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Virtual persuasion in services: exploring the impact of virtual influencers on customer purchase intention in the digital era

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ABSTRACT

The current influencer marketing landscape has witnessed an escalation in the employment of virtual (or computer-generated) influencers by multiple businesses. However, the success of these virtual influencers in driving consumer engagement and facilitating sales is not consistent across all contents. While some posts have demonstrated the capacity to resonate with the audience and boost sales, others have not. These findings highlight the need for further investigation into the factors that promote the success of virtual influencer marketing. The following research draws the attention on the repercussions of virtual influencers' arousal language on purchase intention in the service realm, through the mediation of perceived anthropomorphism, with the aim to validate the

use of VI in services and to confirm the importance of using a high arousal language to affect the purchase intention also for CGI.

The present experimental study consists of a conclusive causal between-subjects 2x1 research design, delivered through a survey which was administered in Italy and that has reached 155 participants. After conducting all the analysis, all the hypotheses were confirmed, thus providing further validation to usage of virtual influencers arousal language in the service realm and the level of perceived anthropomorphism affecting this relationship.

1 INTRODUCTION

Influencer marketing has emerged as a dominant force in contemporary advertising, with influencers holding considerable impact over consumer behavior, particularly in the realm of services. Influencers, defined as individuals capable of influencing potential buyers through social media promotion, have become pivotal in shaping consumer preferences (Schomer, 2019). As consumers increasingly seek out influencers aligned with their interests, brands management saw the chance to exploit these relationships for product promotion and brand enhancement.

Services, characterized by intangibility, inseparability, perishability, and heterogeneity, (Parasuraman, Zeithaml, & Berry, 1985) present unique challenges in marketing due to their nature. Consumers, facing greater uncertainty and perceived risk, rely on commercial information and peer recommendations to navigate service offerings effectively (Murray & Schlacter, 1990) (Gursoy & McCleary, 2004). According to this principle, influencers play a crucial role in mitigating this uncertainty, serving as trusted authorities whose endorsements provide a form of "quality certification" for service experiences.

The concept of parasocial interaction (Lee & Watkins, 2016) underlines the one-way relationship between influencers and their followers, wherein users develop feelings of friendship, trust, and expertise with their chosen influencer. Consequently, influencer marketing has proven to be particularly effective for services (Ibáñez-Sánchez, Flavián, Casaló, & Belanche, 2022), as influencers' endorsements serve as credible assurances for consumers among this uncertainty.

The COVID-19 pandemic has accelerated concerns about authenticity and trust in influencer marketing, prompting the rise of virtual influencers (VIs)- which have been described as humanlike creatures crafted through artificial intelligence (AI) or computer-generated imagery (CGI) (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020). VIs exhibit human traits and personalities (Thomas & Fowler, 2021), posing significant competition to human influencers (Mediakix, 2019). Market projections suggest exponential growth for VIs, particularly in China, with an estimated value of $42.6 billion by 2030 (Jing Daily, 2022). This shift underscores the evolving nature of influencer marketing and the importance of authenticity in engaging digital influencers.

Research has demonstrated that VI can be shaped to connect digital audiences in a more profitable way than human influencers (HI) due to the consistency between the personal and sponsored post storytelling (Arsenyan & Mirowska, 2021) and therefore leading to a three-times greater interaction in VI generated content than that of HI within the same range of followers (Baklanov, The top virtual instagram influencers in 2022, 2022).

However, research in the field of virtual influencers remains limited, particularly regarding their effectiveness in different industries, with most

studies focusing on brand endorsement and product purchase intention (Kim Eunjin, Kim, E, & Shoenberger, 2023) (Yang, Huan, & Qian, 2021).

Even though, there is growing recognition of the advantages of employing VIs in service promotion. In fact, these digital entities could be beneficial in this domain because are flexible in working time and space, therefore in case of tourism destination promotion, they are available 24/7 and can "travel around" instantly; in addition to the fact that they are not getting old, as well as are less prone to commit human errors due also to the impossible misalignment between "the online" and "offline" life (Lee S. , 2021).

Moreover, since VI do not have an innate personality, but rather it is crafted, there is an opportunity for marketers and companies to shape the personality and interests of the influencer in order attract specific target customers – meaning, create an expertise to gain credibility and eventually a larger consumer base (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020).

However, there are still few challenges related to service promotion since audiences may not trust this kind of influencers due to their digital nature and therefore primarily when it concerns the issue of sharing feelings about an experience (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020). Even though, research have shown that the degree of acceptance of this kind of influencers depends on the consumers' degree of empathy, which is independent from the marketing campaign per se and is directly correlated to the level of anthropomorphism the CGI displays (Mirowska & Arsenyan, 2023). Despite this, many reputable brands have successfully collaborated with VIs for brand and service promotion and consumer engagement.

The majority of the current literature on the issue of Vis and service promotion has been focusing on tourism (Xie-Carson, Magor, Benckendorff, & Hughes, 2023) The study from Xie-Carson (Xie-Carson, Magor, Benckendorff, & Hughes, 2023) has demonstrated that humanlike VI received more empathy than 3D and 2D animated VI's. Regarding the choice of images, the ones in which the influencer is not present are preferred, which is in contrast with the researches regarding product promotions (De Brito Silva, de Oliveira Ramos Delfino, Alves Cerqueira, & de Oliveira Campos, 2022).

However, another study from Xie-Carson (Xie-Carson, Benckendorff, & Hughes, Keep it# Unreal: Exploring Instagram users' engagement with virtual influencers in tourism contexts, 2023) demonstrated that VI can be used for tourism promotion in particular if the VI is perceived as expert in the field and the post has an effect on the level of visual storytelling (swipeable images).

Through the analysis of the current literature on virtual influencers and service promotion, it is noticeable a lack of consensus regarding the efficacy of VI on purchase intention (Thomas & Fowler, 2021) (Chen, et al., 2022), in which different research have led to different results, in particular, it is still an unexplored theme in the service sector, in which the current literature is still at its infancy.

Regarding the particular the issue of VI and language, current studies (Shin & Lee, 2022) point out the importance of emotional charisma in generating commitment with the VI; additional studies suggest that the use of humor (Schanke, Burtch, & Ray, 2021) or an interactive language (Köhler, Rohm, De Ruyter, & Wetzels, 2011), may influence the level of perceived humanity of the VI and thus is associated with the issue of anthropomorphism. Therefore, it is unclear which kind of content to use in

order to sponsor services through virtual influencers and ultimately trigger willingness to buy (Praničević, 2020) due to the higher perceived humanity.

Based on all those questions unsolved, the following research questions were developed:

RQ1: *Does a high arousal language create a greater impact than low arousal language on customer purchase intention for VIs in the service sector?*

RQ2: *What is the psychological mechanism that explains the effect of arousal language in purchase intention?*

This study makes several contributions. First, it helps extending the current knowledge on language arousal in marketing communications to examine whether it still affects consumers' purchase intention with sponsored content in case of virtual influencers; therefore, it could assist managers in shaping the right content for virtual influencers, whether it is better using a high arousal or a low arousal language in case of services promotion, while also understanding whether it is the suitable to use VI in services instead of human influencer, since there are a lot of advantages for practitioners in economic terms by using them.

Moreover, it could help the current literature in addressing the issue of purchase intention of virtual influencer, which is still quite enigmatic and yet has not an answer regarding the services realm. Additionally, the research could help in expanding the research on the promotional use of virtual influencers, which is still quite new and unknown, while giving other causes of reflection and study.

2 THEORETICAL BACKGROUND

2.1 LITTERATURE REVIEW

2.1.1 INFLUENCER MARKETING IN SERVICES

Influencers in social media platforms are users that generate greater interactions in the online community than normal members (Mallipeddi, Kumar, Sriskandarajah, & Zhu, 2018); therefore, their enormous following set the potential to trigger the purchase decision of numerous members of the virtual community due to the parasocial relationship they build with this particular figure (Lee & Watkins, 2016).

Influencer marketing is useful in generating sales, reaching new audiences and potential customers through the partnership with the companies, bringing products or services closer to the public while also affecting the fans through their opinion (Garbin Praničević, 2020).

Another relevant point is the enhancement of brand image and reputation through influencers – the association with a particular brand with an influencer promoting certain ideologies or representing a certain world has an impact on the image the company wants to shape in the mind of the consumer, and additionally, this association has an impact also in acquiring a new customer base and improving customers engagement (Leung, 2022). This kind of connection works also the other way around, so if one of the parties behaves incorrectly, the other one will be certainly affected – as noticed with Chiara Ferragni and all those brands collaborating with her such as the eyewear company Safilo (Ore, 2023), or the potential partnership with Coca-Cola (Stampa, 2024).

There are few differences in using influencer marketing for product than for services: whereas for the former, opinion leaders can showcase the object features or benefits, for the latter the content of promotion is mostly based on the experience that the influencer had with that service.

The service sector includes a broad range of activities that are distinguished by their strong heterogeneity, intangibility, and inability to be separated into production and final consumption phases (Parasuraman, Zeithaml, & Berry, 1985). Because customers cannot physically verify the quality of services until after the encounter, acquiring them is intrinsically complicated (Parasuraman, Zeithaml, & Berry, 1985). As a result, there is more uncertainty involved in the evaluation of services, which in turn raises perceived risk (Murray & Schlacter, 1990).

As a result, before making judgments, customers need more information and to consider many points of view. In order to make sure they are making the best selections possible, this entails them spending time for conducting more and deepen research (Gursoy & McCleary, 2004).

2.1.2 VIRTUAL INFLUENCERS

Virtual influencers or artificial intelligence influencers are computer-generated influencers with a sizable social media following (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020), however, most virtual influencers are not completely controlled by AI but instead humans still partially supervision their work (Thomas & Fowler, 2021).

In the last few years, virtual influencers have gained more presence and popularity on social media channels and have successfully worked together with large brands such as Prada, Channel, Samsung and BMW.

Brands aim to use virtual influencers in their marketing strategies to take advantage of their large fan base (Kádeková & Holiencinova, 2018). However, considering that virtual influencers are not "real", research questioned if they are reliable enough to be considered brand ambassadors on a par with human influencers (Moustakas, Lamba,

Mahmoud, & Ranganathan, 2020). According to Robinson (Robinson, 2020), Vis are seen as genuine and "real" social media influencers because of their humanized behaviors, which have an impact on people's brand preferences and purchasing decisions (Robinson, 2020). Yet, Moustakas et al. (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020) stated that virtual influencers' motivation for profit could affect their perceived authenticity. However, as stated by Robinson (Robinson, 2020) inclination for revenue does not differentiate VIs from HI.

Additionally, when the VI is displayed in company with a human being, users feel more at ease engaging with the CGI (Cascio Rizzo, Berger, & Villarroel Ordenes, 2023). Recent research (De Brito Silva, de Oliveira Ramos Delfino, Alves Cerqueira, & de Oliveira Campos, 2022) provided a distinction in effects based on the fact that the spokespersons were incarnated or innate avatars. What emerged from the study was that incarnate influencer - since their audience already perceives them as endorsers - are essentially viewed as mere advertisements. Therefore, there are no differences in the levels of engagement between posts that do not sponsor brands than those that do so. Instead, innate influential avatars get higher engagement in their endorsement contents, as consumers are more interested in the congruence between the avatar's personality and the endorsed products (Mrad, Ramadan, & Nasr, 2022). Moreover, other studies concentrated on the effect of the language of VIs in triggering users commitment, as previously mentioned, the study from Shin and Lee (Shin & Lee, 2022) showed the importance of emotional appeals, whereas the study from Schanke et al. (Schanke, Burtch, & Ray, 2021), suggested that the use of humor could improve the engagement generated by the influencer or even the study from Köhler et al. (Köhler, Rohm, De Ruyter, & Wetzels, 2011) suggested that a more interactive

language can have an impact on the level of percieved humanity of the CGI and therefore having an impact on the engagement.

