente, foi realizado um focus group para confirmar os estímulos. O estudo principal foi realizado através de um inquérito online.

A investigação concluiu que a promoção da marca não tem um impacto positivo na intenção de compra e indicou que os promotores virtuais levam a uma intenção de compra mais elevada que os promotores humanos. Além disso, nem a proposta de valor nem a autenticidade reconhecida moderaram a relação entre o promotor e a intenção de compra. No entanto, a imagem da marca revelou-se um mediador no modelo. Estes resultados contradizem a literatura que apoia a eficácia da promoção da marca e realçam o potencial dos promotores virtuais para impulsionar a intenção de compra através da imagem da marca. Assim, os gestores devem estar conscientes do potencial dos promotores virtuais.

Palavras-chave: inteligência artificial, atitudes do consumidores, promoção, imagem da marca, proposta de valor do produto, autenticidade reconhecida, intenção de compra

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank all the people who supported me during my academic journey at Católica Lisbon and throughout the writing of this thesis.

Firstly, I wish to express my sincere appreciation to my supervisor, Prof. Paulo Romeiro, for his availability and advice all along. His valuable input was of great help in the completion of this dissertation.

Secondly, I would like to extend my gratitude towards everyone who took part in my study and went above and beyond to help me reach my participants.

Lastly, I'm deeply grateful for my close circle of support – always around for encouraging words, helpful tips, or some much-needed laughs.

TABLE OF CONTENTS

<i>ABSTRACT</i>	<i>ii</i>
<i>SUMÁRIO</i>	<i>iii</i>
<i>ACKNOWLEDGEMENTS</i>	<i>iv</i>
<i>TABLE OF CONTENTS</i>	<i>v</i>
<i>TABLE OF FIGURES</i>	<i>vii</i>
<i>TABLE OF TABLES</i>	<i>viii</i>
<i>TABLE OF APPENDICES</i>	<i>ix</i>
<i>GLOSSARY</i>	<i>x</i>
<i>CHAPTER 1: INTRODUCTION</i>	<i>1</i>
1.1 Background	1
1.2 Relevance	1
1.3 Problem Statement	2
1.4 Research Methods	2
1.5 Dissertation Outline	3
<i>CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK</i>	<i>4</i>
2.1 The Evolution of Brand Endorsers	4
2.2 Endorser Effectiveness	7
2.3 Brand Image	9
2.4 Full Conceptual Model	10
<i>CHAPTER 3: METHODOLOGY</i>	<i>11</i>
3.1 Research Approach.....	11
3.2 Primary Data.....	11
3.3 Data Analysis	16
<i>CHAPTER 4: RESULTS</i>	<i>17</i>
4.1 Data Preparation.....	17
4.2 Sample Characterization.....	17
4.3 Variable Creation.....	18
4.4 Measure Reliability	18
4.5 Hypothesis Tests	19
<i>CHAPTER 5: DISCUSSION</i>	<i>27</i>
<i>CHAPTER 6: CONCLUSIONS AND LIMITATIONS</i>	<i>30</i>
6.1 Main Findings and Conclusions	30
6.2 Academic and Managerial Implications	31
6.3 Limitations and Further Research.....	31
<i>REFERENCE LIST</i>	<i>I</i>

APPENDICES..... *V*

TABLE OF FIGURES

Figure 1: *Celebrity Endorsement Strategy Framework starting from the Value Proposition (Schimmelpfennig & Hunt, 2020)*..... 8

Figure 2: *Conceptual Model*..... 10

Figure 3: *Stimulus Creation Process* 14

Figure 4: *Brand Image Items (Sondoh et al., 2007)* 15

Figure 5: *Statistical Diagram of Hayes’ PROCESS Model 1 for H2a (Hayes, 2013)* 22

Figure 6: *Statistical Diagram of Hayes’ PROCESS Model 1 for H2b (Hayes, 2013)* 22

Figure 7: *Statistical Diagram of Hayes’ PROCESS Model 1 for H3a (Hayes, 2013)* 23

Figure 8: *Statistical Diagram of Hayes’ PROCESS Model 1 for H3b (Hayes, 2013)* 24

Figure 9: *Statistical Diagram of Hayes’ PROCESS Model 4 for H4 (Hayes, 2013)* 25

Figure 10: *Statistical Diagram of Hayes’ PROCESS Model 10 (Hayes, 2013)* 26

TABLE OF TABLES

Table 1: Operational Model 16

Table 2: Data Cleaning 17

Table 3: Cronbach's Alphas 18

TABLE OF APPENDICES

Appendix A: Léa Seydoux and Virtual Muse "Candy" for Prada Candy	V
Appendix B: Survey Stimuli	V
Appendix C: Survey Questionnaire	VIII
Appendix D: Demographics Frequencies	XI
Appendix E: Shapiro-Wilk Test of Normality	XIII
Appendix F: Levene's Test of Homogeneity of Variance	XIII
Appendix G: Chi-Square Test	XIV
Appendix H: Linear Regression	XIV
Appendix I: Independent Samples t Test	XVI
Appendix J: H2a – PROCESS Model 1	XVI
Appendix K: H2b – PROCESS Model 1	XVII
Appendix L: H3a – PROCESS Model 1	XVIII
Appendix M: H3b – PROCESS Model 1	XIX
Appendix N: H4 – PROCESS Model 4	XX
Appendix O: Full Model – PROCESS Model 10	XXI

GLOSSARY

AI	–	Artificial Intelligence
BI	–	Brand Image
CGI	–	Computer-Generated Imagery
CLT	–	Central Limit Theorem
PA	–	Perceived Authenticity
PI	–	Purchase Intention
VP	–	Value Proposition
WOM	–	Word of Mouth

CHAPTER 1: INTRODUCTION

The first chapter of this dissertation introduces the background of the research, followed by its relevance. Next, the problem statement is described, including the study's research questions. After presenting the research methods, the dissertation outline is exposed.

1.1 Background

Brands commonly use endorsers as spokespeople to communicate with their target audience (Ohanian, 1990). Several types of brand endorsers exist, of which celebrities are widely used (Erdogan, 1999; Schimmelpfennig & Hunt, 2020), as their public recognition works in favor of bringing across marketing messages (McCracken, 1989). With the evolution of digital technologies, new types of celebrities have emerged, such as social media influencers, taking the role of brand or product ambassadors. Thus, brand communication dynamics have evolved, allowing one-way communication from the brand to the consumer to turn into a mutual exchange involving the consumers in companies' marketing activities (Bakker, 2018). Following these digital advancements, the disruptive technology of artificial intelligence (AI) has added another sub-type of celebrity endorsers: virtual influencers. The latter are computer-generated personalities that act human-like (Miao et al., 2022) and represent a new tool for companies to grab consumers' attention within their brand communication.

1.2 Relevance

The emergence of virtual influencers is capturing scholars' and managers' attention. These computer-generated personalities keep growing their sphere of influence as they expand their follower base on social media – their yearly growth rate exceeding that of human influencers (Conti et al., 2022). Underlining the influential power of virtual influencers, AI-generated Lil Miquela was named one of the 25 most influential people on the internet by Time Magazine, alongside personalities such as former US president Donald Trump (Conti et al., 2022).

However, due to the recent appearance of virtual influencers, research in this field is still limited. Scholars call for further investigation of virtual influencers' impact on marketing outcomes, especially compared to human influencers. Sands et al. (2022) developed a study about consumers' responses to AI social media influencers, comparing the effects to human social media influencers, concluding that virtual influencers can be as effective as traditional influencers as brand endorsers. While the authors considered social distance as a mediator and the need for uniqueness as a moderator, they argue that other variables, such as the perceived

authenticity of the influencers, could impact the relationship between the influencer type and the consumer reaction. In addition, celebrity endorser research suggests that the value proposition of a brand or product ought to be investigated in this context, taking a step further than the simple product category (Schimmelpfennig & Hunt, 2020).

1.3 Problem Statement

The solicitations for further research on virtual characters for brand endorsement strategies identified in the existing literature leads to the following problem statement: investigating the effects of virtual endorsers on purchase intention in comparison to human endorsers, considering the brand image as a mediator variable and the product value proposition as well as the endorser's perceived authenticity as moderator variables. The research questions deriving from this problem statement are as follows:

RQ1: Are human and virtual influencers equally effective as brand endorsers?

RQ2: How does the effect of brand endorsement on purchase intention differ between human and virtual endorsers?

RQ3: What role does the brand image play in the relationship between the endorser type and the purchase intention?

1.4 Research Methods

Firstly, a review of the existing literature sets the grounds for the specific variables and relationships to be studied. To answer the research questions formulated above, primary data was collected through an online survey. The survey scrutinized respondents' purchase intention based on the randomized exposure to a stimulus containing a specific endorsement and value proposition condition. In addition to that, the survey questionnaire evaluated the constructs of brand image and perceived authenticity of the endorser. The study involved a mixed methods approach. In a preliminary phase, this allowed us to gather qualitative data through a focus group to confirm the self-developed stimuli. Next, quantitative data was collected in the main study, which enabled us to gather a large quantity of data from a diverse sample within the given time frame.

A linear regression, an independent sample t-test, and Hayes' PROCESS models (Hayes, 2013) served to analyze the data and answer the research hypotheses.

1.5 Dissertation Outline

This dissertation is built on six chapters. Following the introduction, the second chapter is a literature review presenting the main concepts of this paper. The third chapter outlines the methodology used to collect the primary data, of which the results will be discussed in the fourth chapter. Thereafter, the research findings are discussed in the fifth chapter. Finally, the last chapter consists of the conclusion of the paper's findings, as well as limitations, managerial implications, and directions for future research.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This chapter provides a theoretical framework supporting the research purpose of this dissertation and contextualizing the research questions at hand. The review of the existing literature is primarily based on academic journals as well as books. It allowed us to uncover research gaps and develop hypotheses for the study.

The first part of the literature review presents the evolution of brand endorsers, showcasing the gradual influence of digital means on this field – traditional endorsers made way for social media influencers, who are now seeing virtual counterparts emerge. This part is followed by a discussion on endorser effectiveness, which explores celebrity endorsement theories and identifies two relevant determinants: the product's value proposition and the perceived authenticity of the influencer. Lastly, this chapter explores the construct of brand image and the role that it plays amidst brand endorsers and purchase intention.

2.1 The Evolution of Brand Endorsers

As the marketing landscape evolves, so do the types of brand endorsers used by companies to represent them and their products. Especially with the digital transformation, having led to the development of social media marketing, brands find new approaches to interact with consumers and attract the latter's attention (Lamberton & Stephen, 2016). This section presents the evolution of brand endorsers, starting with traditional endorsers, then moving on to the emergence of influencer marketing, and finally introducing the newest type of brand endorser: the virtual influencer.

2.1.1 Traditional Endorsers

Endorsers are brands' spokespeople, carefully selected to communicate a brand's desired message to the consumer (Ohanian, 1990). Brands use endorsers to alter the target consumers' behavior in a favorable way for the firm, stimulating actions such as purchase intention (Friedman et al., 1976), which Spears and Singh (2004) define as "an individual's conscious plan to make an effort to purchase a brand" (p. 56).

Different types of brand endorsers exist, the most common ones being celebrities, consumers, and experts. Each type of endorser comes with an individual advantage that can enable them to persuade target consumers of the brand message, such as similarity to the target audience for the consumer endorser or recognized authority and knowledge for the expert endorser (Friedman et al., 1976; Ohanian, 1990). Nevertheless, the type of endorser receiving the most

attention in the literature is the celebrity, which is widely used in marketing communication strategies (Erdogan, 1999; Schimmelpfennig & Hunt, 2020).

McCracken (1989) defines a celebrity endorser as “any individual who enjoys public recognition and who uses this recognition on behalf of a consumer good by appearing with it in an advertisement” (p. 310). Kotler and Keller (2009) note that the celebrity’s image can transfer onto the image of the brand that he or she endorses. As pointed out by the authors, this is desirable for brands when the celebrity’s image remains within its expectations – once it diverges from them through a damaging incident such as the involvement of the celebrity in a scandal, the endorser choice becomes risky for the brand’s image. Therefore, the brand endorser strategy appears to be a delicate discipline.

2.1.2 Influencer Marketing

The rise of digital technologies, including social media platforms, is offering new ways for brands to reach their target consumers, passing from a one-way brand-to-consumer communication to an interactive model with an exchange involving all parties (Bakker, 2018). Within this development, a new type of celebrity has emerged and subsequently took the stage for brand endorsements: the social media influencer.

Bakker (2018) defines influencer marketing as “a process in digital marketing where opinion leaders (influencers) are identified and then integrated into a brand’s communication on social media platforms” (p. 80). Influencers gain celebrity status by acquiring celebrity capital - a process termed “influencer celebrification” by Brooks et al. (2021). At the same time, they are found to differ from traditional celebrities as they are also regarded as fellow consumers (J. A. Lee & Eastin, 2021). Falling into both the celebrity and the consumer endorser categories, social media influencers benefit from a unique endorser position, subsequently representing a valuable marketing tool for brands.

In fact, the global influencer marketing market size has seen exponential growth over the years, reaching a value of 16.4 billion US dollars in 2022 – more than doubling since 2019 (Statista, 2023d).

2.1.3 Virtual Influencers

As scholars discuss the Fourth Industrial Revolution, digital technologies keep advancing the digital marketing landscape. One of the latest disruptive technologies that is gaining momentum in this context is artificial intelligence (AI), which collects and processes data to think, act, and

solve problems independently (Verma et al., 2021). AI finds a variety of applications in the marketing field, impacting all components of the marketing mix (Jarek & Mazurek, 2019).

