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Faculty of Business Economics

Master of Management

Master's thesis

Showing your true self? Investigating how influencers' authenticity and credibility affect attitude towards promoted brands

Rabia Ghafoor

Thesis presented in fulfillment of the requirements for the degree of Master of Management, specialization Business Process Management

SUPERVISOR :

Prof. dr. Allard VAN RIEL



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This Master thesis was written during the COVID 19 crisis in the year 2020. This global health crisis might have had an impact on the overall research, writing and implementation process which are actually some of the foundations of this Thesis.

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ABSTRACT

Today's competitive markets have made it difficult for marketers to reach audiences efficiently. In this case, influencers help a lot by featuring the brand's products in their content so that customers can discover the brand and its products. However, customers prefer the content which is authentic, credible and is linked with the influencer's life in some context. Customers' demand for authentic and credible content makes it important to investigate which visual characteristics of influencers' images contribute towards authenticity and credibility. So, this research is about investigating if images' brightness, lightness, naturalness, average number of objects in images and presence of face in images have an impact on an influencer's authenticity and credibility. This research further explores if authenticity and credibility have an impact on attitude towards influencers and finally explores if attitude towards influencers impact brand attitude where influencer's fit with the brand is a moderator. After doing experiments and a survey, we concluded that according to our model, images' brightness, lightness, naturalness, average number of objects in images and presence of face in images do not have a significant impact on an influencer's authenticity and credibility. Moreover, our model showed that authenticity and credibility have an impact on attitude towards influencers and attitude towards influencers positively contribute to brand attitude where influencer's fit with the brand was proved as a moderator. This research makes it easy for brands to reach the right influencers in a short span of time.

1. INTRODUCTION

Social media is a common term that has a large scope. It refers to websites and applications that were constructed to enable people to share real-time content quickly and efficiently (Hudson, 2020). Technological developments have generated many new possibilities for communication on social media (Li & T, 2019). Social media apps like Facebook and Google+ enable people to reach and reconnect with another after a long time (Cam & Jameelah, 2013) so many people use it for communication purposes, while others use it to share content and knowledge about specific topics (Kietzmann et al., 2011). In the business world, social media allows brands to promote the products, connect with their customers and learn about their customers' experiences. On social media, retailers' goal is to post customer-relevant content to get maximum customers engagement (Hudson, 2020). In this way, they succeed in getting customers' trust and confidence in their products (Kietzmann et al., 2011). Marketers are using it not only for advertising but also for building a closer connection with their customers (Cam & Jameelah, 2013). Moreover, this advanced platform provides a means for building a brand image in consumers' minds and assists in the promotion of brand awareness (Gigante, 2018).

Unlike conventional mass-media outlets, social media permits people to get in contact with the audience instantaneously (Hudson, 2020). The traditional ways of advertising, like newspapers, billboards, TV and radio etc. were not effective as they did not let brands measure customers' feedback (O'Mahony & Meenaghan, 1998). However, the emergence of social media turned the game around as these platforms made it convenient for marketers to reach a massive number of customers better than other marketing channels and the customers are also inclined towards usage of digital ways like social media instead of traditional methods (Lang, 2016).

Hu et al. (2014) stated that there emerged an app on social media that got fame in a short time. Initially, this app was planned to be made only for photo-sharing purposes, but the founders decided to add social features too. So, they named this app 'Instagram,' which was a combination of two words: "instant" and "telegram". This app was different from other apps because its main focus was on sharing photos, and there had not been any photo-sharing app before (Hu et al., 2014). Instagram enabled content creators to build relationships with the audience based on trust and credibility (Sokolova & Kefi, 2020). Surprisingly, this app became the way of success for people who have vast knowledge in a specific field and can affect the purchase intentions of customers by delivering that knowledge: they are called influencers (Schmid, 2017). So, influencers can be described as individuals who have intensified their social media presence by generating innovative content (Sherer, 2020). According to Rose (2020), Instagram users who are credible and can convince people to buy and use a brand product or a service can be referred to as influencers.

Social media influencers are considered more relatable than traditional celebrities (Sherer, 2020), so brands started hiring Instagram influencers rather than the latter to convey their message to the people. This decision proved to be a good one as influencers can reach more people and also they can create a greater effect on consumers' purchase intentions by their content (Jin et al. 2019). They exhibit credibility, attractiveness and reliability, which makes them able to influence their audience (Rose, 2020). Influencers fall into different categories i.e., nano-influencers, micro-

influencers, macro-influencers and others depending on the number of followers and level of influence (Schmid, 2017).

The significant reliance of social media on visual content enables marketers to grab consumers' attention and the types of visual content (videos or infographics etc.) help in maintenance of reputation (Litsa, 2016). Social media users value visual content as they are more likely to click and share posts which include images (Flynn, 2019). Moreover, they prefer images over text as images are able to explain complex concepts quite well and their simplicity is appealing. Images can refresh minds when emotions are associated with them (Litsa, 2016). Beautiful images are not enough and brands on Instagram share images which can create genuine connection between products and audience's expectations (Thomas, n.d).

Deciding which types of images work ideally on social media has always been a problematic task as social media's trends are continuously changing ("Colors and Social Media Images: What works", 2020) Moreover, each social media platform works differently and therefore, the use of contrast, white space, saturation, number and of colors work differently on social media. According to Dudharejia (2018), generally brighter images, images with a lot of work place, images with a consistent theme and with low saturation levels are liked by the audience . Research in 2018 revealed that images liked by people have qualities like brightness, clarity, liveliness and ingenuity (Dudharejia, 2018). According to Balm (2014), humans process visual content at a shocking speed. The human brain can recognise a familiar face within 380 milliseconds whereas it can recognise a familiar object in 100 milliseconds. Similarly, the response towards brightness of images is immense. Bright colored images attract our attention as our brain is trained to react to them (Balm, 2014). Naturalness plays an important role in making images credible as people can instantaneously tell when images are not real and natural and nowadays, they prefer to see natural and credible content instead of non-credible content (Chopra, 2020). Moreover, trends regarding lightness and darkness of images, lighter images are perceived better than darker images by people ("Colors and Social Media Images: What works", 2020).