There are few types of virtual influencers raging from humanlike to more 2D and animated influencers; recent studies demonstrated that the even the portrayal of virtual influencers influenced consumers' opinions, attitudes, behaviors, and assessments (Seymour, Yuan, Dennis, & Riemer, Facing the artificial: Understanding affinity, trustworthiness, and preference for more realistic digital humans, 2020). Furthermore, people's willingness to buy and their perception of interpersonal trust are influenced by virtual avatars that display a humanlike appearance (Riedl, Mohr, Kenning, Davis, & Heekeren, 2014).

With anthropomorphism of VI is intended the perceived similarity between VIs and humans (Stein, Linda Breves, & Anders, 2022). Humans have the ability to form expectations about how virtual characters "should behave" in accordance with social norms. On the same fashion, Miao et al. (Miao, Kozlenkova, Wang, Xie, & Palmatier, 2022) acknowledge in a typology of virtual avatars that realism is essential to the consumer experience when interacting with a virtual agent, and this is due to the uncanny valley theory.

Mori (Mori, 1970) first proposed this thesis in 1970, stating that there is "a nonlinear relation between a character's degree of human likeness and the emotional response of the human receiver." Moreover, he revealed that consumers find realistic humanoid faces more reliable than unrealistic ones, but that once a nonhuman object reaches a certain degree of human likeness, people begin to see it as strange and unsettling. This notion is further supported by recent research, which demonstrates that although consumers accept CGIs more readily when they seem more

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human-like, they consider them to be "unpleasant and unrealistic" if they resemble people too closely (Molin & Nordgren, 2019).

However, according to Katsyri et al. (Katsyri, Forger, Makarainen, & Takala, 2015), not all manipulations of human likeness will result in the uncanny valley, and the phenomenon only appears when there is a perception mismatch (such as inconsistent realism or atypical features in the stimuli), not when there is categorization ambiguity (such as a blurred boundary between non-human and human). According to the study of Arsenyan and Mirowska (Arsenyan & Mirowska, 2021) followers reacted more negatively to VIs that resembled humans than to influencers that resembled anime or real people. Block and Lovegrove (Block & Lovegrove, 2021), on the other hand, came to a different conclusion, they stated that VIs "create fear and fascination and familiar/unfamiliar experiences through 'uncanny valley' storytelling that are human but not too much," and human influences are unable to properly provide this experience.

2.1.3 VIRTUAL INFLUENCERS IN SERVICES

Virtual influencers in service realm are still quite an unexplored field, few research have been conducted and the majority are focused on the tourism area.

Several advantages of implementing VIs in tourism have been found by studies. First off, using VIs gives businesses a competitive edge as a novel phenomenon by drawing in tourism, especially those from younger generations like Gen Z (Forsey, 2019). Second, using VIs provides marketing and tourist businesses more control because they don't have an "offline life" (Creasey & Vázquez Anido, 2020). Because they are less prone to commit "human errors" that could harm a brand's reputation and image, VIs are considered less dangerous tourism ambassadors (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020). Thirdly, tourist attractions and

enterprises have the choice to design and alter their own VIs in addition to working with Vis. Lastly, because VIs are not human, they can "work" and "travel" simultaneously with several tourism businesses in various locations (Creasey & Vázquez Anido, 2020). Though there are a few issues, the primary one is that audiences might not trust VIs, especially in instances where they assess items and discuss their emotions or experiences (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020).

As stated in the research of Conti et al. (Conti, Gathani, & Tricomi, 2022) there are multiple reasons for engaging virtual influencers in the service realm:

Greater adaptability. Virtual influencers are incredibly adaptive and flexible. Virtual influencers can be deployed by creators at anytime and anywhere, serving as promotional tools of their choice, therefore, they can be used 24/7 and can "travel around" continuously. Conversely, human influencers are limited; for example, they surely cannot be shaped at will, they might have time-restriction and so on. Moreover, when the COVID-19 pandemic hit, VI's adaptability allowed them to continue publishing creative content around while human influencers were limited in the production of content due to the segregation restrictions.

Exclusiveness. Virtual influencers can be created also for a single company and will always be associated with it. Conversely, human influencers frequently collaborate with multiple brands at once and are not just associated or well-known with them.

Company Security. Because VIs are digitally crafted, brands management can alter their identities to fit brand aesthetic and adhere to their core beliefs. By doing this, the company's danger of exposure to improper activity or tainted past of human influencers is decreased. Additionally, VI is prevented from releasing any content that contradicts the brand or its themes since are basically controlled by the creators.

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2.1.4 LANGUAGE AROUSAL IN SOCIAL MEDIA

Previous studies on language arousal provide an explanation that is grounded in the autonomic nerve system. Relaxation is a sign of low arousal (or deactivation), while activity is a sign of high arousal (or activation) (Yin, Bond, & Zhang, 2017). Language intensity, which is defined as the degree to which a message deviates from neutrality (e.g., "love" vs. "like"), is related to language arousal in consumer psychology literature (Pogacar, Shrum, & Lowrey, 2018).

The study from Berger (Berger, Arousal Increases Social Transmission of Information, 2011) showed that physiological arousal can explain the transmission of news and therefore all those situations that increase arousal boost social transmission, both positive and negative. It follows that arousal content should be shared more than the one that does not.

When it comes to communication, people's level of arousal indicates how much a description using a specific language energizes them (Yin, Bond, & Zhang, 2017), meaning, using "it's beautiful" as opposed to "it's nice," expresses a higher level of arousal; According to the study of Yin et al. (Yin, Bond, & Zhang, 2017), the expression of additional arousal in interpersonal communication can have different effect based on the perceived value of the message content, depending on the level of arousal already expressed and the situational context.

Exclamation points, emojis, and capitalization are examples of paralinguistic studies (Luangrath, Xu, & Wang, 2023) which can accentuate and amplify messages in social media communication, in fact the way in which a brand communicates affects the level of engagement with content. In addition, textual paralanguage can change other linguistic components, such as arousal, because text communication lacks some verbal and nonverbal cues (Moore &

Lafreniere, 2020). Therefore, using expressions in caps lock elicits a more aroused response than writing in lower case.

Moreover, language arousal may increase engagement. As explained from the study on Berger et al. (Berger & Milkman, What Makes Online Content Viral?, 2012) positive content in general is more viral than negative one, however, content that evokes high-arousal positive (awe) or negative (anger or anxiety) emotions is more viral, compared to content that evokes low-arousal, or deactivating, emotions (e.g., sadness) which will be less viral. For example, information about public health may spread more successfully if it causes worry as opposed to melancholy. More generally, the results point to the ways in which psychological processes could influence collective outcomes, or culture: more provocative material ought to have a higher chance of becoming viral online and drawing in viewers (Berger, Arousal Increases Social Transmission of Information, 2011).

The study from Huang et al. (Huang, Leong, & Ismail, 2024) instead analyzed how communication language causes emotional fluctuations in potential consumers, ultimately leading to willingness to buy. The findings show that, depending on how customers perceive language, the path taken by their purchase intents is not necessarily the same. Communication language typically has a favorable indirect effect on consumers' buy intentions through the chain mediation of emotional arousal and the single mediation of presence perception, as opposed to a direct effect on purchase intention. The growing ubiquity of interactive language experiences, in which customers' purchase intents are triggered primarily by emotional arousal, serves as a significant illustration of the distinctiveness and complexity of consumer language features.

Herhausen instead, researched the influence of language arousal in online forums, and noticed that negative customer messages with high arousal (e.g., "this is so frustrating!"), as opposed to low arousal (e.g., "this is disappointing"), are more likely to spark online firestorms in brand forums (Herhausen, Ludwig, Wulf, Grewal, & Schoegel, 2019). Nonetheless, other researches on social media realm have demonstrated that there are situations in which for example posting high-arousal content in the evening (Kanuri, Chen, & Sridhar, 2018) or on YouTube (Tellis, MacInnis, Tirunillai, & Zhang, 2019) can have no effect.

On the other hand, in other situations, elevated arousal might backfire and reduce sharing. Examples include when the subject matter discussed does not reflect on the sharer (Weingarten & Berger, 2017), or when readers interpret it as an indication of irrationality (Yin, Bond, & Zhang, 2017), or even when the message is exaggerated and becomes exceedingly commercial (Haan & Berkey, 2002). Influencers shared heightened arousal may give consumers the impression that their intentions are misleading, which could cause mistrust and decreased engagement (Eisend & Tarrahi, 2022).

The study instead of Rizzo et al. (Cascio Rizzo, Villarroel Ordenes, Pozharliev, De Angelis, & Costabile, 2024) showed that a more arousal language increases the engagement of micro influencers whereas it is possible to notice the opposite effect while dealing with macro influencers. This particular effect is driven by influencer trustworthiness, meaning, a more aroused language increases the beliefs that the micro influencer's intent is less persuasive, which increases trustworthiness and in turn, boost engagement; However, it is possible to detect the opposite reaction with macro influencers. As suggested in in the following research, there is the possibility that high arousal language can determine the effectiveness of other spokespersons too.

2.2   HYPOTHESES

2.2.1   VI's HIGH AROUSAL LANGUAGE AND PURCHASE INTENTION

The term "language arousal" describes the mental or physical reaction that language elicits (Moore & Lafreniere, 2020). This idea is frequently used in psychology and linguistics to explain how language can cause different emotional states or bodily reactions in people (Yin, Bond, & Zhang, 2017). This can include emotions brought on by specific words, phrases, or language constructions, such as arousal, excitement, rage, happiness, or grief. When it comes to virtual influencers, language arousal plays a crucial role in determining how viewers interact with and react to the material created by these online personalities. Virtual influencers mostly rely on language—spoken and written—to interact with their audience and deliver their messages because they are AI-driven personalities or computer-generated characters (Moustakas, Lamba, Mahmoud, & Ranganathan, 2020).

Virtual influencers might deliberately construct their language to resonate with the target demographic or to elicit particular emotional responses. This could be using specific language, vocabulary, or tones that are known to cause the audience to react in a certain way. To elicit excitement and passion from their followers, virtual influencers could, for instance, speak in an enthusiastic, fun, and uplifting manner (Schanke, Burtch, & Ray, 2021). Additionally, they can use language skills like empathy, comedy, or persuasion to build stronger bonds with their audience and promote participation and interaction (Köhler, Rohm, De Ruyter, & Wetzels, 2011). Furthermore, virtual influencers can exploit cutting-edge technologies for sentiment analysis to instantly check audience reactions and modify their messaging and language to improve the effect on engagement.

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For example, a very famous VI influencer called @lilmiquela employs language to elicit strong feelings from her audience and to engage them. Although her communication style may change according on the situation and the message she wants to convey, she frequently uses a combination of conversational, relevant, and occasionally emotionally charged language to engage her audience. When Lil Miquela communicates, it usually sounds like a teenager or a young woman who combines humor, empathy, and sincerity. On Instagram, the influencer frequently succeeds in engaging the audience through IG stories, comments and captions while also sharing life stories, talking about social activism, and promoting products. Lil Miquela creates interaction with her audience through her storytelling, even though she didn't have the intention to get them involved directly. However, she has the same objective of many other (also human) influencers, meaning, producing material that continuously gets users involved with the ultimate goal of retaining them.

In the end, Lil Miquela's communication style is designed to fascinate and engage her audience, utilizing a variety of linguistic approaches to elicit emotions and sustain interest in her online persona.