One recent creation of AI that turned into a tool for marketing communication is virtual influencers, which are “3D computer-generated personalities” (CGI – computer-generated imagery) who build large follower bases on their social media accounts and engage with their audiences (Miao et al., 2022, p. 64). While the most popular influencers of the human and virtual species don’t compare yet in terms of the number of followers (e.g., on Instagram¹, human influencer Cristiano Ronaldo: 608M, virtual influencer Lu do Magalu: 6,5M), virtual influencers’ yearly follower growth rates are more than two times higher than the human influencers’ rates (Conti et al., 2022). The use of AI to control these entities allows real-time rendering, presenting them as interactive and independent figures to the public (Sands, Ferraro, et al., 2022).

Sands et al. (2022) investigate consumers’ responses to AI influencers compared to human influencers. The authors find that virtual influencers can be as effective as human influencers, as consumers are more likely to engage in WOM when it comes to the AI brand endorser, and they are equally likely to follow both types of influencers. Indeed, a consumer survey conducted in the United States in March 2022 revealed that more than half of the respondents (58%) follow at least one virtual influencer (Statista, 2023b), reflecting the gradual integration of this influencer kind into the social media landscape.

Other research in the field confirms the positive impact of virtual influencers on certain marketing indicators, such as brand awareness and brand image, as the novel nature of these brand endorsers attracts attention (Lou et al., 2023). However, these beneficial effects did not prove to be sufficient to induce one of the ultimate marketing indicators – consumers’ purchase intention – according to what the authors found in their study. Furthermore, as of March 2022, 65% of the surveyed American consumers stated that they had not bought a product or service promoted by a virtual influencer, while 35% stated that they had done so (Statista, 2023a).

Considering the current state of the research, the following hypothesis can be formulated:

H1a: Brand endorsement positively impacts purchase intention.

H1b: Virtual endorsers lead to a lower purchase intention than human endorsers.

¹ As of 16.10.2023

2.2 Endorser Effectiveness

The literature covers several models that delineate the conditions for the effectiveness of an endorser. Foundational research includes the source credibility, and the source attractiveness models, which, as per their names, suppose that the credibility (expertise and trustworthiness) and attractiveness (physical attractiveness, likeability, similarity to target audience) of the endorser impact the latter's effectiveness (Hovland & Weiss, 195.; Schimmelfennig & Hunt, 2020; William J. McGuire, 1985). Other models build on these concepts of celebrity endorser effectiveness. The match-up hypothesis takes into consideration the product category, pointing out that the attractiveness of the celebrity only adds to the endorsement's effectiveness if his or her image matches up with the product's characteristics – “perceived congruence” (Kamins, 1990). To illustrate this idea, Koernig and Page (2002) found that the attractiveness of an endorser does not impact the effectiveness of a computer advertisement.

While the first approach considers the endorser's match with the product category to be a determinant of endorser effectiveness, the second approach delves deeper to find that it is the product's value proposition that is decisive in this process (Schimmelfennig & Hunt, 2020).

2.2.1 Product Value Proposition

Value, as seen from a customer perspective, is found in the product features instead of the actual product. Thus, firms have shifted their focus accordingly when marketing their product (Hassan, 2012).

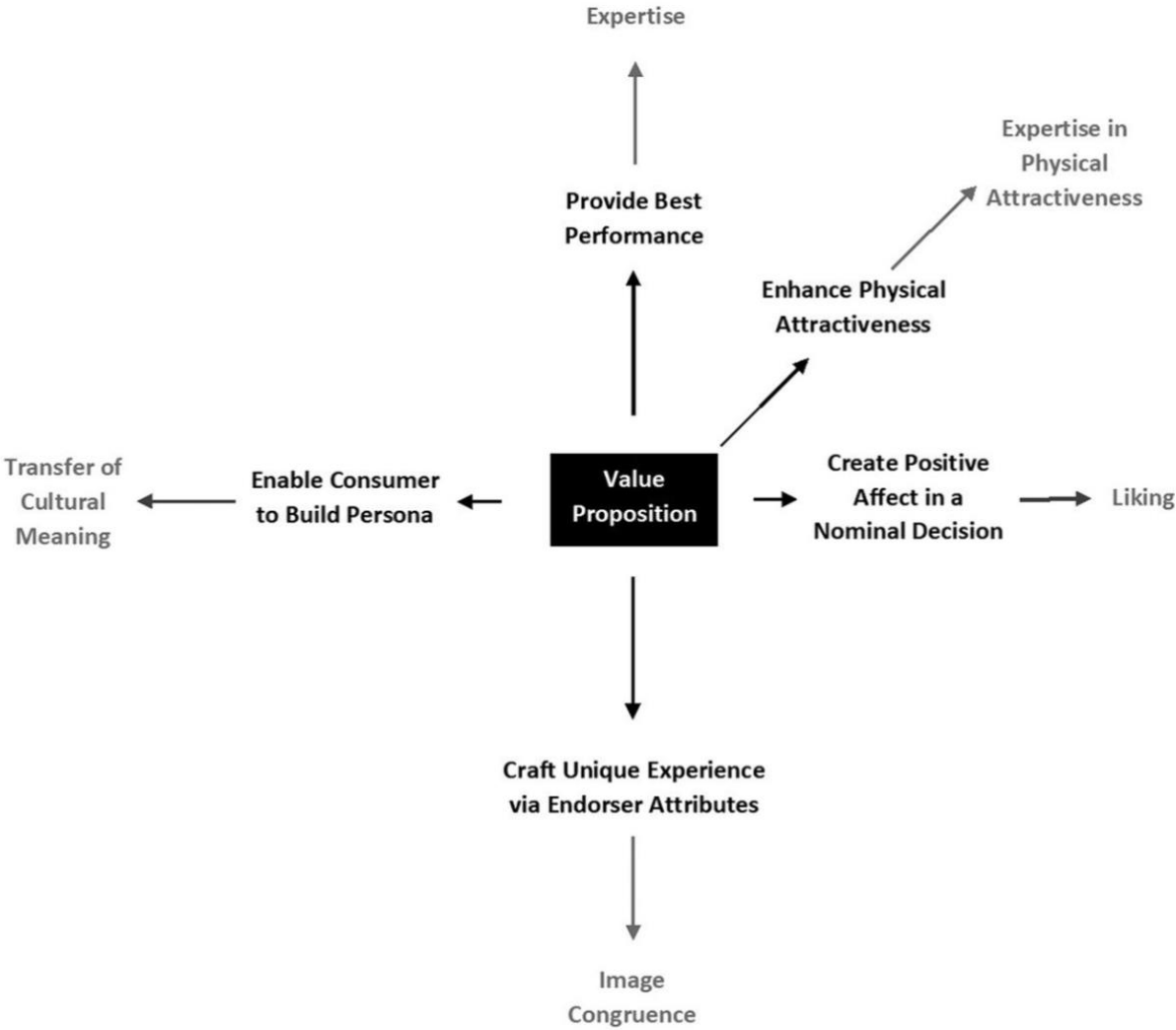
Based on the example of Koernig and Page (2002) mentioned above, Schimmelfennig and Hunt (2020) offer an updated view on the discussion of the influence of product category on endorsement effectiveness. The authors suggest that the brand endorser's image shouldn't be aligned with the product category but rather with the product's actual value proposition to produce the desired marketing outcome: “The actual value a product offers may indeed be the technical or quality superiority of its functional purpose. However, given today's necessity for branded products to offer something extra that sets them apart from commodity goods, the value proposition is more likely to be intangible. Thus, endorsers must be effective in endorsing the actual value proposition of a product and not center solely on functional purpose.” (p. 496).

Figure 1 presents five distinct product value propositions and illustrates how each matches a different endorser strategy. Therefore, one characteristic of endorser effectiveness might be suitable for one product value proposition but might not work for another. This suggests the following hypothesis:

H2a: The product’s value proposition moderates the effect of brand endorsement on purchase intention.

H2b: The product’s value proposition moderates the effect of brand endorsement on brand image.

Figure 1: *Celebrity Endorsement Strategy Framework starting from the Value Proposition (Schimmelpfennig & Hunt, 2020)*



2.2.2 Endorser’s Perceived Authenticity

As discussed previously, the use of influencers for marketing purposes has become a common practice among companies. However, the more influencers engage in monetized partnerships with brands to promote their products, the more consumers doubt the intrinsic motivation of the influencers’ communication (Zniva et al., 2023). In other words, the democratization of

influencer marketing is affecting the influencers' credibility as consumers question their authenticity.

Shoenberger and Kim (2023) highlight the subjective nature of perceived authenticity and define it within their study as the extent to which an influencer is perceived as real and genuine. Similarly, Moulard et al. (2015) define celebrity authenticity as "the perception that a celebrity behaves according to his or her true self" (p. 175).

Prior research shows that perceived authenticity is one of the decisive factors of a brand endorser's persuasiveness and that it impacts purchase intention (J. A. Lee & Eastin, 2021; Zniva et al., 2023).

In their literature review, Miao et al. (2022) point out the literature's findings that content authenticity is primarily associated with human influencers as opposed to virtual influencers. On the other hand, Byun and Ahn's systematic review (2023) reveals that both human and virtual influencers face the challenge of balancing authenticity and commercialism in their message content, calling for further investigation into this discrepancy.

Moreover, Sands et al. (2022) find that AI influencers are perceived as less trustworthy by consumers. Having studied social distance and the need for uniqueness as mediators in their paper, the authors call for the investigation of other variables, such as the consumers' perceived authenticity of the influencer.

H3a: The endorser's perceived authenticity moderates the effect of brand endorsement on purchase intention.

H3b: The endorser's perceived authenticity moderates the effect of brand endorsement on brand image.

2.3 Brand Image

According to Sukma Wijaya (2013), brand image is "a representation of the overall perception formed from information and knowledge of the brand" (p.57). Several components shape the brand image in a consumer's mind, including cognition, affection, and evaluation (J. L. Lee et al., 2014). The concept of brand image is vital for the scope of this paper, as researchers reveal that it guides consumers in their purchase decisions (Sukma Wijaya, 2013). While (Esch et al., 2006) find that brand image directly determines current purchase behavior, the authors fail to confirm that it directly affects future purchase behavior. However, the study limits itself to two consumer product categories (athletic shoes and chocolate), and the authors point out that the

hypothesis regarding future purchases might be supported for other categories, such as luxury goods, opening the way for further research.

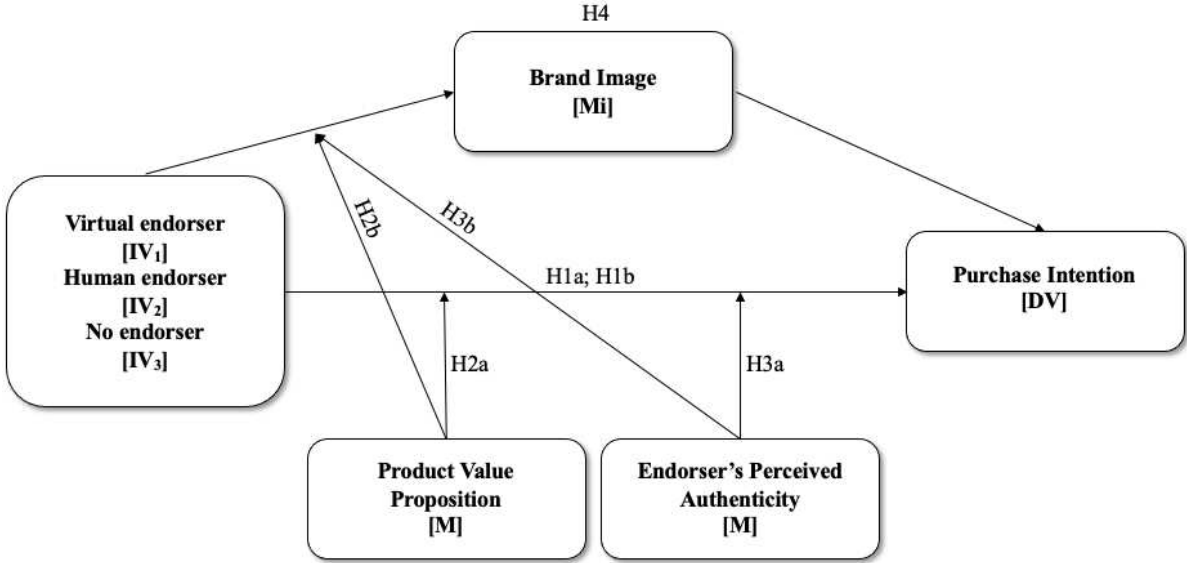
Alboqami (2023) conducted a study on trust in AI influencers, leaving out brand names to avoid mediating or moderating effects. However, the author urges further research in the domain to consider consumers' views (brand image) and behavioral intentions (purchase intention) towards the brands. Therefore, the following hypothesis is presented:

H4: The brand image mediates the effect of endorser type on purchase intention.

2.4 Full Conceptual Model

The conceptual model presented in Figure 2 visualizes the key variables drawn from the literature review and their hypothesized relationships. It incorporates the findings from the literature reviewed above and lays out the basis for the empirical study conducted in the context of this paper. The next chapter will delineate the methodology followed for this study.

Figure 2: Conceptual Model



CHAPTER 3: METHODOLOGY

This chapter presents the methodology that was adopted in this paper's study, which gathered answers to the research questions and hypotheses developed above.

The first section introduces the research approach, which discloses the transition from the conceptual to the operational model. The second section dives into the collection of primary data, while the third section deals with the data analysis.

3.1 Research Approach

The purpose of this paper is to investigate the impact of endorsers on purchase intention, specifically comparing virtual influencers and human influencers. The literature review developed above provided a basis for the analysis of this relationship and introduced variables with the potential to affect and explain this relationship – product value proposition, perceived authenticity, and brand image. Following requests from the literature to study the hypothesized effects of these variables, confirmatory research was conducted through the collection of primary data (Saunders et al., 2009).