Authenticity and credibility are keys for successful influencer marketing (Pavlika, 2019) and nothing shows authenticity other than passion and creativity (Pavlika, 2018). Moreover, it is important for brands to select authentic influencers for their product advertisements as authenticity makes the influencers appealing to the audience (Dholakiya, 2015). A recent survey showed that 32% of micro-influencers think that authenticity is the most important element for maintaining followers' engagement (Freier, 2018). So, brands should spend resources to reach influencers who are authentic, credible and who align well with the brand's values (Pavlika, 2019).

This research is about investigating to what extent visual characteristics of the images used make an influencer's content authentic and credible. Furthermore, it focuses on studying the impact of authenticity and credibility on consumers' attitude towards influencers. It also focuses on how the audience's attitude towards influencers helps in generating a positive brand attitude in the end. Precisely, this research is built around two research questions:

RQ1: *To what extent do image properties like lightness, darkness, naturalness, brightness, presence of face and presence of objects affect the perceived authenticity of an influencer?*

RQ2: *To what extent do image properties like lightness, darkness, naturalness, brightness, presence of face and presence of objects affect the perceived authenticity of an influencer?*

2. LITERATURE REVIEW

2.1 Social media

According to Kaplan and Hanlein (2010), social media emerged about 20 years back when Bruce and Susan Abelson created a platform that brought diary writers together in a community and named this platform 'Open diary'. The growing accessibility of fast Internet added much to this concept, which helped create social networking sites like MySpace and Facebook (Kaplan & Hanlein, 2010). Social media is distinctive because this platform is extensive and uncensored unlike other platforms (Hudson, 2020).

Social media refers to websites and mobile applications that enable users to create and share content quickly and efficiently. The content sharing feature of social media affects how we live and do business (Hudson, 2020). According to Cam and Jameelah (2013), social media enabled us to see what is happening globally through real-world accounts instead of any news channel. Social media sites like Facebook allow us to find and reconnect people even after a long time of being apart. Similarly, the youth today is well informed of technological trends than the older generations. Companies are also able to connect efficiently with customers, which helps in the production of better quality products and services (Cam & Jameelah, 2013).

Social media has affected the entertainment industry. People can now watch videos, read books or play games (Cam & Jameelah, 2013) online. There are seven essential building blocks of social media that depict the features and their related implications. These are Identity, Groups, Reputation, Relationship, Presence, Sharing and Conversations. These building blocks are neither mutually exclusive, nor any social media activity needs to contain every building block (Kietzmann et al., 2011).

Social media can be classified into six different types, each of which has its own set of challenges and opportunities for the users. They are collaborative projects, blogs, content communities, social networking sites, virtual game worlds and virtual social worlds (Kaplan & Hanlein, 2010). The present study focuses on social networking sites.

2.2 Visual content on social media

Visual content comprises different types of content and the important ones include images, presentations, data graphs, infographics, videos and podcasts (Litsa, 2016). Images are one of the commonly shared contents over social media. It was found to be a good practice to incorporate images in social media posts (Hudson, 2020). Visual content on social media attracts the audience, and this way, it gains interaction with them (Balm, 2014).

Interestingly, research in cognitive psychology revealed that images make communications strong, induce feelings and can easily deliver vast information in less time (Li, 2019). In this regard, images' colors play an essential role as they stimulate feelings, and consistency in color themes creates a clear reflection of brands (Khanea, 2020). Strong visual content contributes towards

boosting the perceived credibility of brands because it allows content marketers to reinforce their message by delivering quality through communication (n.d, 2020). According to Litsa (2016), users prefer images over text as their simplicity is attractive to humans, and they refresh users' minds especially when feelings are associated with them.

People consider images important as they consider images a scheme to make memories, build credibility, extract particular stories and promote sentiments (Foster, 2017). Moreover, visual content was found appealing to human brains differently. It was stated in the existing research that 90% of details conveyed to the human brain comprises visuals, and the brain processes images 60000 times faster than textual information (n.d, 2020).

2.3 Social media vs traditional media for advertisements

Social media is a collection of web-based applications that formed the technical basis of Web 2.0 and enabled the making transfer of user-generated content (Kaplan & Hainlein, 2010). In contrast, traditional media includes everything that uses traditional media channels e.g., radio, television etc. (Khillar, 2020). Before the evolution of social media, traditional media was the only way adopted by marketers to spread their message among the audience (Lang, 2016). However, nowadays, social media provides many privileges for information creation and sharing among audiences (Khillar, 2020).

In today's era, the shift from traditional media to social media for advertisements is considered one of the most effective business decisions (Lang, 2018). The business world, and especially the area of advertising, got affected by social media that allows marketers to spread their message to a larger audience than ever before (Gigante, 2018). According to Lang (2016), social media offers more accuracy than traditional media, and reaching marketing segments efficiently is relatively easier than before. In the same way, social media is cheaper than traditional media and allows brands to interact with an equal or more audience than traditional media (Lang, 2016). In terms of engagement, social media is all about getting engaged with the audience, whereas traditional media is about one-way communication with as many people as possible (Khillar, 2020). Nowadays, modern marketers are using social media to track consumer behavior and technological trends (Gigante, 2018).

2.4 Fashion industry on social media

According to Sudha and Sheena (2017), industries trending in influencer marketing are important for brands as it is always wise for brands to partner with influencers belonging to the same industry. Major industries in this field are fashion, lifestyle, entertainment, sports etc and the fashion industry is most common among influencer marketing.

The quick spread of fashion-related information and the immediate response of the audience towards fashion content leads to the success of influencer marketing in the fashion industry (Effects of influencer marketing, 2019). Statistics show that 25% of the sponsored posts on Instagram talk about fashion content (Effects of influencer marketing, 2020). The constant transition in fashion trends allows people to take interest in the buying process (Sudha & Sheena, 2017).

The hashtag #fashion is one of the commonly used hashtags on Instagram, and fashion brands are among the list of active industries for investing in Instagram influencers (Influencer marketing in the fashion industry, 2019). According to Sudha and Sheena (2017), fashion blogs have proven to be one of the most effective ways of providing experience and recommendations to the customers. Today, fashion bloggers have set up a proficient business where they generate a massive number of followers and are perceived as credible tastemakers (Sherer, 2020). So, this industry is not only the most common in influencer marketing but it also provides means of collaboration between brands and bloggers (Sudha & Sheena, 2017).