A recent study (Zhang, Shi, Li, Guan, & Cui, 2023) investigated the persuasive elements and underlying emotional mechanisms that impact viewers' intention to engage in parasocial interactions and make impulse purchases in order to examine the effects of virtual influencers driven by artificial intelligence. The results validate the function of arousal in mediating three persuasive variables and two behavioral methods, as well as the appraisal–emotion–action scheme. While viewers' impulsive buying urge was significantly influenced by congruence and mind perception, parasocial interaction intention was connected with coolness. Moreover, arousal and parasocial interaction intention toward impulsive desires were significantly moderated by mentality.

Therefore, based on the literature previously mentioned, the following hypothesis was developed:

H1: Greater use of arousal in virtual influencer posts has positive impact on purchase intention in the service realm

2.2.2 VI's LANGUAGE AROUSAL AND ANTHROPOMORPHISM ON PURCHASE INTENTION

The term "anthropomorphism" describes people's propensity to give non-living objects human features. There has been a great deal of research done in psychology on the issue of assigning intents (Admoni & Scassellati, 2012) and animacy to inanimate objects. According to one view, people associates feelings to them so that a less familiar, non-humanlike thing may become more familiar, understandable, or predictable (Epley, Waytz, & Cacioppo, On seeing human: A three-factor theory of anthropomorphism, 2007).

According to the "uncanny valley" theory developed by Mori (Mori, 1970), when a humanoid robot got closer to, but fell short of, a lifelike appearance, a person's reaction would suddenly change from empathy to aversion (Mori, 1970).

Social psychology can be used to explain people's propensity to assign objects human characteristics. Epley et al. (Epley, Waytz, & Cacioppo, On seeing human: A three-factor theory of anthropomorphism, 2007) proposed a three-factor theory of anthropomorphism, suggesting that individuals are more likely to anthropomorphize when possess effectance motivation, allowing them to explain and understand other agents' behavior. Additionally, access to anthropocentric knowledge and a

desire for social contact and affiliation also increase the likelihood of anthropomorphism.

The way audiences or users may react to human likeness has also an impact in the marketing and retail spheres. According to a number of studies ((Blut, Wang, Wünderlich, & Brock, 2021); (Qiu & Benbasat, 2009); (Verhagen, Van Nes, Feldberg, Dolen, & W., 2014)), adding humanlike characteristics to robots or other non-human entities encourages user interactions, increases user responses akin to those in human–human interactions, and strengthens emotional bonding. However, as stated earlier, the uncanny valley phenomena shows that the human likeness can also elicit repulsion (Ho & MacDorman, 2010). Psychologically speaking, cognitive and motivational factors account for much of the individual diversity in anthropomorphizing (Epley, Waytz, Akalis, & Cacioppo, 2008) (Gray, Gray, & Wegner, 2007). From the standpoint of design, anthropomorphism incorporates several facets of an object. In order to increase the effectiveness of avatars in marketing, the research on avatar marketing recommends using both form realism and behavioral realism when evaluating and classifying avatars; Miao et al. (Miao, Kozlenkova, Wang, Xie, & Palmatier, 2022) in fact acknowledge in a typology of virtual avatars that realism is essential to the consumer experience when interacting with a virtual agent. Form realism and behavior realism make up VIs' realism.

Form realism encompasses perceived human qualities like name, gender, age, and race as well as visual elements like the space dimension and VI's movement. Behavior realism instead is crucial because it encompasses the way the VI responds to and communicates with them in response to their needs and feelings (Miao, Kozlenkova, Wang, Xie, & Palmatier, 2022). Furthermore, anthropomorphism's emphasis frequently changes depending on the application context of anthropomorphic beings. As per

Lee et al. (Lee, Lee, & Sah, Perceiving a mind in a chatbot: effect of mind perception and social cues on co-presence, closeness, and intention to use, 2020), chatbot anthropomorphism mostly revolves around language expression and dialogue, but autonomous vehicles' anthropomorphism highlights their aptitude for logical reasoning (Lee, Kim, Lee, & Shin, 2015) (Wu, Wang, & Yuen, 2023) in case instead of VI, Shin et al, (Shin & Lee, 2022) found that the social media posts by virtual influencers with emotional expressions or connections to other virtual influencers had the highest interaction rates, meaning that virtual influencers may have greater impact when they behave in a human-like manner than when they don't.

The anthropomorphic design of products (Landwehr, McGill, & Herrmann, 2011) the vocal features of virtual assistants during user interactions (Fernandes & Oliveira, 2021), and the emotional qualities of robots intended for consumer use (Kim, Schmitt, & Thalmann, 2019) are additional elements that have been highlighted in various application contexts.

Eventually, since virtual influencers have the power to cause behavioral changes and social reactions, particularly when they are visually appealing (Khan & Sutcliffe, 2014) there's reason to think that consumers' purchase intention for Vis is influenced by anthropomorphism and in turn CGIs receive higher engagement rate on Instagram.
According to this theory, the following hypothesis was developed:

H2: The positive effect of arousal language on purchase intention is explained by the consequent increased level of anthropomorphism for the CGI perceived by consumers.

2.3 CONCEPTUAL FRAMEWORK

The conceptual objective of this study is to investigate how different levels of arousal language (high vs. low) of VI influence consumers' purchase intention in relation to the service sector.

To test this relationship, it was decided to complete the conceptual framework through the indirect effect represented by the mediating factor related to the anthropomorphism generated by the type of language stimulation.

Following this assumption, it was decided to implement the research model using a mediating factor represented by anthropomorphism, an independent variable related to language arousal, and a dependent variable concerning purchase intention.

Therefore, Andrew F. Hayes' Model 4 was adopted for the development of the conceptual framework, which is characterized by the presence of an independent variable (X), a dependent variable (Y) and a mediator (M).
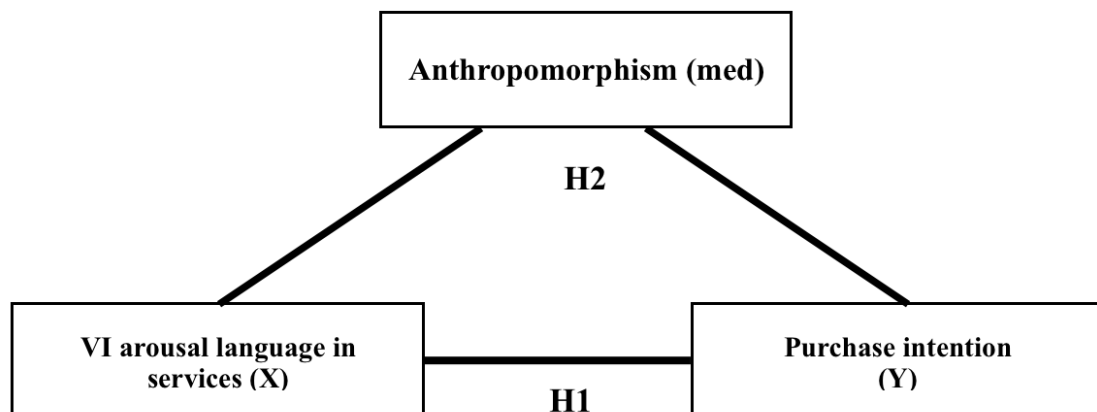
3 EXPERIMENTAL RESEARCH

3.1 METHODOLOGICAL APPROACH

3.1.1 METHODOLOGY AND STUDY

The present experimental study consists of a conclusive causal between-subjects 2x1 research design. The results of the experiment are represented by responses to a questionnaire obtained through an independently administered survey conducted in Italy during April 2024 through the use of the Qualtrics XM online platform. Survey participants were selected by adopting a non-probability sampling methodology.

It was specifically determined to employ a convenience technique in order to benefit from the quick and simple access to and selection of the sample population's constituent parts. In fact, this method has no financial costs associated with it and offers benefits in terms of rapid data collecting and high response rates.

Since demographic factors were not expected to have a statistically significant impact on the experiment's outcomes, it was decided to collect data from both male and female respondents, taking into account the target sample.

3.1.2 PARTECIPANTS AND SAMPLING PROCEDURE

The survey was distributed to 165 individuals of whom 155 respondents fully participated in the experimental study, answering fully and completely all the questions in the questionnaire.

The remaining 10 incomplete responses were first selected and later discarded from the dataset during the data cleaning procedure.

Respondents were contacted through an anonymous link generated by the Qualtrics XM online platform and subsequently sent through instant messaging applications and social media networks as the main distribution channels (WhatsApp, Instagram).

The survey's sample of the target demographic consisted primarily of recently hired employees and undergraduate college students from several Italian cities.

Therefore, following this assumption, the average age of the respondents was found to be 30.39 years, although the age range fluctuated between a minimum in 18 and a maximum in 63 years.

Statistics

Quanti anni hai?

N	Valid	155
	Missing	0
Mean		30.3935
Median		24.0000
Mode		23.00
Std. Deviation		12.15137
Variance		147.656
Range		45.00
Minimum		18.00
Maximum		63.00
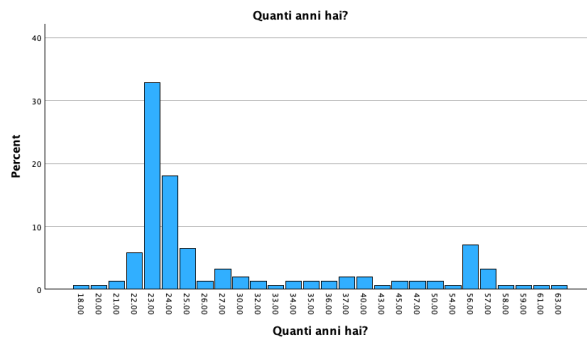
Regarding the gender of the respondents, the prevailing gender was found to be female, represented by 49.0 % (76/155), while the male gender was characterized by 41.3 % (64/155). The remaining 1.9% (3/155) and 7.7% (12/155) of respondents selected respectively, third gender/non-binary or preferred not to identify with a specific gender as options.

In che genere ti identifichi?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uomo	64	41.3	41.3	41.3
	Donna	76	49.0	49.0	90.3
	Non binario	3	1.9	1.9	92.3
	Preferisco non rispondere	12	7.7	7.7	100.0
	Total	155	100.0	100.0	

Regarding the nationality of the respondents, the entire population was found to be Italian, with a percentage of 100% (155/155).

Quale è la tua nazionalità?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Italiana	155	100.0	100.0	100.0

Quale è la tua nazionalità?

Regarding the level of education of the respondents, the majority reached a bachelor's degree, represented by 49.0 % (76/155), followed by high school diploma, which was characterized by 25.8 % (40/155), and then master's degree, with 22.6% (35/155). The remaining 1.9% (3/155) and 0.6% (1/155) of respondents reached respectively, PhD and over and middle school diploma.

Quale è il tuo più alto livello di istruzione?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Scuola media	1	.6	.6	.6
	Diploma superiore	40	25.8	25.8	26.5
	Laurea triennale	76	49.0	49.0	75.5
	Laurea magistrale	35	22.6	22.6	98.1
	PhD o oltre	3	1.9	1.9	100.0
	Total	155	100.0	100.0	

Quale è il tuo più alto livello di istruzione?

Regarding the occupation of the respondents, the majority are working, represented by 55.5 % (86/155), followed by those currently studying, which was characterized by 40.0 % (62/155), and lastly those unemployed, with a percentage of 4.5% (7/155).