A mixed methods approach was chosen for this study, joining qualitative and quantitative data (Creswell, 2009). The first step in the research process consisted of identifying the product category that would be used in the study. This was achieved by combining findings from the literature and an analysis of existing campaigns involving all advertising strategies relevant to this study (human endorser, virtual endorser, no endorser). In a second step, stimuli were created using tools for image creation and editing, and then confirmed with the help of a focus group to prevent any researcher bias. Further, an online questionnaire was set up to gather data, allowing us to answer this paper's research questions. A preliminary phase involved a pretest of the questionnaire to address any possible issues or ambiguities.

3.2 Primary Data

Primary data was collected to answer the research questions at hand. Four steps were involved in the data collection: (1) the identification of the product category, (2) the creation and confirmation of the stimuli, (3) the pretest to verify the accuracy and comprehensiveness of the questionnaire, and (4) the final online survey.

3.2.1 Category Identification

As discussed in the literature review, Esch et al. (2006) raise the question of whether the results of their study regarding the impact of brand image on current and future purchase behavior would differ for another product category. The suggestion that the authors give for future research is to investigate the effects of the category of luxury goods, which gave grounds for this global product category to be included in the present study.

To narrow down the choice of product, a review of previous product campaigns involving virtual and human influencers was conducted. Looking into luxury brands, Prada is a prominent example of integrating AI into their campaigns (Sands, Ferraro, et al., 2022). In 2011, the brand chose French actress Léa Seydoux as the representative for the Prada Candy fragrance (Prada, 2013). 10 years later, Prada relaunched the perfume and created the virtual muse “Candy” for the occasion, which became the new face of the product (Prada, n.d.). Appendix A presents both campaigns featuring the human and the virtual brand endorsers.

Considering the request to explore the category of luxury goods and the existing campaigns with human and virtual endorsers for high-end perfume, a luxury perfume was chosen as the product for this study.

3.2.2 Data Collection

A quantitative approach served to collect the primary data for this research paper. An online survey was administered with the software Qualtrics and was live between 12.11.2023 and 28.11.2023. The survey was shared on various social media platforms and composed in English to be comprehended universally, as the study was not specific to any country or nationality.

This study aimed to gain insights from consumers who can relate to the purchase of perfume, hence representing a very large population. Therefore, the logical course of action was to collect data from a sample instead of the entire population. Considering the limited time and budget resources and following the selection criteria of Saunders et al. (2009, p.234), a convenience sample was chosen for the scope of this study.

Regarding the sample size, the central limit theorem (CLT) served as a guideline to ensure the robustness of the data gathered in the study; the theorem states that the larger the sample size is, the closer its mean will be to the mean of the population it represents, as it approaches a normal distribution (Kothari, 2004). Thus, the sample size was selected so that each stimulus condition received at least 30 valid responses. The study design consisted of a 3 (human endorser vs. virtual endorser vs. no endorser) x 2 (value proposition 1 vs. value proposition 2) between-subjects model.

The survey started off with an introduction followed by a screening question, which excluded respondents who had never purchased a perfume and did not intend to purchase one in the future. That way, the study would only include answers from the target group.

In the next section, participants were randomly assigned to one of the six stimuli (see Appendix B) and their corresponding sets of questions about perceived authenticity (for the stimuli containing an endorser), brand image, and purchase intention. The last section of the survey prompted the sample's demographics. The survey questionnaire is presented in Appendix C.

3.2.3 Stimuli Development

Six advertisements for luxury perfume were developed in two steps for the purpose of the survey. The first step consisted of the creation of stimuli options, while the second step involved a focus group in choosing among the stimuli and confirming the final versions.

The stimuli consisted of two kinds of elements: visual and textual components. The visual components to be manipulated were the type of endorser (human vs. virtual vs. none) and the two differing textual components were the ad taglines which represented two different value propositions of the product. The perfume was presented under a fictitious brand "LUXE" to exclude any response bias from pre-existing knowledge and attitudes towards the brand.

3.2.3.1 Stimuli Creation

From the visual side, Kendall Jenner was selected as the human product endorser. The American model owns one of the most followed Instagram accounts worldwide, with 292 million followers as of July 2023 (Statista, 2023c). The social media influencer has acted as a product endorser for high-end perfume in the past, starring in Estée Lauder's campaign for the Modern Muse scent in 2015. A picture of Kendall Jenner with a neutral background and clothing was selected to reduce any externally influencing elements.

Following the approach of Prada Candy discussed previously, a virtual endorser was created for the second stimulus. Microsoft Bing's Image Creator tool (powered by DALL-E 3) was used to generate the virtual model, inputting prompts that would make the output resemble the picture of Kendall Jenner for comparability.

The perfume bottle was also generated using Microsoft Bing's image AI tool to resemble an actual luxury perfume.

From the textual side, two value propositions were chosen from the study of Schimmelpfennig and Hunt (2020), which corresponded best with the product category of luxury perfumes: "craft unique experience via endorser attributes", and "enhance physical attractiveness". To analyze

the impact of these variables in the context of the created ads, two taglines that are representative of each value proposition were ideated using the language model ChatGPT. To finalize, the photo and design software Adobe Photoshop was used to assemble the various elements into the six ads.

Figure 3 visualizes the process of stimulus creation.

Figure 3: Stimulus Creation Process



3.2.3.2 Stimuli Confirmation

To confirm the stimuli to be used in the final survey, a focus group with 7 participants was carried out. The sample represented different nationalities (Chinese, Czech, German, Italian, Portuguese) and genders to enlarge the representativeness. The focus group was held online via Google Meet and lasted for one hour.

The qualitative research procedure covered visual as well as textual topics. Several versions of the virtual endorser and the perfume bottle were debated, followed by a discussion on different tagline options. Finally, the overall composition of the six stimuli was settled, including the position of each element in the ads (e.g., where to place the tagline).

3.2.4 Measurement

Three constructs from the literature were used to measure the effects of the stimuli on the variables “perceived authenticity”, “brand image”, and “purchase intention”.

Perceived authenticity was evaluated on a 7-point Likert scale using three items developed by Moulard et al. (2015): [This celebrity...] “is genuine”, “seems real to me”, and “is authentic”. The construct generated a Cronbach’s alpha value of 0.87, indicating good reliability.

Brand image was evaluated based on the construct of Sondoh et al. (2007), whereby the original 5-point Likert scale was converted to a 7-point Likert scale to match the other scales of the study. The researchers find the following five components to form the brand image: experiential benefit, symbolic benefit, social benefit, functional benefit, and appearance enhancement. Figure 4 contains a set of 18 items that measure the various benefits and ultimately the brand image. The scale items showed satisfactory Cronbach’s alpha values ranging from 0.621 to 0.816.

Figure 4: *Brand Image Items (Sondoh et al., 2007)*

<p><i>Experiential benefit</i> Brand X makes me feel good Brand X makes me feel delighted Brand X increases my frequency of use Brand X gives me pleasure</p> <p><i>Symbolic benefit</i> Usage of brand X prevents me from looking cheap Brand X enhances the perceptions that I have a desirable lifestyle Brand X helps me to better fit into my social group</p> <p><i>Social benefit</i> Brand X helps me feel accepted Brand X improves the way I am perceived by others</p> <p><i>Functional benefit</i> Brand X performs as it promises Brand X makes me beautiful Brand X can be dependable for use</p> <p><i>Appearance enhances</i> Brand X provides a solution to my expectations Brand X makes me a good impression of me on other people Usage of brand X is effective to my needs than other brands</p>

Purchase intention was evaluated on a 7-point Likert scale following the construct of Putrevu and Lord (1994). The scale contained three items: “It is very likely that I will buy (brand).”, “I will purchase (brand) the next time I need a (product).”, and “I will definitely buy (brand).”. The researchers’ purchase intention construct yielded a Cronbach’s alpha value of 0.91, speaking for good reliability.

Table 1: Operational Model

Framework	Measure	Items	Scale	Reference	Cronbach α
IV	Influencer Type	Stimuli	<i>na</i>	<i>na</i>	<i>na</i>
Moderator	Value Proposition	Stimuli	<i>na</i>	<i>na</i>	<i>na</i>
Moderator	Perceived Authenticity	3	7-point Likert Scale	(Moulard et al., 2015)	0.87
Mediator	Brand Image	15	7-point Likert Scale (*)	(Sondoh et al., 2007)	0.62-0.82
DV	Purchase Intention	3	7-point Likert Scale	(Putrevu & Lord, 1994)	0.91

** The scale was adapted from the original 5-point Likert scale.*

3.3 Data Analysis

The data analysis of this project was conducted with IBM’s statistics software SPSS (version 28.0). To begin with, the data was cleaned, removing observations that were subject to a failed screening question, an uncompleted response, a repeated IP address, a failed manipulation or attention check, as well as outliers. The latter were identified using the Mahalanobis Distance. The analysis of the cleaned data was initiated with the characterization of the sample using descriptive statistics, precisely frequencies. Moreover, new variables were created from the data so that the necessary statistical tests could be run to test the study’s hypotheses. Next, the measures’ reliability was investigated with the help of Cronbach’s Alpha and the classification of α values by George and Mallery (2022).

Furthermore, the assumptions of parametric data summarized by Field (2009) were prompted, and the results suggested the use of parametric tests for the hypotheses of this paper. Hence, a linear regression served to understand the nature of the relationship between the presence or absence of an endorser in an advertisement and the purchase intention (hypothesis 1a). An Independent Samples t-test allowed the means of respondents’ purchase intention to be compared based on the type of endorser they were exposed to (hypothesis 1b).

In addition to that, Hayes’ PROCESS macro was used to test the remaining hypotheses, as their focus lay on the moderation and mediation effects of the variables (Hayes, 2013). Hayes’ PROCESS model 1 was run to test all hypotheses supposing moderation effects (H2a; H2b; H3a; H3b) and model 4 was executed for the last hypothesis that deals with the mediation effect of the brand image variable. Lastly, PROCESS model 10 was run to study the full model.

CHAPTER 4: RESULTS

The fourth chapter of this dissertation presents the results of the data analysis introduced above. The first part deals with the data preparation, which is followed by the sample characterization. Thereafter, the measurement of the constructs' reliability is discussed. The fourth part closes this chapter with the results of the hypothesis tests.

4.1 Data Preparation

A total of 315 responses were recorded, of which 206 counted as valid observations after cleaning the data. Twenty-four respondents failed the screening question, and 46 responses were uncompleted. The remaining 39 observations were excluded due to repeated IP addresses, failed manipulation, failed attention checks, or being identified as outliers. The details of the data cleaning are presented in Table 2.

Table 2: Data Cleaning

	Stim. 1	Stim. 2	Stim. 3	Stim. 4	Stim. 5	Stim. 6	TOTAL
Initial Observations							315
Failed Screening Questions							24
Uncompleted Responses							46
Observations	43	40	39	39	42	42	245
Repeated IPs	4	3	3	1	3	0	14
Failed Manipulation	2	0	2	2	3	9	18
Failed Attention Check	2	1	1	1	0	0	5
Outliers	0	0	1	0	1	0	2
Valid Observations	35	36	32	35	35	33	206

4.2 Sample Characterization

The sample consisted of a diverse set of nationalities spanning over 34 different countries in Europe, America, Africa, and Asia. The most prominent nationality was German (35.9%), followed by French (9.2%), Italian (8.7%), Belgian (8.3%), and Portuguese (7.8%). The majority of respondents belonged to the age groups of 18 to 24 years old (53.9%) and 25 to 34 years old (40.8%). Moreover, female participants held the largest share of the sample (70.4%), followed by male participants (28.2%) – the remaining participants were non-binary or preferred to self-describe/not to say. Regarding the occupation, most individuals declared to be

students (67.5%) or employed (27.7%). Lastly, for almost half of the respondents, the annual household income was less than 25,000€ (43.7%). The second most represented income class was 25,000€ to 49,999€ (23.8%), and the third one was 80,000€ or more (16.0%).

4.3 Variable Creation

Twenty-four new variables were created from the collected data as a preparation for the statistical tests of this study. Firstly, the means of the three constructs of the study were computed to form the scale variables PA (perceived authenticity), PI (purchase intention), and BI (brand image). Secondly, the means of each construct were computed per stimulus condition, producing four variables for perceived authenticity (PA_H1; PA_H2; PA_V1; PA_V2), six variables for brand image (BI_H1; BI_H2; BI_V1; BI_V2; BI_P1; BI_P2), and six variables for purchase intention (PI_H1; PI_H2; PI_V1; PI_V2; PI_P1; PI_P2).

In addition to that, three variables were created for the different endorsement conditions. The first variable served to distinguish respondents who were exposed to a stimulus containing an endorser and respondents who were exposed to a stimulus without an endorser (End_Y_N). The second variable enabled us to distinguish respondents who saw an ad containing a virtual endorser from those who saw an ad with a human endorser (End_V_H). The third variable categorized all ads of the study into the following conditions: virtual endorser, human endorser, and no endorser (End_All).

What's more, a dummy variable was created to identify the type of value proposition (VP), which was reflected by the two different tagline stimuli in the ads of the study. Lastly, another dummy variable was created for the perceived authenticity so that the latter could be categorized as high and low based on the mean and could be used for the moderation tests.

4.4 Measure Reliability

The reliability of the constructs' measurement scales was assessed using Cronbach's Alpha, which was interpreted according to the classification proposed by George and Mallery (2022). All constructs proved to be reliable with α values ranging from acceptable to excellent levels, as can be found in Table 3.

Table 3: Cronbach's Alphas

Construct	Stimulus	Cronbach's Alpha	Quality
Perceived Authenticity	H1	.860	Good

	H2	.902	Excellent
	V1	.833	Good
	V2	.749	Acceptable
Brand Image	H1	.943	Excellent
	H2	.960	Excellent
	V1	.954	Excellent
	V2	.945	Excellent
	P1	.955	Excellent
	P2	.931	Excellent
Purchase Intention	H1	.931	Excellent
	H2	.899	Good
	V1	.826	Good
	V2	.947	Excellent
	P1	.898	Good
	P2	.942	Excellent

The measurement scale of perceived authenticity produced α values between .749 and .902 across the four applicable stimulus groups, speaking for an acceptable to excellent level of internal consistency. The items of the brand image construct revealed an excellent internal consistency across all stimulus groups, all α values being above .9. Lastly, the construct of purchase intention exhibited good to excellent α values, ranging from .826 to .947.