2.5 Advertisements through celebrity endorsements

Brands are also considering celebrity endorsements as a modern technique to reach their customers. They engage with celebrities in order to let customers focus on the endorsed products. According to O'Mahony and Meenaghan (1998), some of the characteristics of endorsers through which customers are most likely to be affected include perceived credibility and expertise. These two features may significantly affect the purchase intentions of the customers. Other studies showed that customers also demand a congruence between endorser type and the type of product which they endorse, meaning that an endorser should have expertise in the field he or she is advertising (O'Mahony & Meenaghan, 1998).

2.6 The rise of Instagram

According to "The story of instagram" (2019), in 2009, there was a HTML5 prototype with features like check-in, post plans as well as share photos. Soon in 2010, two venture capitalists got admired by the idea of this app, and they decided to invest \$500,000 in it. With this funding, Systrome, the designer of this app, along with a team of two members, re-worked on this app with the main idea of "photo sharing" in mind. Soon they added a communication feature that was missing before and named this app "Instagram" which was the combination of 'instant' and 'telegram' ("The story of instagram", 2019).

Instagram got a lot of fame among the users as it was the first photo-sharing app ("The story of instagram", 2019). Upto 1 billion people use Instagram and up to 200 million Instagram users visit any business account daily. It is expected to generate \$12.32 billion as revenue in advertisements in the year 2020 (Newberry, 2019). Statistics demonstrate that 71% of Instagram users are below 35. They follow Instagram influencers and quite often do what they see them doing (Rose, 2020).

2.7 Preference of Instagram over other social media apps

Photographs are practical for sharing information but they give rise to emotional reactions that eventually influence behavior (Li, 2019). Furthermore, tests have revealed that people are able to memorize more than 2500 images with at least 90 percent accuracy for days after the first disclosure (Temple, 2020). Images also contribute towards word-of-mouth as they are the most widely shared content on social media, and followers on social media tend to share content they like

with their peers (Hudson, 2020). Another research showed that images are able to grab the attention of users, give rise to emotions, and are a way of delivering bulks of information in a short period of time. This way, they are able to make communications stronger. Social media users like to spend twice the time on posts with pictures than on pictures without any visuals (Li, 2019). Similarly, a social media post with an image is ten times more likely to gain customers' engagement (Balm, 2014). So, brands prefer Instagram over other social media sites as its primary focus is on photo-sharing ("The story of Instagram", 2019).

Instagram lets brands reach customers efficiently and quickly. Moreover, Instagram posts' engagement lets brands determine public views about products and services (Cross, 2014). It is now the most trending app of all social media apps (Desmond, 2019). More than 800 million users use Instagram actively every month, which contributes to this platform's development and urges brands to use this platform for reaching a massive audience (Sharma, n.d).

2.8 Emergence of influencer marketing

Instagram has a feature that allows users to gather followers, connect with different brands and helps in facilitating customers' interactions. As O'Mahony & Meenaghan (1998) revealed, the perceived credibility and expertise of traditional celebrities are likely to impact customers' purchase intentions. However, a recent study by Jin et al. (2019) showed that customers perceive Instagram celebrities as more trustworthy than traditional celebrities. Instagram celebrities seem to have more social presence and generate a more positive brand attitude (Jin et al., 2019).

According to Schmid (2017), influencer marketing had been on social media since the emergence of MySpace back in 2003. During the launch time of MySpace, its founders looked around for recruiting brands, and it became the first platform for influencer marketing. In 2005, YouTube appeared on the scenes. YouTube's one video, which was made for mp3 players, generated so much traffic that the mp3 players brand's website crashed, and this became the success of influencer marketing. Online content creators realized that they could charge money for their influence. Instagram and Snapchat also succeeded in building different types of connection with the audience through their story and photo sharing feature (Schmid, 2017).

That said, an influencer is someone, who can cause impact on consumers' decisions due to his knowledge, position and engagement with the audience ("What is an influencer", 2020). The ability to engage with a massive number of followers makes them captivating to the brands (Sherer, 2020). The relationship between influencer and followers is founded on trust ("How Instagram Influencers are Changing Traditional Marketing", 2018). Consumers respect and rely on influencers based on their recent experiences with them (Sherer, 2020).

2.9 Attitude towards influencers

Instagram influencers normally have a passion and by posting about it, they gain popularity, which allows them to impact audience opinions (Fastenau, 2020). Consumers regard influencers as acquaintances, close friends and family members. They approach them not to view ads but to

develop links (Tabor, 2020). Research in 2019 disclosed that 49.2% of respondents followed influencers passionately (Suciu, 2019). According to (Fastenau, 2020), their opinions matter to the consumers because the consumer behaviour is linked to cognitive biases which can be explained as:

- **Credibility and social proof**

The credibility of an influencer is found to be dependent on trustworthiness, expertise, attractiveness and similarity. Moreover, expertise appears to be a central element in defining influencers' perceived power. The position of an influencer gets stronger by his/her large follower base, likes and shares because the concept that other people follow his/her content convinces the viewers to follow that influencer. This concept is called social proof.

- **Attractiveness**

Humans are inclined towards attractiveness, and they tend to follow good looking influencers featuring attractive visual content. It could also lead to strong bonds between the audience and the brands which the influencers are promoting.

- **Reliability and the millennial crowd**

Reliability distinguishes between influencers and other types of endorsers. People take Instagram influencers as open and down-to-earth people just like they are. They share their daily life, interact directly with the audience and often belong to the same age group as their followers. Normally, the impact of the influencers on the same age group is greater than that of different ages.

2.10 Why use Influencer marketing

Influencer marketing is an addition to word-of-mouth marketing, which is focused on some social context and is carried out in a more professional manner (Sudha & Sheena, 2017). It is more like storytelling and linking the concepts with the influencer's personal life. The best content in the eyes of customers is the one that is real and inspiring (Audrezeta et al., 2017; Pavlika, 2019; Tidwells, 2019). Huff (2017) stated that influencer marketing is one of the best techniques for building the brand and creating awareness. It is not only good for a start-up brand but also for brands who have been striving to attract customers (Huff, 2017). According to a recent survey, on average, Instagram influencer marketing generates revenue of US \$6.85 per dollar spent on marketing techniques. Also, it delivers a 37% higher customer retention rate than other marketing methods (Tidwells, 2019). According to Sanders (2020), 92% of marketers consider Instagram as one of the important platforms for influencer marketing.