Quale è la tua attuale occupazione?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Studente	62	40.0	40.0	40.0
	Lavoratore	86	55.5	55.5	95.5
	Disoccupato	7	4.5	4.5	100.0
	Total	155	100.0	100.0	

Quale è la tua attuale occupazione?
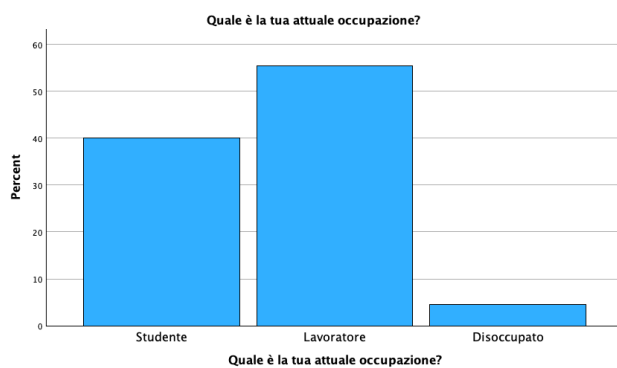
3.1.3 DATA COLLECTION AND QUESTIONNAIRE COMPOSITION

To conduct the experimental study, it was fundamental to develop a questionnaire consisting of 15 questions of which 10 were specific and 5 were demographic.

To manipulate the independent variable (Arousal language level: high vs. low), two visual stimuli, one different from the other, were essential.

The first scenario consisted of an image of an Instagram post depicting a virtual influencer getting her nails done characterized by a high-level arousal claim.

The second scenario consisted of an image of a post on Instagram depicting a virtual influencer getting her nails done characterized by a low-level arousal claim.

As mentioned above, the data were collected through a questionnaire, which turns out to be divided into four main parts.

A brief introduction was placed at the beginning of the questionnaire with an explanation of the academic research purpose of the experiment. Furthermore, after the University's credentials were included, it was confirmed that the privacy laws pertaining to the anonymity policy for data collection and management were fully and entirely followed.

The second part of the survey is a randomized block consisting of two separate scenarios. Specifically, the randomization process was essential within the structure of the questionnaire so that a uniform number of exposures to both visual stimuli could be achieved. In addition, to avoid potential cognitive bias and conditioning related to brand sentiment, both scenarios are represented by two post mock-ups. Specifically, both visual conditions were created through the use of Zeoob.com (a free site for developing realistic posts).

The third part of the survey was introduced to respondents after they were exposed to one of the two scenarios. Specifically, this block of the questionnaire consisted of 10 questions: the first three concerned the manipulation check scale of the independent variable, then four related to the mediator (anthropomorphism), and lastly three concerning the dependent variable (purchase intention). All questions were rated through a Likert scale based on 7 rating points.

The first scale, relating to the mediator, is derived from the scale pre-validated by Aggarwal, Pankaj and Ann L. McGill (2007), "*Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products,*" *Journal of Consumer Research*, 34 (4), 468-479.

The second scale, related to the dependent variable, is derived from the scale pre-validated by Zeithaml, Valerie A., Leonard L. Berry, and A. Parasuraman (1996), "*The Behavioral Consequences of Service Quality,*" *Journal of Marketing*, 60 (April), 31-46.

The third scale, related to the manipulation check of X, is derived from the scale pre-validated by Faseur, Tine and Maggie Geuens (2006), "*Different Positive Feelings Leading to Different Ad Evaluations: The Caseof Coziness, Excitement, and Romance,*" *Journal of Advertising*, 35 (Winter), 129-142.

All scales were readjusted according to the needs of the experimental research.

Finally, the fourth and final part of the questionnaire was characterized by the block regarding demographic questions, in which the nationality, age, gender, education and occupation of the respondents were asked.

3.1.4 STIMULI VALIDATION: PRE-TEST

It was decided to create a pretest to validate the visual stimuli included in the survey before conducting the main study. In fact, the main purpose of the pretest was to confirm whether there were statistically significant differences between the observations reported by the two groups of respondents who were randomly exposed to the scenario. Pre-test results were received in April 2024.

The survey was distributed to a total of 55 subjects, 50 of whom fully participated in the experimental study and answered all survey questions comprehensively and completely. The remaining 5 incomplete responses were initially selected and later discarded from the dataset during data cleaning. Respondents were contacted via an anonymous link generated by the online platform Qualtrics XM and subsequently sent via messaging applications and social networks as the main distribution channels (WhatsApp and Instagram).

The sample of the target population reached by the survey included mainly undergraduate college students and newly hired employees located in different cities in Italy. Therefore, following this criterion, the average age of respondents was 28.06 years, although the age range ranged from a minimum of 18 years to a maximum of 74 years.

Regarding the gender of the respondents, the prevailing gender of the sample was male represented by 48.0% (24/50), while the female gender was characterized by 42.0% (21/50).

The remaining 2.0% (1/50) and 8.0% (4/50) of respondents selected respectively, third gender/non-binary or preferred not to identify with a specific gender as options.

As for the nationality of the respondents, the entire population was Italian, with a percentage of 100% (50/50).

As regards to the level of education, the majority of the population has obtained a bachelor's degree, with a percentage of 42.0% (21/50), followed by master degree 32.0% (16/50) and subsequently by high school diploma 20.0% (10/50). The remaining 4.0% and 2.0% reached, respectively, PhD or more (2/50) and middle school diploma (1/50).

In respect of the occupation, the majority were students, with a percentage of 52.0% (26/50), followed by workers 44.0% (22/50) and then unemployed 4.0% (2/50).

To conduct the Pre-test, it was necessary to develop a questionnaire consisting of 8 questions of which 3 were specific and 5 demographics As already described in the main study, in order to manipulate the independent variable (Arousal language level: high vs. low) it was essential to use 2 visual stimuli made different from each other.

As mentioned above, data were collected through a questionnaire, which turns out to be divided into 4 main parts.

The questionnaire began with a brief introduction that included a description of the experimental research's academic goal. Furthermore, full compliance with privacy requirements pertaining to the anonymity

policy regarding data collection and handling was guaranteed following the declaration of the university's qualifications.

The second part of the survey is a randomized block consisting of two separate scenarios. Specifically, the randomization process was essential within the structure of the survey so that a uniform number of exposures to both visual stimuli could be achieved. In addition, to avoid potential cognitive bias and possible conditioning related to brand sentiment, both scenarios are represented by two post mock-ups. Specifically, both visual conditions were created using Canva (an online template editor app for creating social media graphics and presentations and merch and websites).

The third part of the survey was introduced to respondents after they were subjected to observing one of the two scenarios. Specifically, this block of the questionnaire turns out to consist of 3 questions regarding the manipulation check scale related to the independent variable (Arousal language level: high vs. low). All questions were scored using a Likert scale based on 7 rating points.

The scale was readjusted for the sake of the research and is derived from the scale pre-validated by Faseur, Tine and Maggie Geuens (2006), "*Different Positive Feelings Leading to Different Ad Evaluations: The Caseof Coziness, Excitement, and Romance*," *Journal of Advertising*, 35 (Winter), 129-142.

Finally, the fourth and final part of the questionnaire appears to be characterized by the block dedicated to demographic questions, in which the nationality, age, gender, education and occupation of the respondents were asked.

The data obtained through the questionnaire provided by the survey generated on Qualtrics XM were exported to SPSS (Statistical Package for Social Science) statistical software for analysis.

First, it was decided to conduct an exploratory factor analysis to examine and validate the scale items used in the pretest. Specifically, as an extraction method, principal component analysis is performed by applying it to Varimax as a rotation technique. To decide how many factors to extract, the total explained variance table is observed by checking that the eigenvalues are greater than 1 and the cumulative variance percentage is greater than 60% according to Kaiser's rule. Additionally, communality tables and component matrices are considered. Specifically, all items had extraction values greater than 0.5 and loading values greater than 0.3. Therefore, it was decided to retain all items of the scale and validate the scale. After validating the scale, a reliability test was conducted to check the reliability level of the scale under consideration. Specifically, the Cronbach's alpha value of both constructs was monitored to ensure it was above 60%. Then, the scale related to the manipulation check of the independent variable recorded a value of 0.964. Therefore, the scale is considered reliable.

Additionally, a KMO test was conducted to measure sampling adequacy. Specifically, the scale recorded value for the independent variable manipulation check was 0.746. Therefore, in this case, the adequacy level is considered to be more than adequate (>0.6). Next, Bartlett's test of sphericity was performed, which was statistically significant, yielding a p-value of 0.001 (p-value < α = 0.05).

Following the results obtained, the pre-test analysis was further pursued. An Independent Sample T-test was employed to compare the means of the groups based on the visual condition they were exposed to in order to

evaluate the effectiveness of the manipulation related to the pre-test. The aim was to determine if there was a statistically significant difference between the group means.

After conducting the test and analyzing the descriptive statistics table, it became evident that the group of participants who were exposed to the scenario coded with 0 (28 individuals) had a mean value of 2.5476. On the other hand, the ones who were exposed to the visual condition coded with 1 (22 individuals) had a mean value of 5.5758. Moreover, the independent-samples test table showed a p-value related to the T-Test of 0.001, which was deemed statistically significant (p-value < a/2 = 0.025). Thus, indicating a significant difference between the means of the two groups and confirming the successful manipulation of the independent variable (X). Consequently, given the success of the pre-test, the main test was possible to be pursued.

3.2 EXPERIMENTAL RESULTS

3.2.1 DATA ANALYSIS

The collected data from the survey questionnaire on Qualtrics XM was analyzed using SPSS (Statistical Package for Social Science) statistical software. Initially, two exploratory factor analyses were performed to examine and validate the scales used in the experimental research model. Principal component analysis was used as the extraction method and Varimax was used as the rotation technique. Kaiser's rule was applied to determine the number of factors to extract. The Eigenvalues were required to be greater than 1, and the cumulative variance as a percentage was required to be greater than 60 percent. The component matrix and table of communalities were also examined, and all items had an extraction value greater than 0.5 and a loading score greater than 0.3. Therefore, all items were retained, and the scales were validated. After

validating both scales, reliability tests were performed to verify their level of reliability. The Cronbach Alpha value of both constructs was observed, and it was ensured that they were above 60 percent. The mediator scale had a value of 0.991, while the dependent variable scale had a value of 0.994. Both scales were found to be reliable. The KMO test was also conducted to measure the adequacy of the sample. The mediator scale had a value of 0.867, while the dependent variable scale had a value of 0.725, indicating that the level of adequacy was more than adequate (> 0.6). Additionally, Bartlett's test of sphericity was performed, and a statistically significant p-value of 0.001 (p-value < α = 0.05) was obtained in both cases.

Variable scale	KMO test	Barlett test	Cronbach Alpha
Mediator	0.867	p-value = 0.001 < α = 0.05	0.991
Dependent variable	0.725	p-value = 0.001 < α = 0.05	0.994

3.2.2 HYPOTHESES RESULTS

After conducting both factor analyses and reliability tests, the main assumptions of the conceptual model were examined to confirm or reject its statistical significance and relative success.

H1

To test the statistical significance of the direct hypothesis (H1) in a scientific manner, a comparison of averages was conducted by applying a One-Way ANOVA as an analysis. The purpose of this test was to evaluate the effect of the independent variable (Virtual influencer language arousal:

high vs. low) on the dependent variable (purchase intention). Specifically, the independent variable (X) is a nominal categorical variable separated into two different conditions coded with 0 (VI low language arousal) and 1 (VI high language arousal), while the dependent variable (Y) is continuous metric in nature. After conducting the ANOVA, the descriptive statistics table revealed that the group of respondents who were subjected to the scenario coded with 0 (78 people) had a mean value of 1.8291, while the respondents exposed to the visual condition coded with 1 (77 people) had a mean value of 5.0476. Furthermore, considering the ANOVA table, a p-value related to the F-Test of 0.001 was found to be statistically significant (p-value < α = 0.05). Therefore, there was a statistically significant difference between the means of the two groups, thus confirming the significant effect of X versus Y. Thus, the direct hypothesis H1 (main effect) was proved.