Thus, no scale item needed to be deleted and the data analysis could be pursued with the present measurement scales.

4.5 Hypothesis Tests

4.5.1 Assumptions of Parametric Data

First, in order to choose adequate statistical tests for the hypotheses of this study, it was necessary to uncover whether the data at hand was parametric or non-parametric. This was done by examining the parametric assumptions listed by Field (2009).

Assumption 1: Normally distributed data. This assumption was tested using the Shapiro-Wilk test (see Appendix E). Judging from the significance values, the variable of brand image is normally distributed (Sig. = .509), while the variables of purchase intention (Sig. < .001) and perceived authenticity (Sig. = .005) are not normally distributed.

However, since $n > 30$ for each stimulus condition, the CLT holds. Thus, it can be argued that despite the previous findings, the data follows a normal distribution.

Assumption 2: Homogeneity of variance. This assumption was tested using the Levene's test (see Appendix F). For the purchase intention, the variances were equal for the advertisements without an endorser, with a virtual endorser and with a human endorser, $F(2, 203) = 1.14, ns$. Therefore, it can be concluded that the assumption of homogeneity of variance holds.

Assumption 3: Interval data. The dependent variable, "purchase intention" is measured on a Likert scale with equal intervals, meaning that the assumption holds.

Assumption 4: Independence. This assumption was tested using the Chi-Square statistic (see Appendix G). The output of the test shows a non-significant p-value ($.165 > .05$) and fails to reject the null hypothesis which states that the variables are independent of each other. In other words, the assumption of independence holds.

In conclusion, as all assumptions were verified, the use of parametric tests is appropriate in this case.

4.5.2 Endorsers

H1a: Brand endorsement positively impacts purchase intention.

The first hypothesis contains a metric dependent variable (purchase intention) and a categorical independent dummy variable (brand endorsement). The goal of this hypothesis is to understand the nature of the relationship between those two variables. Considering these aspects, the suitable statistical test for this hypothesis is the simple Linear Regression.

Once again, specific assumptions need to be met in order to conduct this statistical test. The assumptions of multivariate normality (see also Figure H1 of Appendix H), no autocorrelation or independence and homoscedasticity or homogeneity of variance have been checked in the section above. Thus, the remaining assumptions of linearity and little or no multicollinearity were examined at this stage.

Based on the scatterplot provided in Figure H2 of Appendix H, linearity could be assumed from the distribution of the points. Moreover, the absence of multicollinearity was proven through the use of Collinearity Statistics (see Table H3 of Appendix H). The Tolerance values of the full model's variables ranged from .696 to .996, hence larger than the cut-off value of 0.4. The VIF values ranged from 1.004 to 1.437, hence smaller than the cut-off value of 2.5. Thus, all assumptions of a Linear Regression were met and allowed the use of this test for hypothesis 1a; the output is analyzed below.

On the one hand, the R-value of .242 given in the Model Summary of the regression's output (see Table H4 of Appendix H) indicated a low degree of correlation between the dependent (purchase intention) and independent variable (brand endorsement). Similarly, the R² value suggested that the independent variable explains only a very small amount of the variation in the dependent variable (5.9%). These findings call for the research of other variables that have a stronger impact on the variation in purchase intention in this scenario.

On the other hand, the regression model was highly significant as the p-value of the ANOVA table (Table H5 of Appendix H) indicated (Sig. < .001).

Lastly, the Regression Coefficient is also statistically significant ($p < .001$) and expressed the following: with a value of -.754, it can be concluded that the purchase intention is 0.754 points lower when an endorser is present in the perfume advertisement than when solely the product is featured. **Therefore, Hypothesis 1a is rejected.**

H1b: Virtual endorsers lead to a lower purchase intention than human endorsers.

This hypothesis compares the means of two independent groups – the purchase intention of respondents who were exposed to a virtual endorser versus those who were exposed to a human endorser. In order to test this hypothesis, an Independent Samples t Test was conducted. Here again, the assumptions made for this specific test are validated (independence, normality, homogeneity of variances, interval data).

Table I1 of Appendix I shows the Group Statistics, which inform that 67 respondents were allocated to a virtual endorser stimulus, and 71 respondents to a human endorser stimulus. Moreover, it appears that the mean of purchase intention was higher for individuals who were exposed to a virtual endorser, which would mean that **Hypothesis 1b is rejected**. However, the p-value of the Independent Samples Test (see Table I2 of Appendix I) indicates that the mean differences are not statistically different, as the output shows: $p = .274 > .05$, which fails to reject the null hypothesis ($H_0 =$ The means of the two groups are equal). Therefore, there is not enough evidence to confidently claim that virtual endorsers don't lead to a lower purchase intention than human endorsers.

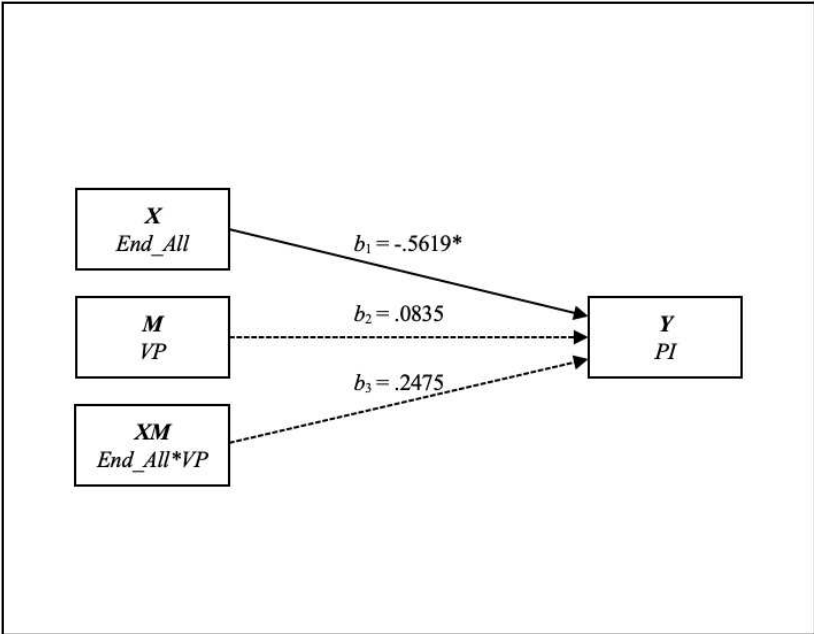
4.5.3 Value Proposition

H2a: The product's value proposition moderates the effect of brand endorsement on purchase intention.

This hypothesis was tested using Hayes' PROCESS model 1 (see Appendix J), as it deals with a moderation effect. Figure 5 depicts the statistical diagram of the model. The latter included the dependent variable Y (purchase intention), the independent variable X (endorsement) and the moderator variable M (product's value proposition).

First, the Model Summary indicates that only 6.61% of the variation in the purchase intention was accounted for by the variables of brand endorsement, value proposition, and interaction (Int_1). Next, the interaction appeared to be non-significant ($p = .3082 > .05$), which concludes that there was no moderating effect of value proposition on the relationship between brand endorsement. Therefore, **Hypothesis H2a is rejected.**

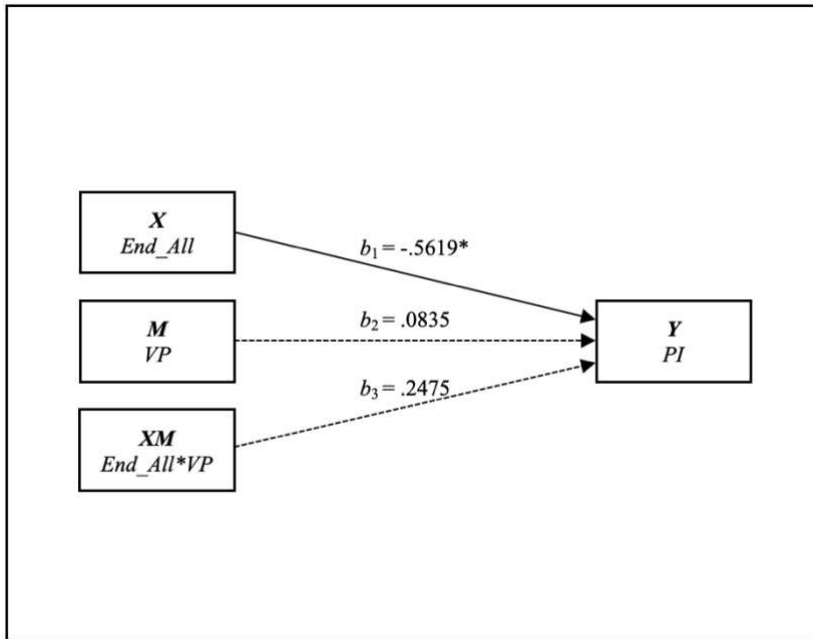
Figure 5: Statistical Diagram of Hayes' PROCESS Model 1 for H2a (Hayes, 2013)



H2b: The product's value proposition moderates the effect of brand endorsement on brand image.

To test this hypothesis, PROCESS model 1 was used once again (see Appendix K). The statistical diagram of the model can be found in Figure 6. The same variables were used, except that purchase intention was replaced with brand image. As for the previous case, the model explained a small variation in the dependent variable (4.42%). Moreover, the p-value of the model indicated no significance of the interaction ($p = .7924 > .05$), meaning that once again, no moderating effect of the value proposition was detected. **Hypothesis H2b is rejected.**

Figure 6: Statistical Diagram of Hayes' PROCESS Model 1 for H2b (Hayes, 2013)

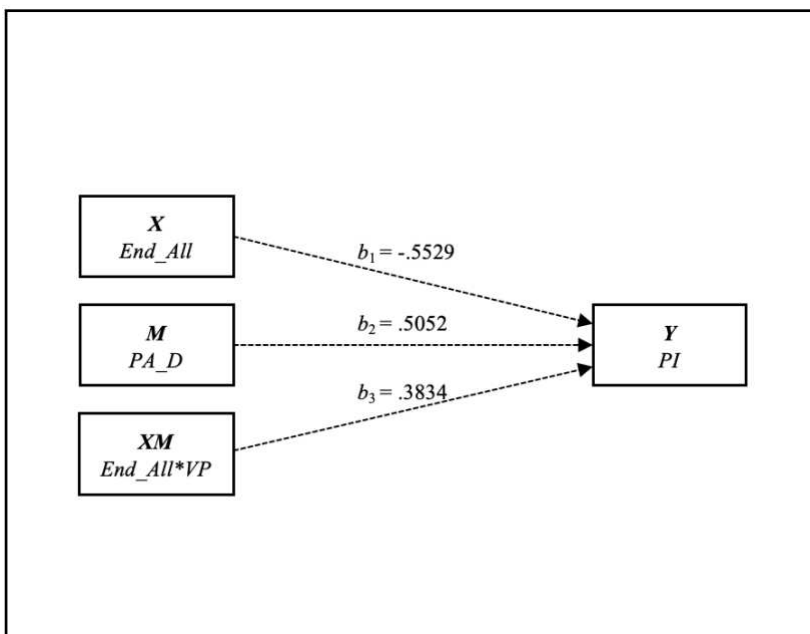


4.5.4 Perceived Authenticity

H3a: The endorser's perceived authenticity moderates the effect of brand endorsement on purchase intention.

This hypothesis was tested using PROCESS Model 1 (see Appendix L). Figure 7 shows the statistical diagram of the model.

Figure 7: Statistical Diagram of Hayes' PROCESS Model 1 for H3a (Hayes, 2013)

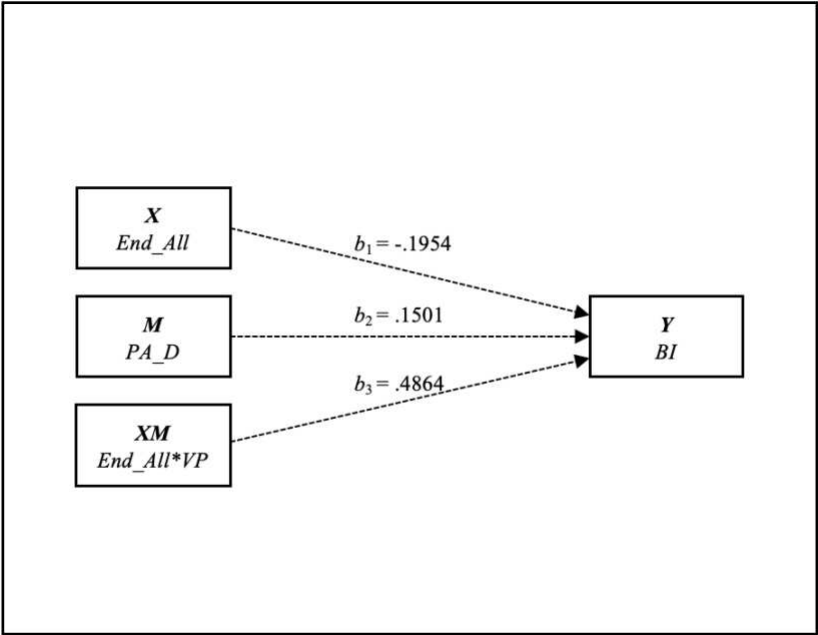


While this model explains slightly more of the variation in the purchase intention (16.69%), the output led to the same conclusions as for the previous hypotheses: a non-significant p-value of the interaction ($p = .3858 > .05$) **rejects Hypothesis 3a** that perceived authenticity acts as a moderator in the relationship of brand endorsement and purchase intention.