One of the reasons for influencer marketing's success is that followers of influencers have chosen to receive updates from them, and their content does not seem pushy to them. Effectively reaching the right audience is also one of the primary benefits of this marketing strategy as brands do not need to spend additional funds to test the audience (Huff, 2017). Influencers reach their

audience in the environment in which they spend time and address them at their level (Sherer, 2020). They add value to the audience, too, as they are already in compliance with their audience's thoughts. Engaging with influencers is also good because it might be the start of a long-term relationship, which may provide additional growth opportunities like joint ventures in the future (Huff, 2017).

According to Cross (2019), with the changing advertising trends, consumers like to see what their fellows are doing. Instead of following the brand directly, they are most likely to act upon the recommendations of their peers. Brands should collaborate with influencers as they can put the brand in front of a massive audience, build customers' trust in the brand, improve SEO and reduce cost (Cross, 2019).

2.11 Types of Influencers

According to "What is an influencer?" (2020), Instagram influencers can be separated into different types based on the number of followers they have, the type of content they create and the level of influence they have.

By type of content, influencers can be categorized as bloggers, YouTubers, podcasters and social posts only. Bloggers mostly have the most reliable and trust-based relationship with the audience. Youtubers mostly have a separate channel on YouTube, and brands primarily engage with YouTube content creators. And in social posts only, bloggers and YouTubers mostly post new material for the existing audience on their sites or social media ("What is an influencer?", 2020).

By level of influence, influencer types include celebrities and key opinion leaders. Celebrities were the real influencers, but now their importance is declining. Still, there are some businesses that engage with celebrities for product endorsements. Industry experts and thought leaders are also considered influencers because they also create influence due to their expertise in specific areas ("What is an influencer?", 2020).

Finally, regarding the number of followers, influencers can be categorized as nano-influencers, micro-influencers, macro-influencers and mega-influencers. Micro-influencers are the ones who have followers ranging from 10000 to 100000. Macro-influencers mostly have followers above 100000 (What is an influencer?, 2017; Anon, 2020), whereas nano-influencers have less than 1000 followers. Mega-influencers are usually those who gained fame through offline ways like movie stars and sportspeople (Schmid, 2017).

Anon (2017) revealed that if the company's goal is to engage customers in conversations then among the different types of influencers, micro-influencers are the most beneficial as the payoff from this type is the greatest among other groups. Brands consider micro-influencers beneficial to work with as their followers' size is small, so it is easy for them to engage with customers and create relationships with them (Anon, 2020). Passion, trust and good knowledge are the three primary factors that drive the influence on customers and micro-influencers are equipped with these factors.

They have a significant impact on customers' buying behavior as they are considered as a trusted source of recommendation by the customers (Berger, 2016).

2.12 Authenticity in influencer marketing

In influencer marketing, authenticity can be referred to an influencer's potential to generate natural content. Brands can be merged into influencers' social media presence in a way that seems consistent (Denver, 2019). Authenticity clearly distinguishes influencer marketing from traditional marketing ("The importance of authenticity in influencer marketing", 2017). The authenticity of influencers is about being imperfect in front of the audience and showing them the real versions of themselves (Chan, 2020). It is crucial in the field of influencer marketing because a lack of authenticity in an influencer's content can possibly end the purpose of influencer marketing (Pavlika, 2019). 32% of micro-influencers say that perceived authenticity is the main factor towards maintaining customers' engagement (Gannon & Prothero, 2016), followed by good quality content that is recommended by 28.6% of followers, and 27.1% of micro-influencers say that engaging with followers is essential in this regard (Freier, 2018). A recent survey revealed that most of the influencers rate authenticity as their top priority when making decisions about collaboration with any brand, and monetary compensation comes after authenticity. 48.1% of the influencers said that authenticity is the main factor that often prevents them from partnering with a brand. They do not partner with brands when they realize any alignment gap between the brand and their objectives ("The importance of authenticity in influencer marketing", 2017).

Today's marketing techniques require authenticity from brands as well as from influencers with whom they are collaborating. Brands need to make sure that influencers are in perfect alignment with their objectives, while influencers need to ensure that they are trustworthy and credible in giving reviews about the brand's products ("The importance of authenticity in influencer marketing", 2017). Brands can incorporate authenticity by sharing the story and hard work that goes in the development of a product and influencers can incorporate authenticity by showing the hard work they do for putting the aspirational content in front of their audience (Chan, 2020)

According to Audrezeta et al. (2017), authenticity can be found in an influencer's content using two strategies. The first strategy is focused on managing authenticity through passion. In this strategy, the influencer has the authority to express something creatively, and the brand must fit according to the influencer's image and style. The second strategy is about managing authenticity through the influencer's transparency, and in this strategy, influencers try to avoid any chance of confusion for the followers (Audrezeta et al., 2017).

A survey in 2019 showed that 90% of the consumers wish for authentic content from the brands that is close to reality. Another consumer survey revealed that a significant percentage (90%) of consumers believe that brands should always act with honesty and integrity. Customers demand transparent and authentic content from influencers, and they get annoyed by posts that are all about advertising (Tidwells, 2019).

According to Chan (2012), authentic influencers have a trust level established with their audience and this is the reason that they have a real impact on people. The audience likes and prefers to know about the imperfect version and a real story of the influencer, which helps them trust the influencer. With this trust level, the influencer is able to convert his or her passive followers to active ones (Chan, 2012)

Fake influencers also exist i.e., people who buy fake fans. Identifying fake influencers, at first sight, can be a difficult task for brands as they are broadly spread. These fake influencers can deceive brands, which can cost the latter millions of dollars (Tidwells, 2019). Thus, brands should take reasonable care in choosing the most authentic influencers for collaboration because influencer marketing is more like a partnership between two parties and in this partnership, the reputation of both parties is at stake. And more importantly, influencers are a way of building customers' trust in the brand, so it is necessary to keep authenticity in mind (Dholakiya, 2019).