Visual condition	N = Population	Mean	P-value (sig.)
0 = VI low language arousal	78	1.8291	p-value = 0.001 < α=0.05
1 = VI high language arousal	77	5.0476	

H2-H3

A regression analysis was carried out using model 4 of the SPSS Process Macro extension version 4.2 developed by Andrew F. Hayes. The purpose was to test the statistical significance of the indirect hypothesis (H2-H3) and the mediating effect caused by anthropomorphism in the relationship between the independent variable (Virtual influencer language arousal: high vs. low) and the dependent variable (purchase intention). To test the

mediation effect, two different relationships were distinguished: the first effect between the independent variable and the mediator (H2) and the second effect between the mediator and the dependent variable (H3). The statistical significance of both hypotheses was demonstrated using a 95% confidence interval with a reference value a of 5%. It was also important to ensure that the lower and upper levels of the confidence interval (LLCI and ULCI, respectively) for each hypothesis had a sign concordance (both positive or both negative) and did not include 0. Finally, the β coefficients of the regression analysis were examined to assess the sign and magnitude of each effect.

H2

Upon analyzing the SPSS output, it was observed that the first part of the indirect effect yielded a positive regression coefficient β of 3.8702, a p-value of 0.0000, and a confidence interval (LLCI = 3.4232; ULCI = 4.3173) that favors the hypothesis H2. Based on these findings, it can be concluded that this section of the indirect effect is statistically significant, thus supporting the hypothesis.

H3

After analyzing the SPSS output, it can be observed that the p-value for the second section of the indirect effect was 0.0000, and the corresponding confidence interval (LLCI = 0.3690; ULCI = 0.7112) was favorable. Additionally, the regression coefficient β was 0.5401, indicating statistical significance. As such, hypothesis H3 is confirmed based on these findings.

```
..................................................................
Model : 4
    Y : DV
    X : IV
    M : MED

Sample
Size:  155

******************************************************************
OUTCOME VARIABLE:
 MED

Model Summary
         R       R-sq       MSE        F       df1       df2         p
      .8103      .6566     1.9841   292.5157   1.0000   153.0000     .0000

Model
              coeff        se         t         p       LLCI      ULCI
constant     2.2564      .1595    14.1475     .0000     1.9413    2.5715
IV           3.8702      .2263    17.1031     .0000     3.4232    4.3173


******************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
         R       R-sq       MSE        F       df1       df2         p
      .7656      .5861     2.2763   107.6193   2.0000   152.0000     .0000

Model
              coeff        se         t         p       LLCI      ULCI
constant      .6104      .2595     2.3519     .0200      .0976    1.1232
IV           1.1283      .4136     2.7281     .0071      .3112    1.9455
MED           .5401      .0866     6.2370     .0000      .3690     .7112


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

Direct effect of X on Y
     Effect        se         t         p       LLCI      ULCI
     1.1283      .4136     2.7281     .0071      .3112    1.9455

Indirect effect(s) of X on Y:
          Effect     BootSE    BootLLCI   BootULCI
MED       2.0902      .3783     1.3722     2.8563

********************** 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
```

Based on the statistical results obtained, it was determined that both sections of the indirect effect were statistically significant, leading to the conclusion of the mediation effect's overall success. Furthermore, the statistical significance found for the direct effect indicates the presence of a partial type of mediation. These findings support the scientific basis for the study and provide valuable insights into the relationship between the variables analyzed.

4 DISCUSSION AND CONCLUSION

4.1 THEORETICAL CONTRIBUTIONS

In view of the results obtained, the current research significantly contributes to the existing literature by enhancing the relationship between language arousal, virtual influencers, and purchase intention through the perception of anthropomorphism. In particular, the current study confirms that a higher language arousal of virtual influencers has a positive effect on purchase intention. This finding is in accordance with previous research that has explored the underlying mechanism of purchase intention in case of virtual influencers sponsored content. Moreover, other research has demonstrated the importance of using high arousal caption in the realm of human influencers. However, this study goes beyond this traditional focus on Vi's advertisement and therefore link the studies exploring the effects of language arousal on HI and prove the compliance of this theory also with CGIs, leading therefore to the conclusion that high language arousal affects purchase intention even with virtual influencers.

Additionally, the study explores this effect in the service realm, a field that has been poorly investigated in the current literature on virtual influencers, which has primarily focused on product endorsing when dealing with purchase intention, therefore, confirming the efficacy of their use also in this domain.

Moreover, the research investigates the mediating role of anthropomorphism in the relationship between virtual influencers arousal language and purchase intention. Even though previous studies have proved that VI through higher engagement have the power to cause behavioral changes and social reactions in social media realm, there was little consensus of their effect on purchase intention, even though some researchers believed that consumers' purchase intention for Vis is

influenced by anthropomorphism. Therefore, the study confirms this theory, thus expanding the current body of the literature.

4.2 MANAGERIAL IMPLICATIONS

The study makes several managerial implications. First, since it proves the efficacy of high arousal language for virtual influencers through the perceived anthropomorphism, it helps managers in designing appropriate content for CGIs and with the right TOV for the sponsoring the service they are offering.

Second, it underlines the potential of employing a virtual influencer, since, as seen in the study, they do influence the purchase intention, thus providing an alternative to the engagement of classic human influencers, who are also more expensive, due to the fact that they have higher endorsement-, content creation- and maintenance costs.

Third, showing the effectiveness of promoting services through VI is crucial for opening to new sponsoring possibilities with this kind of influencers, who mostly sponsor products.

Moreover, since anthropomorphism plays a role in affecting consumer purchase intention, it is crucial for managers to employ a VI that has human characteristics, verbally or physically.

Additional benefits of engaging virtual influencers instead of traditional human ones rely on their intrinsic characteristics:

In fact, through the use of VI, managers have more control over the image and message they want to convey to the users since CGIs can be created according to the needs and wishes of practitioners, thus allowing for precise alignment with brand values and messaging strategies.

Furthermore, VI can more readily cross linguistic and cultural divides than human influencers, opening up the possibility of a worldwide audience for advertising efforts.

Lastly, using virtual influencers allows for the application of creative marketing techniques that can improve customer engagement and brand loyalty, like gamification, immersive experiences, and interactive storytelling.

4.3 LIMITATIONS AND FURTHER RESEARCH

Although this study has shed light on the connection between VI arousal language, anthropomorphism, and purchase intention, it is crucial to recognize the limits of the research design and suggest possible future research avenues.

This research focused primarily on participants from 20 to 30 years old approximately, due to the fact that they are the most reachable sample population and from a research purpose point of view, are also reported as the primary audience of Vis on Instagram (Hype Auditor, 2021). Further research could validate the findings also with a greater participant pool including both younger and older generations.

Moreover, the study used as a visual stimulus a service that is primarily attended by women, thus potentially creating inconsistent results if the majority of the interviewed would have been men. Further research could investigate on a service that is more genderless and could potentially leave out gender biases.

Additionally, the survey was distributed in Italy and therefore the language employed was Italian. Further research could investigate other countries to check if the results are still acceptable in other contexts where there might be other cultural patterns influencing the way of perceiving VI.

Furthermore, using a non-probability sampling method has some limitations per se, for example, undercoverage bias, which means that the results of the study may not be accurate, or sampling bias since the selection of units included in the sample is based on ease of access.

As further matter, anthropomorphism was identified as a mediator on the relationship between purchase intention and VI arousal language, however, other elements could be identified and analyzed such as credibility, parasocial interaction, transparency, companionship and so on.

In addition, purchase intention could be a biased scale since people might say they intend to buy something in a survey setting, but their actual behavior could differ when faced with real-world purchase decisions influenced by factors like price or availability.

Lastly, it is important to keep in mind that research around VIs and the service sector is still in its infancy. As people become more familiar with the concept of VIs, people's reactions on these influencers might evolve.

4.4   CONCLUSIONS

The present study confirms that using high arousal language captions for promoting services in case of virtual influencers can significantly impact consumers' willingness to buy. The investigation offers new research avenues on virtual influencers and their social media rhetoric, as well as consumers' interactions with non-human agents in a broader context. This study contributes to the growing body of research on virtual influencers and provides evidence of the importance of arousal language in marketing strategies.

5 REFERENCES

Audrezet A, d. K. (2020). Authenticity under threat: when social media influencers need to go beyond self-presentation. *J Bus Res 117:557–569.*

Campbell C, F. J. (2020). More than meets the eye: the functional components underlying influencer marketing. *Bus Horiz 63, 469– 479.*

Schomer, A. (2019). Business Insider, Influencer marketing 2019: Why brands can't get enough of an $8 billion ecosystem driven by Kardashians, moms, and tweens.

Leung, F. F. (2022). Influencer Marketing Effectiveness. *Journal of Marketing.*

Dictionary, O. L. (s.d.). *Oxford Learner's Dictionary.* Tratto da Oxford Learner's Dictionary: https://www.oxfordlearnersdictionaries.com/definition/english/influencer?q=influencer

Shepherd, J. (2024, 01 05). *The Social Shepherd*. Tratto da The Social Shepherd: https://thesocialshepherd.com/blog/influencer-marketing-statistics#:~:text=69%25%20of%20Consumers%20Trust%20Influencers,recommendations%20they%20get%20from%20influencers

Nextplora. (2023, 03 20). *De-influencing: a shift towards authenticity in the age of skepticism*. Tratto da Nextplora: https://business.nextplora.com/de-influencing-a-shift-towards-authenticity-in-the-age-of-skepticism/

Thomas, V. L., & Fowler, K. (2021). Close Encounters of the AI Kind: Use of AI Influencers as Brand Endorsers. *Journal of Advertising 50*, 11–25.

Jing Daily. (2022). Tratto da Virtual influencers are the new faces of luxury campaigns in Asia.: https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma-noah/

Mediakix. (2019). *What Are CGI Influencers? Meet Instagram's Virtual Models*. Tratto da https://mediakix.com/blog/ cgi-influencers-instagram-models/ : https://mediakix.com/blog/ cgi-influencers-instagram-models/

Lee, S. (2021). The meanings of fashion on the social media of virtual influencer Lil Miquela. *J Digit Converg 19*, 323-333.

Moustakas, E., Lamba, N., Mahmoud, D., & Ranganathan, c. (2020). Blurring lines between fiction and reality: Perspectives of experts on marketing effectiveness of virtual influencers. *nternational Conference on Cyber Security and Protection of Digital Services (Cyber Security). IEEE*.

Ore, I. S. (2023, 12 21). *Safilo interrompe la collaborazione con Chiara Ferragni per violazione di accordi*. Tratto da Il Sole 24 Ore: https://www.ilsole24ore.com/art/safilo-chiude-chiara-ferragni-violazioni-impegni-contrattuali-AFQ9U68B?refresh_ce=1

Stampa, L. (2024, 01 05). *Coca cola: stop allo spot con Chiara Ferragni. La decisione dopo il caso Balocco*. Tratto da La Stampa: https://finanza.lastampa.it/News/2024/01/05/coca-cola-stop-allo-spot-con-chiara-ferragni-la-decisione-dopo-il-caso-balocco/OTdfMjAyNC0wMS0wNV9UTEI

Baklanov, N. (2019). The Top Instagram Virtual Influencers in 2019 Hype Auditor. *Hype Auditor*.