H3b: The endorser’s perceived authenticity moderates the effect of brand endorsement on brand image.

The same procedure as above was conducted to test this hypothesis, and the same conclusion was drawn from the output (see Appendix M). The statistical diagram of the model can be found in Figure 8. A non-significant p-value of the interaction ($p = .2287 > .05$) **rejects Hypothesis 3b**, which is that perceived authenticity acts as a moderator in the relationship between brand endorsement and brand image.

Figure 8: Statistical Diagram of Hayes’ PROCESS Model 1 for H3b (Hayes, 2013)



4.5.5 Brand Image

H4: The brand image mediates the effect of endorser type on purchase intention.

Hayes PROCESS Model 4 was run to test the hypothesis at hand, exploring any mediation effects of the brand image variable (see Appendix N). Figure 9 illustrates the statistical diagram of the model. While the model was significant according to the Model Summary, the R-Square showed that the model explained 4.36% of the variation in the purchase intention variable, which is a low amount.

Furthermore, the model showed a significant impact of brand endorsement on brand image ($a = -.3080, t = -3.0496, p < .05$). Brand endorsement had a significant impact on purchase intention ($c' = -.1697, t = -1.9985, p < .05$), which represents the direct effect. In addition to that, brand image also had a significant impact on purchase intention ($b = .8716, t = 15.1417, p < .05$).

This information allowed us to calculate the indirect effect ($a*b$) – “a causal sequence in which X affects Y indirectly through the mediator X” (Hayes & Preacher, 2014, p. 451).

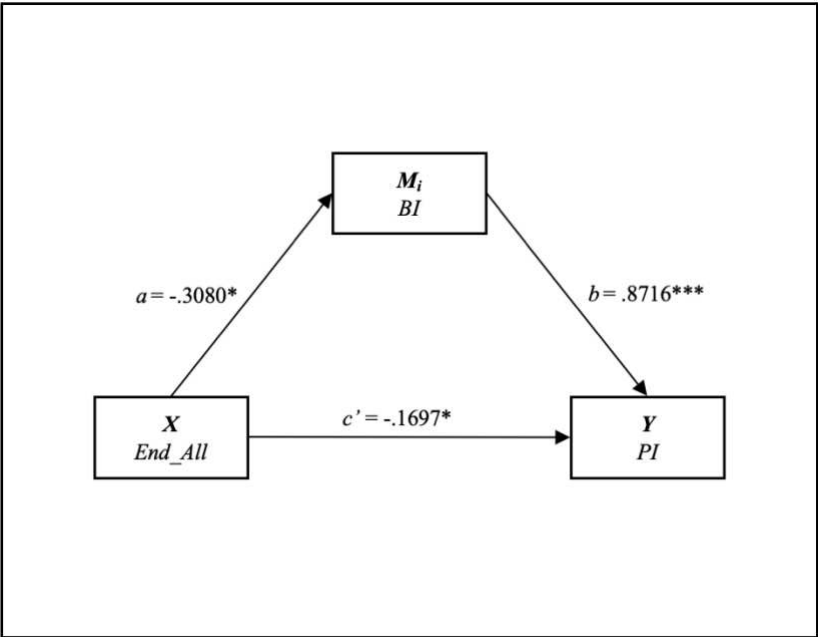
$$\text{Indirect Effect} = a (-.3080) * b (.8716) = -.2684$$

Considering the direct effect, the total effect is:

$$\text{Total Effect} = -.2684 + (-.1697) = -.4381$$

These results are summarized in the section “Direct and Indirect Effects of X on Y”. Analyzing the part of Indirect Effects of X on Y, the bootstrap confidence interval does not include 0. Thus, there is a significant indirect effect – mediation. In conclusion, **Hypothesis 4 is supported.**

Figure 9: Statistical Diagram of Hayes’ PROCESS Model 4 for H4 (Hayes, 2013)



4.5.6 Full Model

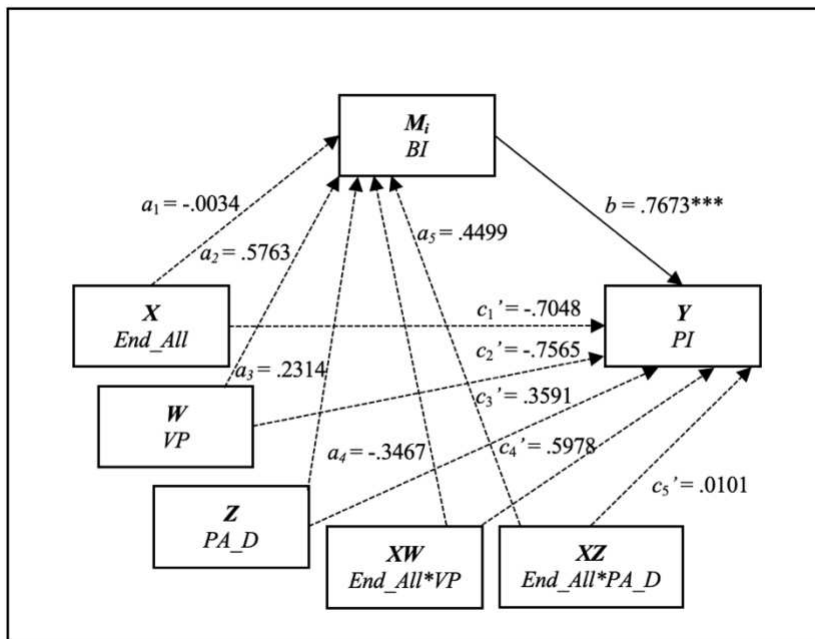
The full model was tested with Hayes' PROCESS Model 10 – the moderated mediation model (see Appendix O); its statistical diagram is displayed in Figure 10.

First, it can be noted that the model explains 14.46% of the variation in the dependent variable, and the p-value of the Model Summary shows significance.

Moreover, both moderations are included. Thus, there are two interaction terms for each moderator (VP and PA_D) in the a path as well as in the c' path. As for the individual testing, the interactions are not significant for either of the variables as $p > .05$. Therefore, there is no evidence for moderation.

Contrary to the findings of Hypothesis 4, the mediation now appears obsolete in the moderated mediation section: the bootstrap confidence interval includes 0. Therefore, a significant indirect effect can be ruled out.

Figure 10: Statistical Diagram of Hayes' PROCESS Model 10 (Hayes, 2013)



CHAPTER 5: DISCUSSION

This chapter is dedicated to the interpretation of the research findings within the context of the literature reviewed at the beginning of this paper.

While the literature testifies the widespread use of brand endorsers as efficient marketing tools, specifically for the increase in purchase intention, the results of this study found a contrary effect: the presence of an endorser in the advertisement did not positively impact purchase intention. Various factors are likely to have influenced this outcome. In fact, the statistical model that tested the hypothesis was found to explain only a small portion of the variation in the dependent variable (PI), which suggests that it was not the presence of the endorser alone that affected the respondents' purchase intention.

Moreover, the sample was composed of a diverse set of nationalities. Some of those nationalities typically carry similar physical features to the endorsers chosen for the stimuli of this study (e.g., Italian or Portuguese), while other nationalities typically present fewer similarities (e.g., German or Dutch). Judging from the sample characterization, a large share of respondents belonged to the second category, and these individuals might have faced more difficulties in identifying themselves with the endorser. This, in turn, might have led to a decrease in purchase intention for several respondents who were exposed to the endorser condition. Hence, the research could benefit from using endorser stimuli with physical appearances that are more representative of the sample groups.

When it comes to the type of endorser, the study results showed that individuals who were exposed to a virtual endorser had a higher purchase intention than individuals who were exposed to a human endorser, rejecting H1b. While these results need to be interpreted with care as they were not statistically significant, they go against the findings of previous research, which didn't find virtual endorsers to provoke purchase intention (Lou et al., 2023), particularly in comparison to human endorsers. Should these findings hold in a significant context as well, it would mean that virtual endorsers get ahead of human endorsers in their function as product promoters (at least in the case of luxury perfume).

Considering that a majority of respondents belonged to younger age groups, the result might not come as a surprise from that point of view. Younger generations are more accepting and trusting of AI (Gillespie et al., 2023). Thus, this fact might have played a role in favoring a virtual endorser generated with AI.

The indication that virtual influencers induce a higher purchase intention for a product than human influencers adds to the research on the novel phenomenon of virtual characters in the

marketing environment. Further exploration is required in this context as the findings hold significant implications for branding and product marketing strategies. Preferably, a test product other than luxury perfume should then be employed in the stimuli to extend the research.

Furthermore, the research findings showed that the value proposition did not moderate the relationship between the brand endorsement and the purchase intention, nor the relationship between the brand endorsement and the brand image. In other words, the different value propositions – reflected in the taglines of the advertisements in the context of this study – did not affect the interaction of the other variables in question. This result is not in line with the literature and challenges the research findings of Schimmelpfennig and Hunt (2020), who found grounds to argue that different value propositions determine the effectiveness of an endorser. More distinct value propositions and different stimuli for that variable should be tested in future studies to prompt a moderator effect.

Regarding the other hypothesized moderator of the studied model – the perceived authenticity of the endorser – research findings concluded that this variable does not have any moderating effects either in this context. This result appears counterintuitive as previous research underlined the decisiveness of this variable in the endorsement realm. The issue of authenticity was debated within the scope of human influencer marketing and took on another dimension of relevance for non-human endorsers. The human endorser and well-known influencer of this study, Kendall Jenner, counted as the third highest earner on Instagram as of 2019 (Statista, 2019), while the virtual endorser was an entity created by a human solely for the purpose of advertising. These study aspects represented extreme ends of the authenticity spectrum and challenged the respondents' perception of authenticity. Despite this fact, the perceived authenticity did not play a role in affecting the relationship between the endorsement and the purchase intention/brand image. A possible interpretation of this finding could indicate that in today's digital era, other factors could have a stronger effect on the relationships of the variables mentioned above. People's stance towards the authenticity of the endorser might have evolved in the digital era and since the last investigations in the literature. New studies should dig deeper into this phenomenon and uncover the contemporary dynamics of endorsement effectiveness.

On another note, in the individual testing, the brand image ended up moderating the relationship between the endorsement and the purchase intention. This finding confirmed the hypothesis of the study and the theory from the literature – indeed, consumers' purchase decisions appeared

to be guided by their image of the brand LUXE. The a coefficient in the mediation model was negative, suggesting that as the model moves from one endorser type to the next, the mediator variable decreases (Hayes, 2013). Considering the ascending labels “0 = No Endorser”, “1 = Virtual Endorser”, and “2 = Human Endorser”, the result implied that the brand image levels were lower for the virtual endorser and even lower for the human endorser. This discovery goes in the same direction as the first finding that the no endorsement condition had a more positive outcome than the endorsement condition. Next, a crucial conclusion from the b coefficient of this hypothesis test was that as the brand image levels increase, so does the purchase intention. Therefore, managers should be aware that the brand image is an important factor in driving purchase intention.

However, when testing the study’s full model, no mediation could be detected due to insignificant values, which leaves the interpretation dubious. Here again, further examinations are encouraged so that confident research conclusions can be drawn in the future.

CHAPTER 6: CONCLUSIONS AND LIMITATIONS

This last chapter summarized the main findings and conclusions of the dissertation. In addition to that, academic and managerial implications are discussed. Lastly, limitations and further research are addressed in the final section.

6.1 Main Findings and Conclusions

In light of recent developments in brand endorsement strategies based on AI-generated figures, the present study aimed at uncovering the effects of different types of endorsers on purchase intention while prompting the product's value proposition and the endorser's perceived authenticity as moderators, as well as for the brand image as a mediator.

The literature reviewed within the scope of this paper traces the history of brand endorsement, showcasing how the discipline of marketing remained dynamic by adapting to each upcoming trend: brands have gradually understood that endorsers, particularly celebrity endorsers, could be leveraged to represent their products (Erdogan, 1999; Schimmelpfennig & Hunt, 2020). The endorsers' characteristics that constitute their celebrity capital could reflect on the endorsed product, stimulating the latter's desirability among consumers. Traditional brand endorsers quickly evolved through the digital transformation, and brands went on to partner up with social media influencers as their brand endorsers (Bakker, 2018). Next, the development of AI technologies gave rise to a new type of endorser: the virtual endorser who took the stage, accumulating millions of followers on social media and receiving public recognition, just like human endorsers. As opposed to the endorsement theory, research results of this paper found that overall, the presence of an endorser led to a lower purchase intention than the absence of one in the advertisement for the luxury perfume of the fictitious brand LUXE. However, when comparing the human and virtual endorsers, the study concluded that consumers' purchase intention would be higher when they were exposed to a virtual influencer than to a human influencer. Similarly, brand image levels were lower for the human endorser condition than for the virtual endorser condition, suggesting that respondents had a better image of the brand LUXE when it was presented with a virtual endorser.

Moreover, these findings were not affected by the value proposition of the product nor by the perceived authenticity of the endorser – contrary to the literature's indications. Taking its roots in the match-up hypothesis, the value proposition of the product was supposed to determine the endorser's effectiveness if the selected person was in line with that value proposition (Schimmelpfennig & Hunt, 2020). In the same fashion, the literature observed that the

perceived authenticity of the endorser has an impact on the endorser's persuasiveness and effectiveness (J. A. Lee & Eastin, 2021; Zniva et al., 2023).

All of these discoveries constitute the answers to the first two research questions. To sum up, human and virtual influencers are not equally effective (RQ1), as virtual influencers proved to be more effective in their influence of purchase intention and brand image. Purchase intention was higher for the virtual influencer condition than for the human one, although this distinction could not be explained by an affecting moderation of the value proposition and the perceived authenticity (RQ2).