2.13 Importance of displaying authenticity on social media

According to Scott (2020), the display of authenticity through the brand's content and its presence on social media becomes vital for increasing sales and return on investment. Moreover, Scott (2020) talked about a survey that showed that 91% of customers are inclined to pay a brand for its authentic content by making investments, purchasing some products/services or through endorsements. Trust progresses with the clarity of social media content, and the content that is supported by peer reviews means a lot to the audience (Lang, 2016). Authenticity is also important on social media; this is a modern platform for building up a distinctive image in consumers' minds. So, the more authentic the brand's content, the more chance of customers' engagement and interest in it. Even in COVID 19 times, authenticity remains one of the basic principles important for content creation (Scott, 2020).

2.14 Credibility in influencer marketing

Data credibility is among the list of constituents of data quality. Individuals form a judgement about content credibility based on their thoughts of elements like accuracy and trustworthiness (Wang & Strong, 1996). According to Bablan and Mustăţea (2019), credibility is one of the vital assets of a social media influencer. Their study showed that expertise, interactivity, social advocacy, trustworthiness and homophily are considered as noteworthy rules-of-thumb when people are evaluating social media content. Similarly, when the audience perceives influencers as positive, it develops an association between them, which includes admiration and a particular bond (Deatara et al., 2019). Sen and Lerman (2007) supported this result, stating when communication is credible, it seems to be more convincing rather than when communication is less credible.

According to Jijang's (2018), a highly credible influencer can persuade consumers admitting that the recommended product was made to enhance the influencer's public image, spread their concerns about the project, or convey their determination to help others. He further states that consumers trust a credible influencer more than a less credible influencer. It means that a credible celebrity has a positive impact on ad usefulness, such as enhancing customers' attitude towards the brand, towards the ad and their purchase intention (Jijang's, 2018). Not shockingly, when people

perceive information to be highly credible, they often develop positive attitudes toward its source as well (Hall Jamieson and Hardy, 2014). In particular, information sources will be determined approvingly “when identifiable elements of the source, content, delivery, and context give rise to the judgment that the communicator has expertise on the issue interests in common with the audience” (Hall Jamieson and Hardy, 2014, p. 13599). For example, when people take a commercial website as credible and informative, they are more likely to build a relationship with the organization’s owner (Lowry, Wilson and Haig, 2014).

2.15 Influencer fit with the brand

Influencers can be any blogger, celebrity or specialist in an area but not every influencer can do his/her job well and marketers need to pick up the right fit for their brand (Sanders, 2020). According to Sanders (2020), marketers should choose an influencer who aligns with the brand, has an interest in the brand and interacts with the target audience. However, if the audience observed a mismatch between the influencer and endorsed brand, eventually, they might take the influencer as less credible (Koerning & Boyd, 2009). Often, consumers are subject to two kinds of information about an endorsement; information compatible with available knowledge structure and incompatible with such structure. An extensive assumption is that high endorser-brand fit originates favorable consumer responses (Till & Busler, 2000).

Influencer and affiliate marketing are significant gateways to inflated audience reach, however, they will be effective when customers are considered as part of the business’s market. Working with an influencer who knows the brand tends to create a sincere connection between the company and influencer. Moreover it is necessary to find influencers who aligns with the company’s culture (Elbermawy, 2018). However, it is not always straight-forward to find such influencers but it requires a vast knowledge about what type of campaign should be run, what values influencers are supposed to bring and are they in perfect alignment with a brand’s products and values (“Influencer marketing for retail”, 2019).

Similarly, for increase in celebrities’ credibility, there should be a congruence, a “match” and a “fit” between the promoted product and the celebrity’s credibility. Moreover, there must be congruence between the product and the celebrity in terms of features such as image, proficiency and fascination (Agarwal & Kamakura, 1995).

2.16 Brand attitude

Audience’s affective reaction to the promoted brand can be described as brand attitude (Lutz, MacKenzie, & Belch, 1983). And Mitchell and Olson (1981) defined brand attitude as the individual’s overall evaluation of the brand. According to Devault (2018), brand attitude is a combination of two elements: the strength of positive/negative interconnection that customers face with a specific brand; and the belief that positive/negative interconnection is precise. Moreover, brand attitude can be defined as to what level the audience perceives connection with the brand as good-bad, satisfactory-unsatisfactory and wise-foolish (Lutz, MacKenzie, & Belch, 1983). The attitude of consumers towards a particular brand can play an important role in the value they have in mind for the brand (Alden et al., 2013). Moreover, the positive attitude towards a brand contributes to the

enhancement of marketing efficiency, reduction of costs, promotion advantages and the risks linked with the introduction of a new product/service (Soltani et al., 2013). Consumers depend greatly on the existing attitude towards brand name and logo and this attitude can be transformed as well. Brand attitude can be referred to as consumers' liking or disliking (Melewar et al., 2001).

2.17 Finding the right influencers

Influencer marketing may seem relatively straight-forward but finding the right influencers for a brand is sometimes a challenging task (Schaffer, 2020). Finding ways that result in overall better ROI for the brand and two-way communications with the customers have always been one of the fundamental objectives for brands so while selecting the influencers (Sudha & Sheena, 2017). A study revealed that brands face difficulties in finding the right influencers for their campaign (Jade, 2019). Similarly, as authenticity is confined not only to influencer's content, but it contains a creative expression between brand's goals, influencer's point of view and the connection with target audience (Tidwells, 2019), brands are urged to keep in mind not only the cost and level of influence of the influencer (Schaffer, 2020) but also the perceived authenticity of the influencer as it is the key element in this regard (Dholakiya, 2019; Tidwells, 2019).

3. RESEARCH QUESTIONS AND CONCEPTUAL FRAMEWORK

In the chapter, we discussed the existing literature in detail and investigated the visual characteristics that affect authenticity and credibility of influencers. The link between authenticity, credibility and attitude towards influencer was also studied. Moreover, the impact of attitude towards influencer on brand attitude was also investigated, where influencer fit was a moderator. In this chapter, we are going to discuss the research questions which served as the core part of this research. Next, hypotheses are formulated based on the existing literature. At the end, a conceptual framework is presented which explains the entire idea of this research.

3.1 Research questions

In this paper, we investigate how visual content of influencers impacts their perceived credibility and authenticity, and whether those can in turn affect attitude towards an influencer and result in a change in brand attitude. To do so, the following research questions are raised:

RQ1: To what extent do image properties like lightness, darkness, naturalness, brightness, presence of face and presence of objects affect the perceived authenticity of an influencer?