Arsenyan, J., & Mirowska, A. (2021). Almost human? A comparative case study on the social media presence of virtual influencers. *Int. J. Hum. Comput. Stud. 155*.

Chen, L., Siu Ting, J. K., Tao, C., Tze Yen, M. L., Jia En, C. O., & ZhaoXi, P. (2022). Authentically Fake? How Consumers Respond to the Influence of Virtual Influencers. *Journal of Advertising*.

Choi, S. M., & Rifon, N. (2012). It is a match: the impact of congruence between celebrity image and consumer ideal self on endorsement effectiveness. *Psychology & Marketing 29*, 639-650.

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*, 4-13.

Park, H. J., & Lin, L. (2020). The effects of match-ups on the consumer attitudes toward internet celebrities and their live streaming contents in the context of product endorsement. *Journal of Retailing and Consumer Services 52*.

Silva, R., Sampaio, A., & Rodrigues, P. (2020). The Role of Digital Influencers on Buying Intention. *Marketing and Smart Technologies*, 137-145.

Lee, J., & Watkins, B. (2016). YouTube vloggers' influence on consumer luxury brand perceptions and intentions. *J Bus Res*, 5753–5760.

Seymour, M., Yuan, L., Dennis, A., & Riemer, K. (2019). Crossing the uncanny valley? Understanding affinity, trustworthiness, and preference for more realistic virtual humans in immersive environments. *52nd Hawaii International Conference on System Sciences*.

Hiort, A. (2022). Why the tech industry loves virtual influencers. *Virtual Humans*.

de Brito Silva, M., de Oliveira Ramos Delfino, L., Alves Cerqueira, K., & de Oliveira Campos, P. (2022). Avatar marketing: a study on the engagement and authenticity of virtual influencers on Instagram. *Soc. Netw. Anal. Min. 12, 130*.

Mrad, M., Ramadan, Z., & Nasr, L. (2022). Computer-generated influencers: the rise of digital personalities. *Mark Intell Plan*.

Wang, L., & Lee, J. H. (2019). The effect of K-beauty SNS influencer on Chinese consumers' acceptance intention of new products: Focused on elaboration likelihood model (ELM). *Fashion & Textile Research Journal, 21(5)*, 574–585.

Shin, J., & Lee, S. (2022). Intimacy between actual users and virtual agents: Interaction through "likes" and "comments". *14th International Conference on Ubiquitous Information Management and Communication (IMCOM)*.

Köhler, C. F., Rohm, A. J., De Ruyter, K., & Wetzels, M. (2011). Return on interactivity: The impact of online agents on newcomer adjustment. *Journal of Marketing 75*, 93-108.

Schanke, S., Burtch, G., & Ray, G. (2021). Estimating the impact of "humanizing" customer service chatbots. *Information Systems Research, 32*, 736- 751.

Kim Eunjin, A., Kim, D, E, Z., & Shoenberger, H. (2023). The next hype in social media advertising: Examining virtual influencers' brand endorsement effectiveness. *Frontiers in Psychology, 14* .

Yang, F., Huan, C., & Qian, K. (2021). An expert with whom i can identify: the role of narratives in influencer marketing. *International Journal of Advertising, 40*, 972-993.

Praničević, D. G. (2020). Impact of influencers to the selection of certain products and services. *Entrenova-Enterprise Research Innovation, 6(1)*, 422-429.

Marriott, H. (2018, 02 27). *Miquela the 'cyborg' and handbag drones – Milan fashion week's weird vision of the future*. Tratto da The Guardian: https://www.theguardian.com/fashion/2018/feb/27/miquela-cyborg-handbag-drones-milan-fashion-week-weird-vision-future

Lee, J. E., & Watkins, B. (2016). YouTube vloggers' influence on consumer luxury brand perceptions and intentions. *J. Bus. Res. 69(12)*, 5753–5760.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing 49(4)*, 41-50.

Murray, K. B., & Schlacter, J. L. (1990). The impact of services versus goods on consumers' assessment of perceived risk and variability. *Journal of the Academy of Marketing Science 18(1)*, 51-65.

Gursoy, D., & McCleary, K. W. (2004). An integrative model of tourists' information search behavior. *Annals of Tourism Research 31(2)*.

Ibáñez-Sánchez, S., Flavián, M., Casaló, L., & Belanche, D. (2022). Influencers and brands successful collaborations: A mutual reinforcement to promote products and services on social media. *Journal of Marketing Communications, 28(5)*, 469-486.

De Brito Silva, M. J., de Oliveira Ramos Delfino, L., Alves Cerqueira, K., & de Oliveira Campos, P. (2022). Avatar marketing: a study on the engagement and authenticity of virtual influencers on Instagram. *Social Network Analysis and Mining, 12(1), 130*.

Mirowska, A., & Arsenyan, J. (2023). Sweet escape: The role of empathy in social media engagement with human versus virtual influencers. *International Journal of Human-Computer Studies, 174,*.

Xie-Carson, L., Magor, T., Benckendorff, P., & Hughes, K. (2023). All hype or the real deal? Investigating user engagement with virtual influencers in tourism. *Tourism Management, Volume* 99.

Xie-Carson, L., Benckendorff, P., & Hughes, K. (2023). Keep it# Unreal: Exploring Instagram users' engagement with virtual influencers in tourism contexts. *Journal of Hospitality & Tourism Research*.

Baudier, P., de Boissieu, E., & Duchemin, M. H. (2023). Source credibility and emotions generated by robot and human influencers: the perception of luxury brand representatives. *Technological Forecasting and Social Change, 187*.

Cascio Rizzo, G. L., Villarroel Ordenes, F., Pozharliev, R., De Angelis, M., & Costabile, M. (2024). How High-Arousal Language Shapes Micro- Versus Macro-Influencers' Impact. *Journal of Marketing, 0(0)*.

Mallipeddi, R., Kumar, S., Sriskandarajah, C., & Zhu, Y. (2018). A framework for analyzing influencer marketing in social networks: selection and scheduling of influencers.

Garbin Praničević, D. (2020). Impact of Influencers to the Selection of Certain Products and Services. *ENTRENOVA - ENTerprise REsearch InNOVAtion, 6(1)*, 422–429.

Djafarova, E., & Rushworth, C. (2017). Exploring the credibility of online celebrities' Instagram profiles in influencing the purchase decisions of young female users. *Computers in Human Behavior 68*, 1-7.

Belanche, D. (2019). Ethical limits to the intrusiveness of online advertising formats: A critical review of Better Ads Standards. *Journal of Marketing Communications 25(7)*, 685-701.

van Loggerenberg, M. J., Enslin, C., & C., T.-S. (2021). Towards a definition for branded entertainment: An exploratory study."Journal of Marketing Communications, 27(3). *Journal of Marketing Communications, 27(3)*, 322-342.

Seymour, M., Yuan, L., Dennis, A., & Riemer, K. (2020). Facing the artificial: Understanding affinity, trustworthiness, and preference for more realistic digital humans. *53rd Hawaii International Conference on System Sciences*, 4673-4683.

Nowak, K. L., Hamilton, M. A., & Hammond, C. C. (2009). The effect of image features on judgements of homophily, credibility, and intention to use as avatars in future interactions. *Media Psychology, 12(1)*, 50-76.

Riedl, R., Mohr, P. N., Kenning, P. H., Davis, F. D., & Heekeren, H. R. (2014). Trusting humans and avatars: A brain imaging study based on evolution theory. *Journal of Management Information Systems, 30(4)*, 83-114.

Kádeková, Z., & Holiencinova, M. (2018). Influencer marketing as a modern phenomenon creating a new frontier of virtual opportunities. *Communication Today, 9(2)*, 90-105.

Robinson, B. (2020). Towards an ontology and ethics of virtual influencers. *Australasian Journal of Information Systems, 24*, 1-8.

Hsu, C.-L., Lin, J. C.-C., & Chiang, H.-S. (2013). The effects of blogger recommendations on customers' online shopping intentions. *Internet Research, 23(1)*, 69-88.

Park, H., Xiang, Z., Josiam, B., & Kim, H. M. (2014). Personal profile information as cues of credibility in online travel reviews. *An International Journal of Tourism and Hospitality Research, 25(1)*, 13-23.

Jiménez-Castillo, D., & Sánchez-Fernández, R. (2019). The role of digital influencers in brand recommendation: Examining their impact on engagement, expected value and purchase intention. *International Journal of Information Management, 49*, 366-376.

Hirschmann, R. (2021, 04 07). *Statista*. Tratto da Virtual influencers' impact on purchasing decisions Singapore 2020: https://www.statista.com/statistics/1103884/singapore-impact-of-virtual-influencers- on-purchasing-decision/

Gratch, J., Wang, N., Gerten, J., Fast, E., & Duffy, R. (2007). Creating rapport with virtual agents. *In Pelachaud C., Martin J. C., André E., Chollet G., Karpouzis K., & Pelé D. (Eds.), Intelligent Virtual Agents.* Lecture Notes in Computer Science. (pp. 125-138).

Khan, R. F., & Sutcliffe, A. (2014). Attractive agents more persuasive. *International Journal of Human-Computer Interaction, 30(2)*, 142-150.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In Action control: From cognition to behavior. *Berlin, Heidelberg: Springer Berlin Heidelberg.*, 11-39.

Huang, Y., Jim Wu, Y., Wang, Y., & Boulanger, N. C. (2011). Decision making in online auctions. *Management Decision, 49(5)*, 784–800.

Hosein, N. Z. (2012). Measuring Purchase Intention of Visitors to The Auto Show. *Journal of Management and Marketing Research*, 1–17.

Chi, H.-K. (2011). The Influences of Perceived Value on Consumer Purchase Intention: The Moderating Effect of Advertising Endorser. *The Journal of International Management Studies*.

Baklanov, N. (2022, 12 21). *The top virtual instagram influencers in 2022*. Tratto da HypeAuditor: https://hypeauditor.com/blog/the-top-virtual-instagram-influencers-in-2022/#57--of-virtual-influencers--accounts-are-losing-followers

Kotler, P., & Armstrong, G. (2011). *Principles of marketing 14th edition.* New Jersey: Prentice Hall.

Black, D. (2012). The virtual idol: Producing and consuming digital femininity. *Idols and celebrity in Japanese media culture*, 209–228.

Black, D. (2008). The virtual ideal: Virtual idols, cute technology and unclean biology. *Journal of Media & Cultural Studies, vol. 22*, 37–50.

Conti, M., Gathani, J., & Tricomi, P. P. (2022). Virtual influencers in online social media. *IEEE Communications Magazine, 60(8)*, 86-91.

Tang, M. T., Zhu, M. V., & Popescu, V. (2021). AlterEcho: loose AvatarStreamer coupling for expressive VTubing. *IEEE ISMAR*, 128-137.

Forsey, C. (2019). These influencers are computer-generated: The future of marketing, or untrustworthy advertising? *Hubspot*.

Creasey, M. C., & Vázquez Anido, A. (2020). *Virtual influencing: Uncharted frontier in the uncanny valley.* Lund University Publications.

Ho, C. C., & MacDorman, K. F. (2010). Revisiting the Uncanny Valley Theory: Developing and Validating an Alternative to the Godspeed Indices. *Computers in Human Behavior 26 (6)*.

Molin, V., & Nordgren, S. (2019). Robot or Human? – The Marketing Phenomenon of Virtual Influencers – A Case Study about Virtual Influencers' Parasocial Interaction on Instagram. *Master Thesis*.

Katsyri, J., Forger, K., Makarainen, K., & Takala, T. (2015). A Review of Empirical Evidence on Different Uncanny Valley Hypotheses: Support for Perceptual Mismatch as One Road to The Valley of Eeriness. *Frontiers in Psychology 6*.