Regarding the last research question (RQ3), the study results proved a mediation effect of the brand image in the individual testing, showing that the construct explains the relationship between the endorser type and the purchase intention. It positively impacts the purchase intention. Nevertheless, this finding could not be supported in the testing of the full model, which leaves the conclusion ambiguous and in need of further exploration.

6.2 Academic and Managerial Implications

This study carries both academic and managerial implications. From an academic point of view, this paper contributed to the research on the recent phenomenon of virtual figures as product and brand endorsers. The conceptual model of the study used variables that had been tested and conceptualized independently in prior research and combined them, perhaps, in an unprecedented way. For example, applying Schimmelpfennig and Hunt's (2020) framework, using the product's value proposition as a moderator instead of the mere product category, offered a new perspective on the research approach. Furthermore, this study showed that endorsement theories are not fixed and inherently adapt to external changes, such as digital transformation, which scholars should keep in mind.

From a managerial point of view, insights of this paper pointed out that virtual influencers and characters are on the rise, holding potential for marketing activities. In other words, investing in AI technologies for branding purposes can be a beneficial approach. Consumers are becoming increasingly accepting and captivated by virtual endorsers, which is reflected in their purchase intention. In addition to that, the brand image is a focal point in the endorsement strategy, and marketing efforts should go towards aligning both.

6.3 Limitations and Further Research

Finally, limitations and directions for future research shall be addressed.

First of all, while the sample size was large enough for the CLT to hold, allowing us to assume a normal distribution of the data, the Shapiro-Wilk test indicated that the variables of purchase intention and perceived authenticity were not normally distributed. Therefore, it is recommended that the study be repeated with a larger sample size.

Second of all, the models featured in the study's stimuli were female, which might have influenced male participants' responses. Future studies should make sure to include both male and female endorsers to extend the representativeness. On that note, cultural representativeness might have played a role as well, as the models in the advertisements carried physical features that resembled certain nationalities more than others. Continuing on the topic of demographics, the study sample was made up of one main age group – younger people who have different attitudes toward AI than older generations. A more diverse sample regarding age should be investigated in the future.

What's more, considering the resource constraints of this research, the advertisements were not created professionally. Respondents may have evaluated the study's constructs differently if the stimuli had been created by a legitimate advertising entity.

Furthermore, the study was based on only one advertised product: a luxury perfume. Results might differ for other product categories, as well as for other product value propositions. The purchase intention for a perfume is typically influenced by a sensory component, too, which was not possible to include in an online survey.

Overall, it should be noted that general conclusions drawn from this study are valid in this specific research context, which urges researchers to add to this study.

Future studies should further explore the effectiveness of virtual influencers as endorsers. This might entail using marketing metrics different from purchase intention, such as conversions or brand loyalty – a metric that could not have been investigated in the present study due to time constraints. Judging from the fast development of technologies such as AI and marketing trends, adapting research to this fast-paced environment will continue to be necessary.

REFERENCE LIST

- Alboqami, H. (2023). Trust me, I'm an influencer! - Causal recipes for customer trust in artificial intelligence influencers in the retail industry. *Journal of Retailing and Consumer Services*, 72. <https://doi.org/10.1016/j.jretconser.2022.103242>
- Bakker, D. (2018). Conceptualising Influencer Marketing. *Journal of Emerging Trends in Marketing and Management*, 1(1). www.etimm.ase.ro
- Brooks, G., Drenten, J., & Piskorski, M. J. (2021). Influencer Celebrification: How Social Media Influencers Acquire Celebrity Capital. *Journal of Advertising*, 50(5), 528–547. <https://doi.org/10.1080/00913367.2021.1977737>
- Byun, K. J., & Ahn, S. J. (Grace). (2023). A Systematic Review of Virtual Influencers: Similarities and Differences between Human and Virtual Influencers in Interactive Advertising. *Journal of Interactive Advertising*, 1–14. <https://doi.org/10.1080/15252019.2023.2236102>
- Conti, M., Gathani, J., & Tricomi, P. P. (2022). Virtual Influencers in Online Social Media. *IEEE Communications Magazine*, 86–91.
- Creswell, J. W. (2009). *Creswell - 2009 - Research Design Qualitative, Quantitative and Mixed Approaches* (3rd ed.).
- Erdogan, B. Z. (1999). Celebrity Endorsement: A Literature Review. *Journal of Marketing Management*, 15(4), 291–314. <https://doi.org/10.1362/026725799784870379>
- Esch, F. R., Langner, T. L., Schmitt, B. H., & Geus, P. (2006). Are brands forever? How brand knowledge and relationships affect current and future purchases. *Journal of Product and Brand Management*, 15(2), 98–105. <https://doi.org/10.1108/10610420610658938>
- Field, A. (2009). *DISCOVERING STATISTICS USING SPSS* (3rd ed.).
- Friedman, H. H., Termini, S., & Washington, R. (1976). The effectiveness of advertisements utilizing four types of endorsers. *Journal of Advertising*, 5(3), 22–24. <https://doi.org/10.1080/00913367.1976.10672647>
- George, D., & Mallery, P. (2022). *IBM SPSS Statistics 27 Step by Step A Simple Guide and Reference* (17th ed.).
- Gillespie, N., Lockey, S., Curtis, C., Pool, J., & Ali Akbari. (2023). *Trust in Artificial Intelligence: A global study*. <https://doi.org/10.14264/00d3c94>
- Hassan, A. (2012). The Value Proposition Concept in Marketing: How Customers Perceive the Value Delivered by Firms– A Study of Customer Perspectives on Supermarkets in

- Southampton in the United Kingdom. *International Journal of Marketing Studies*, 4(3).
<https://doi.org/10.5539/ijms.v4n3p68>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis : a regression-based approach*. The Guilford Press.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451–470. <https://doi.org/10.1111/bmsp.12028>
- Hovland, C. I., & Weiss, W. (n.d.). The Influence of Source Credibility on Communication Effectiveness. *The Public Opinion Quarterly*, 15(4), 635–650.
- Jarek, K., & Mazurek, G. (2019). Marketing and artificial intelligence. *Central European Business Review*, 8(2), 46–55. <https://doi.org/10.18267/j.cebr.213>
- Kamins, M. A. (1990). An investigation into the “match-up” hypothesis in celebrity advertising: When beauty may be only skin deep. *Journal of Advertising*, 19(1), 4–13. <https://doi.org/10.1080/00913367.1990.10673175>
- Koernig, S. K., & Page, A. L. (2002). What if Your Dentist Looked Like Tom Cruise? Applying the Match-Up Hypothesis to a Service Encounter. *Psychology and Marketing*, 19(1), 91–110. <https://doi.org/10.1002/mar.1003>
- Kothari, C. R. (2004). *Research methodology : methods & techniques*. New Age International (P) Ltd.
- Kotler, P., & Keller, K. L. (2009). *Marketing management* (14th ed.).
- Lamberton, C., & Stephen, A. T. (2016). A thematic exploration of digital, social media, and mobile marketing: Research evolution from 2000 to 2015 and an agenda for future inquiry. *Journal of Marketing*, 80(6), 146–172. <https://doi.org/10.1509/jm.15.0415>
- Lee, J. A., & Eastin, M. S. (2021). Perceived authenticity of social media influencers: scale development and validation. *Journal of Research in Interactive Marketing*, 15(4), 822–841. <https://doi.org/10.1108/JRIM-12-2020-0253>
- Lee, J. L., James, J. D., & Kim, Y. K. (2014). A Reconceptualization of Brand Image. *International Journal of Business Administration*, 5(4). <https://doi.org/10.5430/ijba.v5n4p1>
- Lou, C., Kiew, S. T. J., Chen, T., Lee, T. Y. M., Ong, J. E. C., & Phua, Z. X. (2023). Authentically Fake? How Consumers Respond to the Influence of Virtual Influencers. *Journal of Advertising*, 52(4), 540–557. <https://doi.org/10.1080/00913367.2022.2149641>

- McCracken, G. (1989). Who is the Celebrity Endorser? Cultural Foundations of the Endorsement Process. *Source: Journal of Consumer Research*, 16(3), 310–321. <https://about.jstor.org/terms>
- Miao, F., Kozlenkova, I. V., Wang, H., Xie, T., & Palmatier, R. W. (2022). An Emerging Theory of Avatar Marketing. *Journal of Marketing*, 86(1), 67–90. <https://doi.org/10.1177/0022242921996646>
- Moulard, J. G., Garrity, C. P., & Rice, D. H. (2015). What makes a human brand authentic? Identifying the antecedents of celebrity authenticity. *Psychology and Marketing*, 32(2), 173–186. <https://doi.org/10.1002/mar.20771>
- Ohanian, R. (1990). Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *Journal of Advertising*, 19(3), 39–52. <https://doi.org/10.1080/00913367.1990.10673191>
- Prada. (n.d.). *Rethink Reality: Prada Candy*. Prada. Retrieved October 21, 2023, from <https://www.prada.com/ww/en/pradasphere/fragrances/prada-candy/rethink-reality-prada-candy.html>
- Prada. (2013). *Prada Candy L'Eau*. Prada. <https://www.prada.com/th/en/pradasphere/films/2013/prada-candy-l-eau.html>
- Putrevu, S., & Lord, K. I. (1994). Comparative and noncomparative advertising: Attitudinal effects under cognitive and affective involvement conditions. *Journal of Advertising*, 23(2), 77–91. <https://doi.org/10.1080/00913367.1994.10673443>
- Sands, S., Campbell, C. L., Plangger, K., & Ferraro, C. (2022). 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. (2022). False idols: Unpacking the opportunities and challenges of falsity in the context of virtual influencers. *Business Horizons*, 65(6), 777–788. <https://doi.org/10.1016/j.bushor.2022.08.002>
- Saunders, M., Lewis, P., Thornhill, A., Lewis, S. •, & Thornhill, •. (2009). *Research Methods for Business Students*. www.pearsoned.co.uk
- Schimmelpfennig, C., & Hunt, J. B. (2020). Fifty years of celebrity endorser research: Support for a comprehensive celebrity endorsement strategy framework. *Psychology and Marketing*, 37(3), 488–505. <https://doi.org/10.1002/mar.21315>
- Shoenberger, H., & Kim, E. (2023). Explaining purchase intent via expressed reasons to follow an influencer, perceived homophily, and perceived authenticity. *International Journal of Advertising*, 42(2), 368–383. <https://doi.org/10.1080/02650487.2022.2075636>

- Sondoh, S. L., Wan Omar, M., Wahid, N. A., Ismail, I., & Harun, A. (2007). THE EFFECT OF BRAND IMAGE ON OVERALL SATISFACTION AND LOYALTY INTENTION IN THE CONTEXT OF COLOR COSMETIC. *Asian Academy of Management Journal*, 12(1), 83–107. <http://www.matrade.gov.my/exportsupport/bpg.htm>
- Spears, N., & Singh, S. N. (2004). Measuring Attitude Toward the Brand and Purchase Intentions. In *Journal of Current Issues and Research in Advertising* (Vol. 26, Issue 2).
- Statista. (2019, October 29). *The Highest Earners on Instagram*. Statista.
- Statista. (2023a, June 29). *Share of consumers who bought a product or service promoted by a virtual influencer in the United States as of March 2022*. Statista. <https://www.statista.com/statistics/1300319/consumers-bought-products-promoted-virtual-influencers-us/>
- Statista. (2023b, June 29). *Share of consumers who follow at least one virtual influencer in the United States as of March 2022*. Statista. <https://www.statista.com/statistics/1303983/consumers-follow-virtual-influencers-us/>
- Statista. (2023c, July). *Instagram accounts with the most followers worldwide as of July 2023*. Statista. <https://www.statista.com/statistics/421169/most-followers-instagram/>
- Statista. (2023d, September 27). *Influencer marketing market size worldwide from 2016 to 2023*. Statista. <https://www.statista.com/statistics/1092819/global-influencer-market-size/>
- Sukma Wijaya, B. (2013). Dimensions of Brand Image: A Conceptual Review from the Perspective of Brand Communication. *European Journal of Business and Management*, 5(31). www.iiste.org
- Verma, S., Sharma, R., Deb, S., & Maitra, D. (2021). Artificial intelligence in marketing: Systematic review and future research direction. *International Journal of Information Management Data Insights*, 1(1). <https://doi.org/10.1016/j.ijime.2020.100002>
- William J. McGuire. (1985). Attitudes and Attitude Change. In G. Lindzey & E. Aronson (Eds.), *Handbook of Social Psychology* (Vol. 2, pp. 233–346). Random House.
- Zniva, R., Weitzl, W. J., & Lindmoser, C. (2023). Be constantly different! How to manage influencer authenticity. *Electronic Commerce Research*. <https://doi.org/10.1007/s10660-022-09653-6>