RQ2: To what extent do image properties like lightness, darkness, naturalness, brightness, presence of face and presence of objects affect the perceived credibility of an influencer?

3.2 Hypothesis development

An interesting subject is necessary to create an exciting picture (Gibson, 2017). Human photos on social media have a positive influence on a user's first intuition of credibility, and photos with a focus on facial attributes are generally preferred by the audience over photos with no facial attributes (Chopra, 2020). Gibson (2017) stated that capturing people doing activities in landscapes depicts a relationship between humans and nature. Scott (2020) talked about research that showed that pictures with some facial attributes are more positively perceived by the audience than those that do not have any facial attributes in them. Similarly, Instagram photos with faces have a 38% higher chance to get likes from the audience and are 32% more likely to get comments (Scott, 2020). Furthermore, Chopra (2020) stated that images with faces tend to promote affinity and to foster communication among viewers. Moreover, human photos on social media tend to have more conversion rate and are perceived as trustworthy than other photos (Chopra, 2020). Through this, we hypothesize the following:

H1a: The higher the number of pictures that feature a micro-influencer on his/her social media, the higher is his/her perceived authenticity.

H1b: The higher the number of pictures that feature a micro-influencer on his/her social media, the higher is his/her perceived credibility.

Images perform well on social media when there is a story behind them since the audience tends to like things that have a natural-life perspective (Balm, 2011). The quality of the story is

directly related to the number of subjects and objects in them (Khanea, 2011). Sometimes, marketers do advertising that is about showing a product to images with no story behind it (Khillar, 2020). But researchers found out that images tend to have a more positive impact on consumer's mind when they are not about advertising only, but also depicts other products (Balm, 2011). Through this, hypothesize:

H2a: The higher the percentage of a micro-influencer's pictures that feature products of different categories, the higher is the perceived authenticity.

H2b: The higher the percentage of a micro-influencer's pictures that feature products of different categories, the higher is the perceived credibility.

According to Borau, Francois and Bonnefon (n.d), the ideal and natural presentation of a model poses two issues: the first is more ethical and the second one is more economical. But flawless images of female beauties can cause adverse effects on the psychological wellbeing of females. Borau, Francois and Bonnefon (n.d) conducted a study to study women's perception of models' naturalness and commercials. Borau, Francois and Bonnefon (n.d) found out that natural models tend to generate less anxiety among the females. Furthermore, Miller (2020) talked about research that revealed that consumers prefer naturalness in images because they consider natural products as safer and durable. Through this, hypothesize:

H3a: The higher the percentage of a micro-influencer's pictures with high naturalness, the higher is the perceived authenticity.

H3b: The higher the percentage of a micro-influencer's pictures with high naturalness, the higher is the perceived credibility.

According to Kampf (2019), light images are used to deliver positivity, morality and aspiration. Similarly, Meier et al. (2004) proved through experiments that the audience normally regards light objects to be good and dark objects to be bad. By using significant amounts of lighting, a complex detail can be converted into a robust image (Thomas, n.d). The research on Instagram images revealed that lighter images work better than darker ones. Images with whiter space and lower saturation levels are better than images with less white space and vibrant colors (Color and Social Media Images: What Works, 2019).

Additionally, lighter images were found desired among the audience than darker images. The research revealed that lighter images with levels between 65 and 80 received more engagement than pictures with levels 0 to 45 (Woollaston, 2013). Based on these arguments, we hypothesize:

H4a: The higher the percentage of a micro-influencer's pictures with high lightness, the higher is the perceived authenticity.

H4b: The higher the percentage of a micro-influencer's pictures with high lightness, the higher is the perceived credibility

Previous research showed that visual content on Facebook having attributes like brightness, clarity, ingenuity and liveliness tend to receive more likes from the audience ("Better Social Media Images", 2018). Similarly, Dudharejia (2019) gave some tips on how to create appealing images for social media. According to the author, brand posts should be lit, easy to understand and should

portray creativeness. Brightness is also an important attribute that should be considered while using Facebook ads ("Colors and social media: what works", 2019). Likewise, for the promotion of brands, posts with bright images tend to grow faster than posts having textual information only (Foster, 2017). Similarly, posts with brighter images are considered more successful on Instagram (Dudharejia, 2019). Based on these statements, we hypothesize:

H5a: The higher the percentage of a micro-influencer's pictures with high brightness levels, the higher is the perceived authenticity.

H5b: The higher the percentage of a micro-influencer's pictures with high brightness levels, the higher is the perceived credibility.

Consumers are always in the search for authentic and credible content from a credible source as they do not like to view advertisements (Tidswell, 2019). In influencer marketing, influencers need to be credible when giving reviews about any product. The byproduct of authenticity is trust and loyalty, so influencers should try to attain the audience's trust and remain loyal to them ("The importance of Authenticity", 2018). Authenticity is not confined to content only, but it also requires creative expression between a brand's goals, influencer's perception, and audience engagement (Tidswell, 2019). Through these arguments, we hypothesize:

H6: Perceived authenticity and perceived credibility of influencers are positively related to consumers' attitude towards influencers.

Authentic influencers create a positive and accurate image of the brand in the mind of consumers by speaking about their experiences (Pavlika, 2019). Consumers follow the recommendations of their favorite influencer and ultimately, influencers are able to build a long-term relationship between consumers and brand (Alden et al. 2013). De Veirman et al (2017) also focused on the importance of the ideally-matched influencer for the brand. According to Sanders (2020), marketers should go for influencers who have an interest in their brand, display authenticity and credibility through their content, engage well with the audience and are in alignment with the brand's principles and values. Through these arguments, we hypothesize:

H7: Attitude towards influencers is positively related to a brand attitude, moderated by the degree of fit between influencer and brand.

3.3 Conceptual framework

A conceptual framework was made to represent all the proposed hypotheses graphically. Figure 1. Represents the conceptual framework for this research.