Block, E., & Lovegrove, R. (2021). Discordant Storytelling, 'Honest Fakery', Identity Peddling: How Uncanny CGI Characters Are Jamming Public Relations and Influencer Practices. *Public Relations Inquiry 10 (3)*, 265–93.

Stein, J. P., Linda Breves, P., & Anders, N. (2022). Parasocial interactions with real and virtual influencers: The role of perceived similarity and human-likeness. *New Media & Society*.

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.

Cascio Rizzo, G. L., Berger, J., & Villarroel Ordenes, F. (2023). What Drives Virtual Influencer's Impact?

Berger, J. (2011). Arousal Increases Social Transmission of Information. *Psychological Science, 22 (7)*, 891–93.

Yin, D., Bond, S. D., & Zhang, H. (2017). Keep Your Cool or Let It Out: Nonlinear Effects of Expressed Arousal on Perceptions of Consumer Reviews. *Journal of Marketing Research, 54 (3)*, 447–63.

Pogacar, R., Shrum, L., & Lowrey, T. M. (2018). The Effects of Linguistic Devices on Consumer Information Processing and Persuasion: A Language Complexity× Processing Mode Framework. *Journal of Consumer Psychology, 28 (4)*, 689–711.

Luangrath, A. W., Xu, Y., & Wang, T. (2023). Paralanguage Classifier (PARA): An Algorithm for Automatic Coding of Paralinguistic Nonverbal Parts of Speech in Text. *Journal of Marketing Research, 60 (2)*, 388–408.

Moore, S. G., & Lafreniere, K. C. (2020). How Online Word-of-Mouth Impacts Receivers. *Consumer Psychology Review, 3 (1)*, 34–59.

Berger, J., & Milkman, K. L. (2012). What Makes Online Content Viral? *Journal of Marketing Research, 49 (2)*, 192–205.

Herhausen, D., Ludwig, S., Wulf, J., Grewal, D., & Schoegel, M. (2019). Detecting, Preventing, and Mitigating Online Firestorms in Brand Communities. *Journal of Marketing, 83 (3)*, 1–21.

Kanuri, V. K., Chen, Y., & Sridhar, S. (2018). Scheduling Content on Social Media: Theory, Evidence, and Application. *Journal of Marketing, 82 (6)*, 89–108.

Tellis, G. J., MacInnis, D. J., Tirunillai, S., & Zhang, Y. (2019). What Drives Virality (Sharing) of Online Digital Content? The Critical Role of Information, Emotion, and Brand Prominence. *Journal of Marketing, 83 (4)*, 1–20.

Weingarten, E., & Berger, J. (2017). Fired Up for the Future: How Time Shapes Sharing. *Journal of Consumer Research, 44 (2)*, 432–47.

Haan, P., & Berkey, C. (2002). A Study of the Believability of the Forms of Puffery. *Journal of Marketing Communications, 8 (4)*, 243–56.

Eisend, M., & Tarrahi, F. (2022). Persuasion Knowledge in the Marketplace: A Meta-Analysis. *Journal of Consumer Psychology, 32 (1)*, 3–22.

Stern, B. B. (1988). Figurative Language in Services Advertising: The Nature and Uses of Imagery. *Advances in consumer research, 15(1)*.

George, W., & Berry, L. (1981). Guidelines for the advertising of services. *Business Horizons, Vol. 24*, 52-6. .

Legg, D., & Baker, J. (1987). Advertising Strategies for Service Firms. Add Value to Your Service. *American Marketing Society*, 163-8. .

MacInnis, D. J., & Price, L. L. (1987). The Role of Imagery in Information Processing: Review and Extensions. *Journal of Consumer Research, 13*, 473-491.

Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic Consumption: Emerging Concepts, Methods, and Propositions. *Journal of Marketing, 46*, 2-10.

Friestad, M., & Thorson, E. (1986). Emotion-Eliciting Advertising: Effects on Long Term Memory and Judgment. *Advances in Consumer Research, Volume 13,*.

Urwin, S. (1975). Customised Communications': a Concept for Service Advertising. *Advertising Quarter: Vol.4*, 28-30.

Grove, S., Pickett, G., & Laband, I. (1955). An Empirical Examination of Factual Information Content among Service Adverts. *Services Industries Journal, Vol. 15*, 216-33.

Young, R. (1981). The Advertising of Consumer Services and the Hierarchy of Eflects. *Donnelly and George, Marketing of Services*, 196-9.

Fong, T., Nourbakhsh, I., & Dautenhahn, K. (2003). A survey of socially interactive robots. *Robotics and Autonomous Systems 42*, 143–166.

Admoni, H., & Scassellati, B. (2012). A Multi-Category Theory of Intention. *Proceedings of COGSCI 2012*, (p. pp. 1266–1271). Sapporo, Japan.

Epley, N., Waytz, A., & Cacioppo, J. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review 114*, 864–886.

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DiSalvo, C., & Gemperle, F. (2003). From seduction to fulfillment: the use of anthropomorphic form in design. *Proceedings of the 2003 International Conference on Designing Pleasurable Products and Interfaces*, pp. 67–72.

DiSalvo, C.F., G., F., F., J., & Kiesler, S. (2002). All robots are not created equal: the design and perception of humanoid robot heads. *4th Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniqes*, 321– 326.

Mori, M. (1970). The Uncanny Valley.

Lee, S., Lau, I., Kiesler, S., & Chiu, C.-Y. (2005). Human Mental Models of Humanoid Robots. *Proceedings of the 2005 IEEE International Conference on Robotics and Automation*, 2767–2772.

Schmitz, M. (2011). Concepts for lifelike interactive objects. *Proceedings of the Fifth International Conference on Tangible, Embedded, and Embodied Interaction*, 157–164.

Lee, S., Lau, I., Kiesler, S., & Chiu, C.-Y. (2005). Human Mental Models of Humanoid Robots. *Proceedings of the 2005 IEEE International Conference on Robotics and Automation*, 2767–2772.

Kiesler, S., & Goetz, J. (2002). Mental models of robotic assistants. *CHI 2002 Extended Abstracts on Human Factors in Computing Systems*, 576–577.

Blut, M., Wang, C., Wünderlich, N., & Brock, C. (2021). Understanding anthropomorphism in service provision: a meta-analysis of physical robots, chatbots, and other AIUnderstanding anthropomorphism in service provision: a meta-analysis of physical robots, chatbots, and other AI. *J. Acad. Market. Sci. 49*, 632–658.

Qiu, L., & Benbasat, I. (2009). Evaluating anthropomorphic product recommendation agents: a social relationship perspective to designing information systems. *J. Manag. Inf. Syst. 25 (4)*, 145–182.

Verhagen, T., Van Nes, J., Feldberg, F., Dolen, V., & W. (2014). Virtual customer service agents: using social presence and personalization to shape online service encounters. *J. Computer-Mediated Commun. 19 (3)*, 529–545.

Choudhry, A., Han, J., Xu, X., & Huang, Y. (2022). "I felt a little crazy following a doll" Investigating real influence of virtual influencers on their followers. *ACM Human-Comp. Interac. 6*, 1–28.

Kim, S., Schmitt, B., & Thalmann, N. (2019). Eliza in the uncanny valley: anthropomorphizing consumer robots increases their perceived warmth but decreases liking. *Market. Lett. 30*, 1–12.

MacDorman, K., Green, R., Ho, C., & Koch, C. (2009). Too real for comfort? Uncanny responses to computer generated faces. *Comput. Hum. Behav. 25 (3)*, 695–710.

Epley, N., Waytz, A., Akalis, S., & Cacioppo, J. (2008). When we need a human: motivational determinants of anthropomorphism. *Soc. Cognit. 26 (2)*, 143–155.

Gray, H., Gray, K., & Wegner, D. (2007). Dimensions of mind perception. *Science 315 (5812)*.

Lee, S., Lee, N., & Sah, Y. (2020). Perceiving a mind in a chatbot: effect of mind perception and social cues on co-presence, closeness, and intention to use. *Int. J. Hum. Comput. Interact. 36 (10)*, 930–940.

Lee, J., Kim, K., Lee, S., & Shin, D. (2015). Can autonomous vehicles be safe and trustworthy? Effects of appearance and autonomy of unmanned driving systems. *Int. J. Hum. Comput. Interact. 31 (10)*, 682–691.

Wu, M., Wang, N., & Yuen, K. (2023). Deep versus superficial anthropomorphism: exploring their effects on human trust in shared autonomous vehicles. *Comput. Hum. Behav. 141, 107614*.

Landwehr, J., McGill, A., & Herrmann, A. (2011). It's got the look: the effect of friendly and aggressive "facial" expressions on product liking and sales. *J. Market. 75 (3)*, 132–146.

Fernandes, T., & Oliveira, E. (2021). Understanding consumers' acceptance of automated technologies in service encounters: drivers of digital voice assistants adoption. *J. Bus. Res. 122,*, 180–191.

Huang, W., Leong, Y. C., & Ismail, N. A. (2024). The influence of communication language on purchase intention in consumer contexts: the mediating effects of presence and arousal. *Current Psychology, 43(1)*, 658-668.

Zhang, X., Shi, Y., Li, T., Guan, Y., & Cui, X. (2023). How Do Virtual AI Streamers Influence Viewers' Livestream Shopping Behavior? The Effects of Persuasive Factors and the Mediating Role of Arousal. *Information Systems Frontiers, 1-32*.

Hype Auditor. (2021). *The top virtual Instagram influencers in 2021*. Tratto da Hype Auditor Blog: https://hypeauditor.com/blog/the-top-instagram-virtual-influencers-in-2021/

6 APPENDIX

PRE – TEST

DESCRIPTIVE STATISTICS: GENDER

In quale genere ti identifichi?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uomo	24	48.0	48.0	48.0
	Donna	21	42.0	42.0	90.0
	Non binario	1	2.0	2.0	92.0
	Preferisco non dirlo	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

In quale genere ti identifichi?
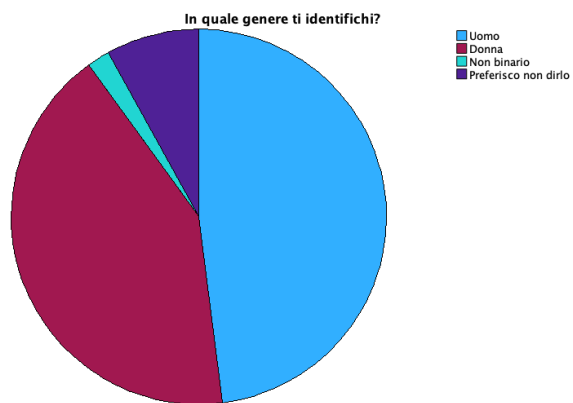
DESCRIPTIVE STATISTICS: AGE

Statistics

Quanti anni hai?

N	Valid	50
	Missing	0
Mean		28.0600
Median		23.0000
Mode		23.00
Std. Deviation		11.66437
Variance		136.058
Range		56.00
Minimum		18.00
Maximum		74.00
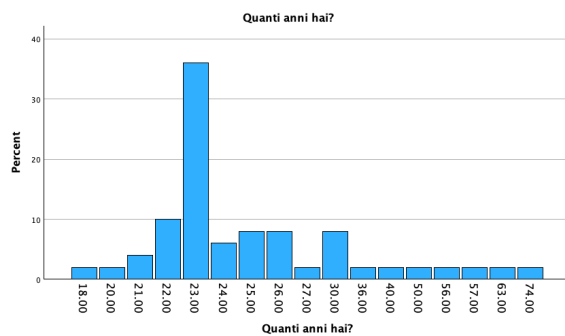
Quanti anni hai?