APPENDICES

Appendix A: Léa Seydoux and Virtual Muse "Candy" for Prada Candy

Figure A1: Léa Seydoux for Prada Candy



Figure A2: Virtual Muse "Candy" for Prada Candy



Appendix B: Survey Stimuli

Figure B1: Ad with Human Endorser and Tagline 1



Figure B2: Ad with Virtual Endorser and Tagline 1

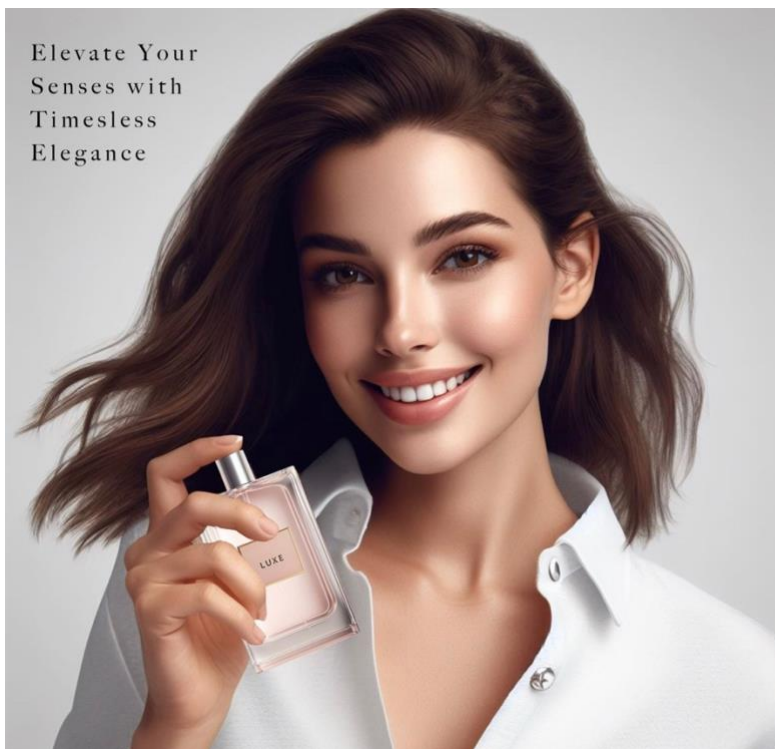


Figure B3: Ad without Endorser and Tagline 1



Figure B4: Ad with Human Endorser and Tagline 2



Figure B5: Ad with Virtual Endorser and Tagline 2



Figure B6: Ad without Endorser and Tagline 2



Appendix C: Survey Questionnaire

Question	Survey Content	Question Type
----------	----------------	---------------

Introduction	<p>Dear participant,</p> <p>By participating in this survey, you will allow me to gather valuable insights for my Master’s thesis research – thank you very much for taking the time.</p> <p>This study aims to explore consumers’ responses to an advertisement. The survey takes approximately 5 minutes to complete. All answers will be treated anonymously and confidentially.</p> <p>Remember that there are no right or wrong answers, therefore please answer spontaneously and honestly.</p> <p>If you have any questions or comments, don’t hesitate to contact me by e-mail: <i>s-ekruger@ucp.pt</i></p> <p>Thank you for your support,</p> <p>Elana Krüger</p>	Text
Screening	<p>When was the last time you purchased a perfume?</p> <ul style="list-style-type: none"> ○ In the past 12 months ○ More than 1 year ago ○ More than 2 years ago ○ More than 3 years ago ○ I never purchased a perfume but want to purchase one in the future. ○ I never purchased a perfume and do not plan to purchase one in the future. <p><i>Skip To: End of Survey If When was the last time you purchased a perfume? = I never purchased a perfume and do not plan to purchase one in the future.</i></p>	Single Choice
Stimulus Display and Description	<p><i>Stim. H1, H2:</i> The high-end brand LUXE presents the model and social media influencer Kendall Jenner as the face of its new fragrance.</p> <p><i>Stim. V1, V2:</i> The high-end brand LUXE introduces a virtual model as the face of its new fragrance.</p> <p><i>Stim. P1, P2:</i> The high-end brand LUXE introduces its new fragrance.</p>	Graphic + Text
Perceived Authenticity Questions (Stim. H1, H2, V1, V2)	<p>Based on the ad you just saw, please answer the following questions about the person it featured. The person in the advertisement:</p> <p>Strongly disagree – Strongly agree</p> <ul style="list-style-type: none"> (1) Is genuine (2) Seems real to me (in terms of personality) (3) Is authentic 	Matrix
Information	<p>For the following questions, consider the perfume for personal use or as a gift for someone else.</p>	Text

<p>Brand Image Questions (All stimuli)</p>	<p>Based on the ad you just saw, the brand LUXE... Strongly disagree – Strongly agree</p> <ol style="list-style-type: none"> (1) makes me feel good (2) makes me feel delighted (3) increases my frequency of use (4) gives me pleasure <p style="text-align: center;">Page Break</p> <p>Based on the ad you just saw, the brand LUXE... Strongly disagree – Strongly agree</p> <ol style="list-style-type: none"> (1) Usage of the brand LUXE prevents me from looking cheap (2) enhances the perceptions that I have a desirable lifestyle (3) helps me to better fit into my social group <p style="text-align: center;">Page Break</p> <p>Based on the ad you just saw, the brand LUXE... Strongly disagree – Strongly agree</p> <ol style="list-style-type: none"> (1) helps me feel accepted (2) if you are still paying attention choose "Disagree" (3) improves the way I am perceived by others improves the way I am perceived by others <p style="text-align: center;">Page Break</p> <p>Based on the ad you just saw, the brand LUXE... Strongly disagree – Strongly agree</p> <ol style="list-style-type: none"> (1) performs as it promises (2) makes me beautiful (3) can be dependable for use (= the brand is reliable) <p style="text-align: center;">Page Break</p> <p>Based on the ad you just saw, the brand LUXE... Strongly disagree – Strongly agree</p> <ol style="list-style-type: none"> (1) provides a solution to my expectations (2) makes a good impression of me on other people (3) Usage of the brand LUXE is more effective for my needs than other brands 	<p>Matrix</p>
<p>Purchase Intention Questions (All stimuli)</p>	<p>Imagine you are looking to buy a perfume. Based on the ad you just saw...</p> <p>Strongly disagree – Strongly agree</p> <ol style="list-style-type: none"> (1) It is very likely that I will buy the brand LUXE. (2) I will purchase the brand LUXE the next time I need a perfume. (3) I will definitely buy the brand LUXE. 	<p>Matrix</p>
<p>Manipulation</p>	<p><i>Stim. H1, H2:</i> The picture you saw in the beginning showed an advertisement for a high-end perfume featuring Kendall Jenner.</p> <ul style="list-style-type: none"> ○ Yes ○ No <p><i>Stim. V1, V2:</i> The picture you saw in the beginning showed an advertisement for a high-end perfume featuring a virtual model.</p> <ul style="list-style-type: none"> ○ Yes ○ No <p><i>Stim. P1, P2:</i> The picture you saw in the beginning showed an advertisement for a high-end perfume.</p> <ul style="list-style-type: none"> ○ Yes ○ No 	<p>Single Choice</p>

Demographics	What is your nationality? Text Entry	Text Entry
	How old are you? <input type="radio"/> under 18 <input type="radio"/> 18-24 <input type="radio"/> 25-34 <input type="radio"/> 35-44 <input type="radio"/> 45-54 <input type="radio"/> 55-64 <input type="radio"/> 65 or over	Single Choice
	How do you describe yourself? <input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Non-binary / third gender <input type="radio"/> Prefer to self-describe <hr/> <input type="radio"/> Prefer not to say	Single Choice
	Which of the following do you most identify with? <input type="radio"/> Student <input type="radio"/> Homemaker <input type="radio"/> Employed <input type="radio"/> Self-employed <input type="radio"/> Unemployed <input type="radio"/> Retired <input type="radio"/> Prefer not to answer	Single Choice
	What is your household's annual income? <input type="radio"/> Less than 25,000€ <input type="radio"/> 25,000€-49,999€ <input type="radio"/> 50,000€-59,999€ <input type="radio"/> 60,000€-79,999€ <input type="radio"/> 80,000€ or more	Single Choice
End of Survey	We thank you for your time spent taking this survey. Your response has been recorded.	Text

Appendix D: Demographics Frequencies

Table D1: Nationality

What is your nationality?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Algerian	1	.5	.5	.5
	American	6	2.9	2.9	3.4
	Austrian	12	5.8	5.8	9.2
	Belgian	17	8.3	8.3	17.5
	British	2	1.0	1.0	18.4
	Canadian	1	.5	.5	18.9
	Chinese	2	1.0	1.0	19.9
	Colombian	2	1.0	1.0	20.9
	Croatian	2	1.0	1.0	21.8
	Czech	1	.5	.5	22.3
	Danish	1	.5	.5	22.8
	Dutch	7	3.4	3.4	26.2
	Finnish	2	1.0	1.0	27.2
	French	19	9.2	9.2	36.4
	Gabonese	1	.5	.5	36.9
	German	74	35.9	35.9	72.8
	Hungarian	1	.5	.5	73.3
	Indian	1	.5	.5	73.8
	Iran	1	.5	.5	74.3
	Irish	1	.5	.5	74.8
	Italian	18	8.7	8.7	83.5
	Moldova	1	.5	.5	84.0
	Mozambican	1	.5	.5	84.5
	Polish	2	1.0	1.0	85.4
	Portuguese	16	7.8	7.8	93.2
	Russian	2	1.0	1.0	94.2
	South African	1	.5	.5	94.7
South Korean	1	.5	.5	95.1	
Swedish	2	1.0	1.0	96.1	
Swiss	2	1.0	1.0	97.1	
Thai	1	.5	.5	97.6	
Tunisian	2	1.0	1.0	98.5	
Turkish	2	1.0	1.0	99.5	
Ukrainian	1	.5	.5	100.0	
Total		206	100.0	100.0	

Table D2: Age

How old are you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	111	53.9	53.9	53.9
	25-34	84	40.8	40.8	94.7
	35-44	4	1.9	1.9	96.6
	45-54	2	1.0	1.0	97.6
	55-64	5	2.4	2.4	100.0
	Total		206	100.0	100.0

Table D3: Gender

How do you describe yourself? – Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	58	28.2	28.2	28.2
	Female	145	70.4	70.4	98.5
	Non-binary / third gender	1	.5	.5	99.0
	Prefer to self-describe	1	.5	.5	99.5
	Prefer not to say	1	.5	.5	100.0
	Total	206	100.0	100.0	

How do you describe yourself? – Prefer to self-describe – Text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		205	99.5	99.5	99.5
	LGBTQRTPOLRTM+QGX-ZE(man)	1	.5	.5	100.0
	Total	206	100.0	100.0	

Table D4: Occupation

Which of the following do you most identify with?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	139	67.5	67.5	67.5
	Employed	57	27.7	27.7	95.1
	Self-employed	4	1.9	1.9	97.1
	Unemployed	6	2.9	2.9	100.0
	Total	206	100.0	100.0	

Table D5: Income

What is your household's annual income?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 25,000€	90	43.7	43.7	43.7
	25,000€-49,999€	49	23.8	23.8	67.5
	50,000€-59,999€	16	7.8	7.8	75.2
	60,000€-79,999€	18	8.7	8.7	84.0
	80,000€ or more	33	16.0	16.0	100.0
	Total	206	100.0	100.0	

Appendix E: Shapiro-Wilk Test of Normality

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PI	.155	138	<.001	.917	138	<.001
PA	.096	138	.003	.971	138	.005
BI	.036	138	.200*	.991	138	.509

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix F: Levene's Test of Homogeneity of Variance

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
PI	Based on Mean	1.138	2	203	.322
	Based on Median	1.178	2	203	.310
	Based on Median and with adjusted df	1.178	2	192.316	.310
	Based on trimmed mean	1.214	2	203	.299

Appendix G: Chi-Square Test

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	44.143 ^a	36	.165
Likelihood Ratio	47.345	36	.098
Linear-by-Linear Association	12.404	1	<.001
N of Valid Cases	206		

a. 44 cells (77.2%) have expected count less than 5. The minimum expected count is .33.

Appendix H: Linear Regression

Figure H1: Normal P-Plot

Normal P-P Plot of Regression Standardized Residual

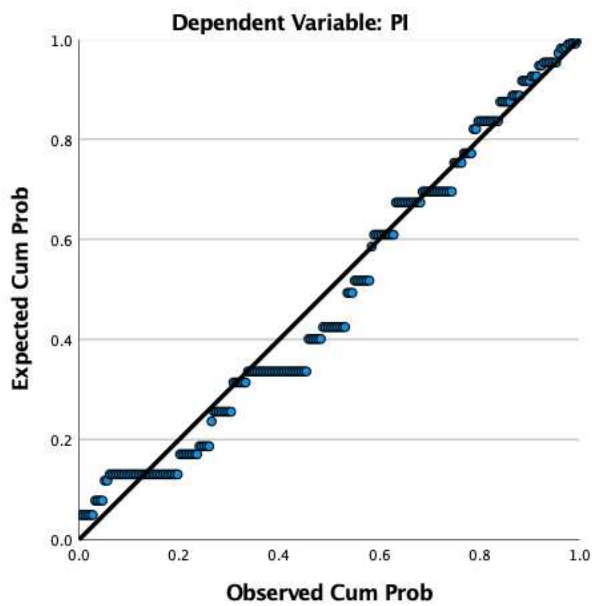


Figure H2: Linearity Scatterplot

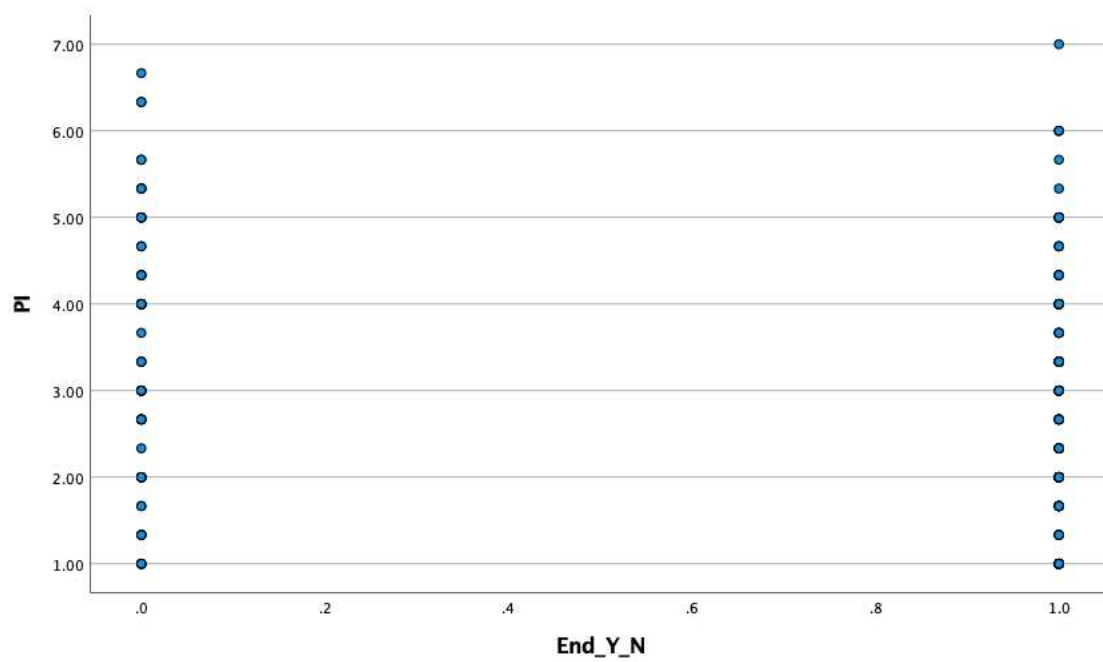


Table H3: Collinearity Statistics

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	PA	.696	1.437
	BI	.705	1.418
	End_All	.986	1.014
	VP	.996	1.004

a. Dependent Variable: PI

Table H4: Model Summary

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.242 ^a	.059	.054	1.42643	1.163

a. Predictors: (Constant), End_Y_N

b. Dependent Variable: PI

Table H5: ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.896	1	25.896	12.727	<.001 ^b
	Residual	415.082	204	2.035		
	Total	440.978	205			

a. Dependent Variable: PI

b. Predictors: (Constant), End_Y_N

Table H6: Coefficients

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.358	.173		19.412	<.001		
	End_Y_N	-.754	.211	-.242	-3.568	<.001	1.000	1.000

a. Dependent Variable: PI

Appendix I: Independent Samples t Test

Table I1: Group Statistics

Group Statistics

	End_V_H	N	Mean	Std. Deviation	Std. Error Mean
PI	Virtual Endorser	67	2.7363	1.31878	.16111
	Human Endorser	71	2.4789	1.42843	.16952