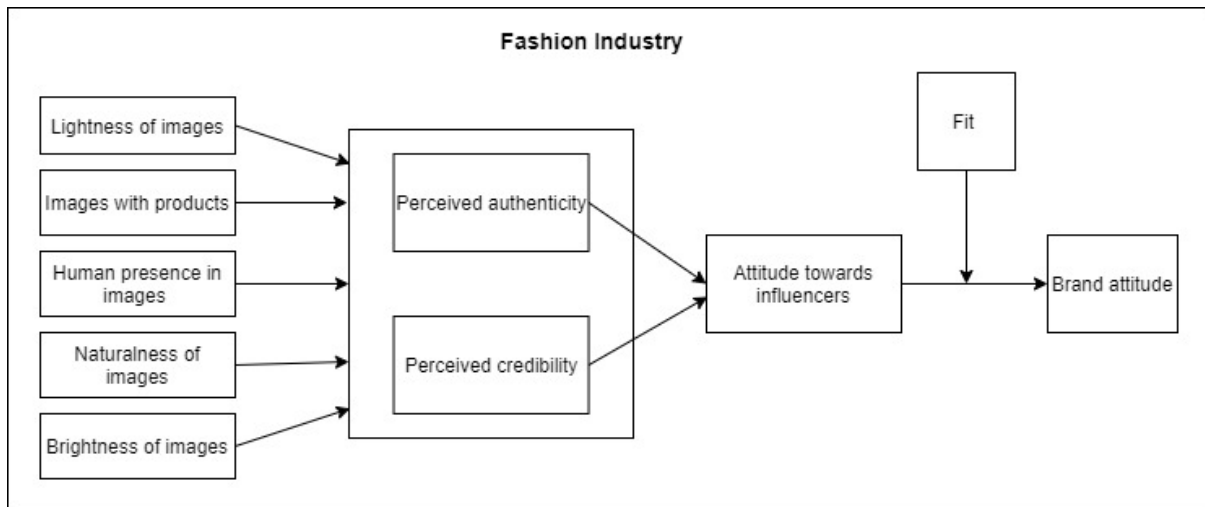


Figure 1: Conceptual model

In this chapter, we discussed the research questions and hypotheses which were deduced on the basis of existing literature. And finally, a conceptual framework was represented to present all hypotheses graphically. In the next section, we are going to discuss the general methodology of this study that we followed. The methodology section begins with the description of a research design, followed by experiments carried out during this study. At the end of the section, survey details are also given including details about how the survey was constructed and how it was distributed.

4. METHODOLOGY

In the previous chapter, we represented the research questions which were the focal point of this research. Several hypotheses were proposed to answer the research questions of this study. A conceptual framework was also presented in the end of the section to show the major concepts and links between them graphically. In this chapter we are going to discuss the entire methodology of this research which can be divided into three major parts; research design, experiments and survey details. Research design is meant to let the reader know about the purpose of this thesis. Experiments are a part of this section to inform readers about how we collected data, which methods we used for experiments, and how we conducted a survey to get audience responses. These sub-sections are explained in detail below:

4.1 Research Design

This dissertation aims to investigate the characteristics of influencers' images that influence perception towards authenticity and credibility how purchasing intentions relate to Instagram users' perceived credibility of an influencer. Further, it aims to find out how authenticity and credibility impact the brand attitude towards influencers.

Firstly, all constructs included are explored in detail and described. Experiments are conducted to collect quantitative data related to images' characteristics of influencers. This is followed by a survey in which the audience is asked about their perceptions regarding authenticity and credibility in influencer marketing. Some other concepts like fit between influencers and fashion brands, attitude towards influencer and brand attitude are also studied in the survey.

In this dissertation, exploratory research (since the impact of authenticity and credibility in influencer marketing) and descriptive research (since it is based on quantitative research) are used.

4.2 Data Collection

For the data collection, we used Downloader for Instagram™ + Direct Messages which is an extension available in Google Chrome that helps to download pictures and videos from Instagram public accounts for free. With this extension, we obtained data of 10 micro-influencers details particularly belonging to the Fashion Industry. We set some characteristics in order to get the influencers. Some of the set characteristics we considered are as follows:

1. Since we are targeting micro-influencers so an influencer's followers must be less than 100000 and more than 25000
2. Award-winning micro-influencers were preferred over normal micro-influencers
3. We choose some male influencers too in order to make the set more diverse
4. On average, the micro-influencer must post 10 pictures in a week, so we made sure to pick the Instagram active micro-influencers

A brief introduction about the chosen micro-influencers is given in Table 1.

Sr. No	Name	Gender	Number of Posts	Number of followers	Particular characteristics	Origin
1	Ada	Female	3172	68.9K	N/A	Not mentioned
2	Aria di bari	Female	285	40.3K	N/A	A French with Italian & Spanish roots
3	Blue berry	Male	2650	91.5K	N/A	India
4	Chicadeoro		2709	47.9K	In the list of 2019's best content creators and micro-influencers	United States of America
5	Chlopak	Male	2408	19.1K	One of the top most five fashion influencers blowing up Instagram	Los Angeles
6	Chrissy Rutherford	Female	1760	75.8K	Instagram health score 87/100	New York
7	Dandyinthebr onx	Male	954	42.7K	N/A	New York
8	Em Roberts	Female	1720	58.7K	Host of @thebigmovepodcast	London
9	Gemma Talbot	Femalde	2736	69.1K	Gemma is one of the top Instagram fashion influencers and has worked with many fashion, luxury ecommerce, PR, and styling brands. This list includes big brands like REVOLVE, Missguided, H&M, UNIQLO, and ASOS	London
10	Jodi Lopez	Female	1191	73.2K	N/A	Canada

Table 1: Data about micro-influencers which we considered in this thesis

4.3 Face Detection

In support of our first hypothesis which is "***The higher the number of pictures that feature a micro-influencer, the higher is his/her perceived authenticity***" we had to find influencers who like to feature themselves along with the advertised products in their pictures. Face Detection algorithms served this purpose well. Face Detection is generally a deviation from the Machine Learning area. This algorithm normally follows a supervised learning approach that is the machine is trained initially with large data sets which help it in learning the shapes and features of facial data, and then testing data is given to predict if the given image includes facial expressions or not. There are different programming languages and techniques for implementation of face detection

in images. Some of the most commonly used and best languages for face detection include OpenCV, Matlab, Python, C/C++/C#, Java (Gupta, 2017; Gupta, 2019).