DESCRIPTIVE STATISTICS: NATIONALITY

48

Quale è la tua nazionalità?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Italiana	50	100.0	100.0	100.0

Quale è la tua nazionalità?

Quale è la tua nazionalità?

DESCRIPTIVE STATISTICS: EDUCATION

Quale è il livello dell'istruzione più alto che hai ottenuto?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Scuola media	1	2.0	2.0	2.0
	Diploma superiore	10	20.0	20.0	22.0
	Laurea triennale	21	42.0	42.0	64.0
	Laurea magistrale	16	32.0	32.0	96.0
	PhD or oltre	2	4.0	4.0	100.0
	Total	50	100.0	100.0	
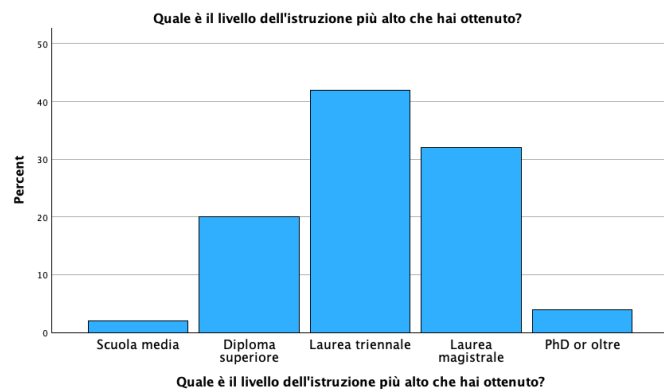
Quale è il livello dell'istruzione più alto che hai ottenuto?

Quale è il livello dell'istruzione più alto che hai ottenuto?

DESCRIPTIVE STATISTICS: OCCUPATION

Quale è la tua attuale occupazione?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Studente	26	52.0	52.0	52.0
	Lavoratore	22	44.0	44.0	96.0
	Disoccupato	2	4.0	4.0	100.0
	Total	50	100.0	100.0	

Quale è la tua attuale occupazione?
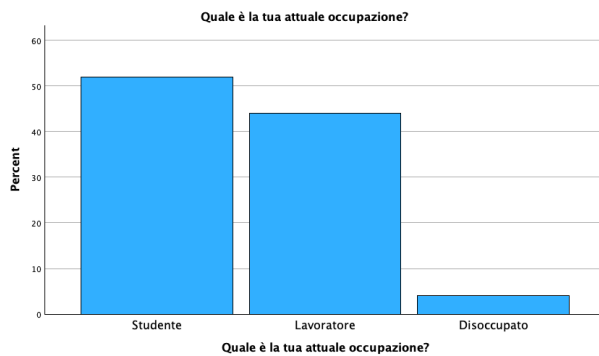
FACTOR ANALYSIS: MANIPULATION CHECK OF THE X

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.801	93.358	93.358	2.801	93.358	93.358
2	.159	5.316	98.673			
3	.040	1.327	100.000			

Extraction Method: Principal Component Analysis.

Communalities

	Initial	Extraction
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. La didascalia che ho appena visto, mi ha suscitato entusiasmo	1.000	.956
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. La didascalia che ho appena visto mi ha suscitato un sentimento di azione	1.000	.953
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. La didascalia che ho appena visto mi ha suscitato una sensazione di energia	1.000	.891

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. La didascalia che ho appena visto, mi ha suscitato entusiasmo	.978
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. La didascalia che ho appena visto mi ha suscitato un sentimento di azione	.976
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. La didascalia che ho appena visto mi ha suscitato una sensazione di energia	.944

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

KMO and Bartlett's Test

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	190.076
	df	3
	Sig.	<.001

RELIABILITY ANALYSIS: MANIPULATION CHECK OF THE X

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.964	.964	3

INDEPENDENT SAMPLE T-TEST

Group Statistics

	IV	N	Mean	Std. Deviation	Std. Error Mean
MCX	1.00	22	5.5758	1.65290	.35240
	.00	28	2.5476	1.29962	.24560

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One–Sided p	Two–Sided p	Mean Difference	Std. Error Difference	Lower	Upper
MCX	Equal variances assumed	3.898	.054	7.257	48	<.001	<.001	3.02814	.41730	2.18911	3.86717
	Equal variances not assumed			7.050	39.168	<.001	<.001	3.02814	.42954	2.15942	3.89685

MAIN TEST

DESCRIPTIVE STATISTICS: GENDER

In che genere ti identifichi?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uomo	64	41.3	41.3	41.3
	Donna	76	49.0	49.0	90.3
	Non binario	3	1.9	1.9	92.3
	Preferisco non rispondere	12	7.7	7.7	100.0
	Total	155	100.0	100.0	

In che genere ti identifichi?

DESCRIPTIVE STATISTICS: AGE

Statistics

Quanti anni hai?

N	Valid	155
	Missing	0
Mean		30.3935
Median		24.0000
Mode		23.00
Std. Deviation		12.15137
Variance		147.656
Range		45.00
Minimum		18.00
Maximum		63.00

Quanti anni hai?

DESCRIPTIVE STATISTICS: NATIONALITY

Quale è la tua nazionalità?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Italiana	155	100.0	100.0	100.0

Quale è la tua nazionalità?

DESCRIPTIVE STATISTICS: EDUCATION

Quale è il tuo più alto livello di istruzione?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Scuola media	1	.6	.6	.6
	Diploma superiore	40	25.8	25.8	26.5
	Laurea triennale	76	49.0	49.0	75.5
	Laurea magistrale	35	22.6	22.6	98.1
	PhD o oltre	3	1.9	1.9	100.0
	Total	155	100.0	100.0	

Quale è il tuo più alto livello di istruzione?

DESCRIPTIVE STATISTICS: OCCUPATION

Quale è la tua attuale occupazione?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Studente	62	40.0	40.0	40.0
	Lavoratore	86	55.5	55.5	95.5
	Disoccupato	7	4.5	4.5	100.0
	Total	155	100.0	100.0	

Quale è la tua attuale occupazione?

FACTORIAL ANALYSIS: MEDIATOR

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.894	97.348	97.348	3.894	97.348	97.348
2	.062	1.562	98.910			
3	.034	.838	99.748			
4	.010	.252	100.000			

Extraction Method: Principal Component Analysis.

Communalities

	Initial	Extraction
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. La didascalia che ho visto è stata fatta da un umano	1.000	.963
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. La didascalia sembra realizzata da una persona reale	1.000	.989
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. La didascalia ha caratteristiche simili a quelle umane	1.000	.958
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 4. La didascalia è stata creata da un essere umano reale	1.000	.984

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. La didascalia che ho visto è stata fatta da un umano	.982
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. La didascalia sembra realizzata da una persona reale	.995
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. La didascalia ha caratteristiche simili a quelle umane	.979
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 4. La didascalia è stata creata da un essere umano reale	.992

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.867
Bartlett's Test of Sphericity	Approx. Chi-Square	1428.278
	df	6
	Sig.	<.001

RELIABILITY ANALYSIS: MEDIATOR

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.991	.991	4

FACTORIAL ANALYSIS: DEPENDENT VARIABLE

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.965	98.828	98.828	2.965	98.828	98.828
2	.028	.923	99.751			
3	.007	.249	100.000			

Extraction Method: Principal Component Analysis.

Communalities

	Initial	Extraction
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. Visiterò questo fornitore di servizi	1.000	.984
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. È probabile che mi rivolga a questo fornitore di servizi in futuro	1.000	.995
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. Terrò in considerazione questo fornitore di servizi in futuro	1.000	.986

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. Visiterò questo fornitore di servizi	.992
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. È probabile che mi rivolga a questo fornitore di servizi in futuro	.997
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. Terrò in considerazione questo fornitore di servizi in futuro	.993

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

KMO and Bartlett's Test

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		.725
Bartlett's Test of Sphericity	Approx. Chi–Square	1125.581
	df	3
	Sig.	<.001

RELIABILITY ANALYSIS: DEPENDENT VARIABLE

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.994	.994	3

FACTORIAL ANALYSIS: X MANIPULATION CHECK

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.964	98.815	98.815	2.964	98.815	98.815
2	.023	.768	99.583			
3	.013	.417	100.000			

Extraction Method: Principal Component Analysis.

Communalities

	Initial	Extraction
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. La didascalia che ho appena visto, mi ha suscitato entusiasmo	1.000	.987
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. La didascalia che ho appena visto mi ha suscitato un sentimento di azione	1.000	.992
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. La didascalia che ho appena visto mi ha suscitato una sensazione di energia	1.000	.986

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 1. La didascalia che ho appena visto, mi ha suscitato entusiasmo	.994
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 2. La didascalia che ho appena visto mi ha suscitato un sentimento di azione	.996
Indicare su una scala da 1 (completamente in disaccordo) a 7 (completamente d' accordo) in quale misura sei d'accordo o in disaccordo con le seguenti affermazioni – 3. La didascalia che ho appena visto mi ha suscitato una sensazione di energia	.993

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

KMO and Bartlett's Test

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		.783
Bartlett's Test of Sphericity	Approx. Chi–Square	1075.045
	df	3
	Sig.	<.001

RELIABILITY ANALYSIS: X MANIPULATION CHECK

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.994	.994	3

INDEPENDENT SAMPLE T-TEST

Group Statistics

	IV	N	Mean	Std. Deviation	Std. Error Mean
MCX	1.00	77	6.0130	1.62711	.18543
	.00	78	1.8632	1.06151	.12019

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means								
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
MCX	Equal variances assumed	13.395	<.001	18.829	153	<.001	<.001	4.14974	.22040	3.71433	4.58515
	Equal variances not assumed			18.779	130.536	<.001	<.001	4.14974	.22097	3.71259	4.58689

ONE-WAY ANOVA

Descriptives

DV

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
.00	78	1.8291	.99166	.11228	1.6055	2.0526	1.00	6.00
1.00	77	5.0476	2.17288	.24762	4.5544	5.5408	1.00	7.00
Total	155	3.4280	2.32985	.18714	3.0583	3.7976	1.00	7.00

ANOVA

DV

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	401.399	1	401.399	141.329	<.001
Within Groups	434.546	153	2.840		
Total	835.946	154			

REGRESSION ANALYSIS: MODEL 4

```
···············································································
Model  : 4
    Y  : DV
    X  : IV
    M  : MED

Sample
Size:  155

***************************************************************************
OUTCOME VARIABLE:
 MED

Model Summary
          R       R-sq       MSE         F        df1        df2          p
      .8103      .6566     1.9841   292.5157     1.0000   153.0000      .0000

Model
              coeff        se         t          p        LLCI       ULCI
constant     2.2564     .1595    14.1475      .0000     1.9413     2.5715
IV           3.8702     .2263    17.1031      .0000     3.4232     4.3173


***************************************************************************
OUTCOME VARIABLE:
 DV

Model Summary
          R       R-sq       MSE         F        df1        df2          p
      .7656      .5861     2.2763   107.6193     2.0000   152.0000      .0000

Model
              coeff        se         t          p        LLCI       ULCI
constant      .6104     .2595     2.3519      .0200      .0976     1.1232
IV           1.1283     .4136     2.7281      .0071      .3112     1.9455
MED           .5401     .0866     6.2370      .0000      .3690      .7112


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

Direct effect of X on Y
     Effect        se         t          p        LLCI       ULCI
     1.1283      .4136     2.7281      .0071      .3112     1.9455

Indirect effect(s) of X on Y:
          Effect     BootSE    BootLLCI   BootULCI
MED       2.0902      .3783     1.3722     2.8563

*********************** 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
```

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