Table I2: Independent Samples Test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
PI	Equal variances assumed	.209	.648	1.098	136	.137	.274	.25745	.23442	-.20613	.72102
	Equal variances not assumed			1.101	135.938	.136	.273	.25745	.23387	-.20505	.71994

Appendix J: H2a – PROCESS Model 1

Run MATRIX procedure:

```
***** PROCESS Procedure for SPSS Version 4.2 *****
                Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
                Documentation available in Hayes (2022). www.guilford.com/p/hayes3
*****
Model   : 1
        Y   : PI
        X   : End_All
        W   : VP

Sample
Size:   206

*****
OUTCOME VARIABLE:
PI

Model Summary
          R          R-sq          MSE          F          df1          df2          p
          .2572       .0661       2.0387       4.7695       3.0000       202.0000       .0031

Model
          coeff          se          t          p          LLCI          ULCI
constant    2.8088       .1414       19.8648       .0000       2.5300       3.0876
End_All     -.5619       .1707       -3.2926       .0012       -.8984       -.2254
VP          .0835       .1990        .4196       .6752       -.3089       .4759
Int_1       .2475       .2423        1.0217       .3082       -.2302       .7253
```

Product terms key:

Int_1 : End_All x VP

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0048	1.0438	1.0000	202.0000	.3082

Focal predict: End_All (X)
Mod var: VP (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/

End_All VP PI .

BEGIN DATA.

-.8233	.0000	3.2714
.0000	.0000	2.8088
.8233	.0000	2.3462
-.8233	1.0000	3.1511
.0000	1.0000	2.8923
.8233	1.0000	2.6335

END DATA.

GRAPH/SCATTERPLOT=

End_All WITH PI BY VP .

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

NOTE: The following variables were mean centered prior to analysis:
End_All

----- END MATRIX -----

Appendix K: H2b – PROCESS Model 1

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 1
Y : BI
X : End_All
W : VP

Sample
Size: 206

OUTCOME VARIABLE:

BI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2102	.0442	1.4309	3.1119	3.0000	202.0000	.0274

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.7379	.1185	31.5538	.0000	3.5043	3.9715
End_All	-.2819	.1430	-1.9717	.0500	-.5638	.0000
VP	.0380	.1667	.2281	.8198	-.2907	.3668

Int_1 -.0535 .2030 -.2635 .7924 -.4538 .3468

Product terms key:

Int_1 : End_All x VP

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0003	.0694	1.0000	202.0000	.7924

Focal predict: End_All (X)
Mod var: VP (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/

```
End_All    VP            BI            .  
BEGIN DATA.  
  -.8233    .0000        3.9700  
   .0000    .0000        3.7379  
   .8233    .0000        3.5058  
  -.8233    1.0000        4.0521  
   .0000    1.0000        3.7759  
   .8233    1.0000        3.4998
```

END DATA.

GRAPH/SCATTERPLOT=

```
End_All    WITH        BI            BY            VP            .
```

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

NOTE: The following variables were mean centered prior to analysis:
End_All

----- END MATRIX -----

Appendix L: H3a – PROCESS Model 1

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

```
Model    : 1  
  Y     : PI  
  X     : End_All  
  W     : PA_D
```

Sample
Size: 138

OUTCOME VARIABLE:
PI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.4085	.1669	1.6159	8.9465	3.0000	134.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.9577	.4458	6.6338	.0000	2.0759	3.8395

End_All	-.5529	.2887	-1.9150	.0576	-1.1240	.0181
PA_D	.5052	.7096	.7120	.4777	-.8982	1.9086
Int_1	.3834	.4406	.8701	.3858	-.4881	1.2549

Product terms key:

Int_1 : End_All x PA_D

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0047	.7570	1.0000	134.0000	.3858

Focal predict: End_All (X)
Mod var: PA_D (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/

```
End_All PA_D PI .
BEGIN DATA.
  1.0000 .0000 2.4048
  2.0000 .0000 1.8519
  1.0000 1.0000 3.2933
  2.0000 1.0000 3.1238
END DATA.
```

END DATA.

GRAPH/SCATTERPLOT=

```
End_All WITH PI BY PA_D .
```

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

----- END MATRIX -----

Appendix M: H3b – PROCESS Model 1

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

```
Model : 1
Y : BI
X : End_All
W : PA_D
```

Sample
Size: 138

OUTCOME VARIABLE:
BI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3734	.1394	1.3467	7.2351	3.0000	134.0000	.0002

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.4278	.4070	8.4217	.0000	2.6228	4.2328
End_All	-.1954	.2636	-.7413	.4598	-.7167	.3259
PA_D	.1501	.6478	.2317	.8171	-1.1311	1.4313
Int_1	.4864	.4023	1.2092	.2287	-.3092	1.2821

Product terms key:

Int_1 : End_All x PA_D

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0094	1.4623	1.0000	134.0000	.2287

Focal predict: End_All (X)
Mod var: PA_D (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/

End_All PA_D BI .

BEGIN DATA.

1.0000 .0000 3.2324

2.0000 .0000 3.0370

1.0000 1.0000 3.8690

2.0000 1.0000 4.1600

END DATA.

GRAPH/SCATTERPLOT=

End_All WITH BI BY PA_D .

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

----- END MATRIX -----

Appendix N: H4 – PROCESS Model 4

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 4
Y : PI
X : End_All
M : BI

Sample
Size: 206

OUTCOME VARIABLE:
BI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2088	.0436	1.4178	9.2999	1.0000	204.0000	.0026

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.0692	.1319	30.8625	.0000	3.8093	4.3292
End_All	-.3080	.1010	-3.0496	.0026	-.5072	-.1089

Standardized coefficients

coeff
End_All -.2088

OUTCOME VARIABLE:

PI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.7475	.5588	.9584	128.5558	2.0000	203.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.2496	.2581	-.9668	.3348	-.7585	.2594
End_All	-.1697	.0849	-1.9985	.0470	-.3372	-.0023
BI	.8716	.0576	15.1417	.0000	.7581	.9851

Standardized coefficients

	coeff
End_All	-.0953
BI	.7218

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

PI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2460	.0605	2.0309	13.1388	1.0000	204.0000	.0004

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.2973	.1578	20.8950	.0000	2.9862	3.6085
End_All	-.4382	.1209	-3.6248	.0004	-.6766	-.1998

Standardized coefficients

	coeff
End_All	-.2460

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI	c_cs
-.4382	.1209	-3.6248	.0004	-.6766	-.1998	-.2460

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_cs
-.1697	.0849	-1.9985	.0470	-.3372	-.0023	-.0953

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
BI	-.2685	.0864	-.4363	-.0967

Completely standardized indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
BI	-.1507	.0478	-.2411	-.0546

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

----- END MATRIX -----

Appendix O: Full Model – PROCESS Model 10

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

Model : 10
Y : PI
X : End_All
M : BI
W : VP
Z : PA_D

Sample
Size: 138

OUTCOME VARIABLE:
BI

	R	R-sq	MSE	F	df1	df2	p
	.3803	.1446	1.3588	4.4630	5.0000	132.0000	.0009

Model	coeff	se	t	p	LLCI	ULCI
constant	3.0992	.5512	5.6229	.0000	2.0089	4.1895
End_All	-.0034	.3422	-.0100	.9921	-.6804	.6736
VP	.5763	.6435	.8955	.3722	-.6967	1.8493
Int_1	-.3467	.4016	-.8635	.3894	-1.1411	.4476
PA_D	.2314	.6608	.3502	.7267	-1.0757	1.5385
Int_2	.4499	.4085	1.1013	.2727	-.3582	1.2580

Product terms key:
Int_1 : End_All x VP
Int_2 : End_All x PA_D

Test(s) of highest order unconditional interaction(s):	R2-chng	F	df1	df2	p
X*W	.0048	.7456	1.0000	132.0000	.3894
X*Z	.0079	1.2130	1.0000	132.0000	.2727
BOTH(X)	.0136	1.0479	2.0000	132.0000	.3536

Focal predict: End_All (X)
Mod var: VP (W)
Mod var: PA_D (Z)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/  
  End_All VP PA_D BI .  
BEGIN DATA.  
  1.0000 .0000 .0000 3.0958  
  2.0000 .0000 .0000 3.0924  
  1.0000 .0000 1.0000 3.7771  
  2.0000 .0000 1.0000 4.2236  
  1.0000 1.0000 .0000 3.3253  
  2.0000 1.0000 .0000 2.9752  
  1.0000 1.0000 1.0000 4.0067  
  2.0000 1.0000 1.0000 4.1064  
END DATA.  
GRAPH/SCATTERPLOT=  
  End_All WITH BI BY VP /PANEL ROWVAR= PA_D .
```

OUTCOME VARIABLE:

PI

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.7626	.5815	.8302	30.3407	6.0000	131.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.7237	.4797	1.5087	.1338	-.2252	1.6726
End_All	-.7048	.2675	-2.6347	.0094	-1.2340	-.1756
BI	.7673	.0680	11.2786	.0000	.6327	.9019
VP	-.7565	.5046	-1.4994	.1362	-1.7547	.2416
Int_1	.5978	.3148	1.8993	.0597	-.0249	1.2205
PA_D	.3591	.5167	.6949	.4884	-.6632	1.3813
Int_2	.0101	.3208	.0315	.9750	-.6245	.6447

Product terms key:

Int_1 : End_All x VP
 Int_2 : End_All x PA_D

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0115	3.6072	1.0000	131.0000	.0597
X*Z	.0000	.0010	1.0000	131.0000	.9750
BOTH(X)	.0115	1.8070	2.0000	131.0000	.1682

 Focal predict: End_All (X)
 Mod var: VP (W)
 Mod var: PA_D (Z)

Conditional effects of the focal predictor at values of the moderator(s):

	VP	PA_D	Effect	se	t	p	LLCI	
ULCI	.0000	.0000	-.7048	.2675	-2.6347	.0094	-1.2340	-
.1756	.0000	1.0000	-.6947	.2828	-2.4570	.0153	-1.2541	-
.1354	1.0000	.0000	-.1070	.2548	-.4198	.6753	-.6111	
.3971	1.0000	1.0000	-.0969	.2921	-.3317	.7407	-.6748	
.4810								

Data for visualizing the conditional effect of the focal predictor:
 Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/

```

  End_All  VP      PA_D      PI      .
BEGIN DATA.
  1.0000   .0000   .0000   2.7291
  2.0000   .0000   .0000   2.0243
  1.0000   .0000   1.0000   3.0983
  2.0000   .0000   1.0000   2.4036
  1.0000   1.0000   .0000   2.5704
  2.0000   1.0000   .0000   2.4634
  1.0000   1.0000   1.0000   2.9396
  2.0000   1.0000   1.0000   2.8427
END DATA.
```

GRAPH/SCATTERPLOT=

```

  End_All WITH PI BY VP /PANEL ROWVAR= PA_D .
```

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Conditional direct effects of X on Y

	VP	PA_D	Effect	se	t	p	LLCI
ULCI							

	.0000	.0000	-.7048	.2675	-2.6347	.0094	-1.2340	-
.1756								
	.0000	1.0000	-.6947	.2828	-2.4570	.0153	-1.2541	-
.1354								
	1.0000	.0000	-.1070	.2548	-.4198	.6753	-.6111	
.3971								
	1.0000	1.0000	-.0969	.2921	-.3317	.7407	-.6748	
.4810								

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

End_All	->	BI	->	PI			
	VP	PA_D	Effect	BootSE	BootLLCI	BootULCI	
	.0000	.0000	-.0026	.2539	-.4944	.4994	
	.0000	1.0000	.3426	.2899	-.2185	.9297	
	1.0000	.0000	-.2687	.2487	-.7542	.2271	
	1.0000	1.0000	.0765	.2775	-.4763	.6143	

Indices of partial moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
VP	-.2661	.3102	-.8870	.3282
PA_D	.3452	.3105	-.2548	.9654

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

----- END MATRIX -----