OpenCV

For face detection, we chose python and OpenCV library for facial images detection. OpenCV library was initially written in C++, but now it is binded with Python too, and it comes under the list of best face detection algorithms. For face detection, OpenCV uses cascades, which means a collection of XML files that generally have the data to detect faces in the given images. As this is a deviation from Machine Learning algorithms and Python is best suited for Machine Learning due to its simple syntax, a great variety of tools and libraries and popular language of recent times (Chand, 2020), so we implemented the whole code in Python. The entire process follows by first converting the image into GrayScale image, cropping it and then matching it with the cascades to check all blocks of images whether they have the features of a human face or not (Tiwari, 2019). A basic flowchart of the whole process is given in the Figure 2.

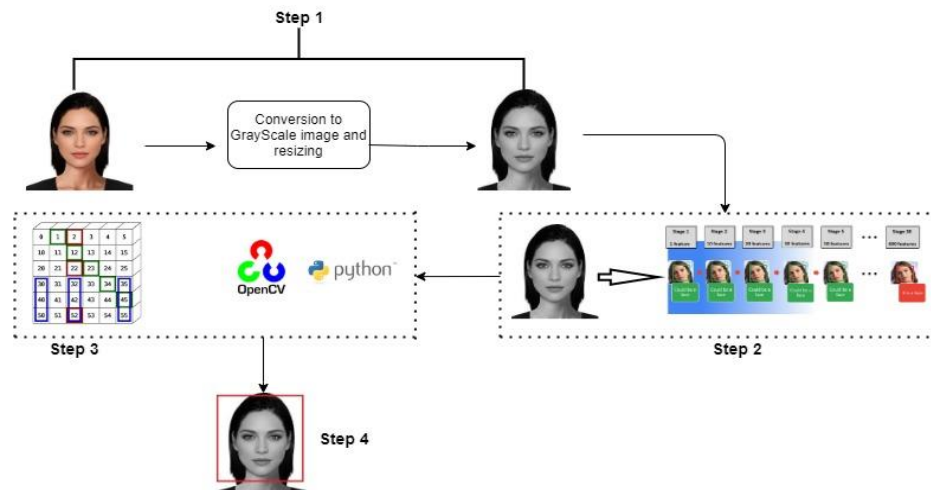


Figure 2: Flowchart diagram for face detection in images

The normal output of this algorithm is shown in Figure 3.



Figure 3: The general output of face detection in images

Clarifai API

We also used Clarifai API for the face detection of images of some influencers. This API uses four stages of face detection. First is the Face Detection module, in which the module is responsible for finding all the faces present in the set of images. It does not have to link all found faces with any particular person, it just needs to detect all the faces in the given set of images. Next is the alignment stage, in which the alignment module takes the detected faces as input and normalizes them to a

frame of reference for further usage. For example, if the head of a person is aligned towards one side, this module tries to make an estimate about this "roll" and then rotates the detected face to the amount of "roll" in order to get it as a vertical face. In the third stage, a deep neural network is used in the form of a facial extractor that takes the normalized image as an input from the second stage and then computes a set of features to identify that face. This network is pre-trained with a large dataset of images to get more efficiency. Its output is then compared in the database with the feature vectors of other pre-trained images.

This API is present in different languages like Python, Javascript, C# and others but we used the python version for our work. This API allows only 5000 operations for free in the first trial month and then it is charged per operation, so the usage of this API is limited in our work.

The results obtained by face detection using OpenCV and Clarifai API are given in Table 2.

Sr. No	Influencer Name	Total number of images posted	Number of images with faces detected by OpenCV	Number of images with faces detected by Clarifai	Number of images with no face detected by OpenCV	Number of images with no face detected by Clarifai
1	Ada	3172	1707	2104	1465	1068
2	Aria di bari	285	222	245	63	40
3	Blue Berry	2650	1416	2097	1234	553
4	Chicadeoro	2763	879	1219	1884	1544
5	Chlopak	2554	885	1101	1669	1453
6	Chrissy Rutherford	1760	1009	1385	751	375
7	Dandyinthebronx	1245	950	1164	295	81
8	Em	1720	852	1293	868	427
9	Gemma Talbot	2736	1509	1884	1227	852
10	Jodiblk	938	582	885	465	162

Table 2: Results of face detection with OpenCV module and Clarifai API

Comparison between OpenCV and Clarifai API

We made a comparison between OpenCV and Clarifai API in terms of accuracy, cost and time taken for detection. Results are given as follows:

- **In terms of accuracy:**

OpenCV and Clarifai API both failed to detect faces when there were a lot of objects present in the images, and both performed well when the faces were present against a plain background. We considered Clarifai API analysis to be more accurate for images where the face was clearly visible, so in this regard, it performed better than OpenCV because OpenCV failed to detect images that had any object in front of the face like a camera, however, it was able to detect faces with glasses. Clarifai API also detected the faces even if the picture was taken from the backside of the person which did not go with our hypothesis.

- **In terms of time**

The time taken by OpenCV to detect faces in images was significantly less than Clarifai API. On average, OpenCV took 4 minutes to analyze 2000 images whereas Clarifai API took around 9 minutes to analyze the same number of images.

- **In terms of cost**

OpenCV was found to be more cost-effective as it was totally free. Clarifai API was free for the trial period of 1 month, and that period was also limited to only 5000 operations.

4.4 Objects Detection

In support of our second hypothesis, "***The higher the percentage of micro-influencers pictures that feature products of different categories, the higher is the perceived authenticity***" and "***The higher the percentage of micro-influencers pictures that feature products of different categories, the higher is the perceived credibility***" we were required to find how many objects on average influencers like to display in their pictures. Objects detection algorithms are widely used for this purpose. It is a technology mainly related to image processing and computer vision and is used to identify instances of semantic objects belonging to a certain class in digital images as well as in videos. Just like face detection, object detection algorithms are available in different APIs as well as there are some python modules that are used for object detection. These modules differ from each other in terms of time, accuracy and the set of objects which they are able to identify in digital data.

Google Vision API

For object detection, we used the object detection module of Google Vision API as it detects and extracts objects with great accuracy and also covers a large set of objects. Moreover, this API identifies the position of the objects as well as the rectangular bounds for the region of the image that contains the object.

Due to the limited number of images available in the free trial of Google Vision API, we selected 100 random images of each of the micro-influencers and tried to find the average number of objects present in those images. We considered the objects having a confidence level equal or greater than 60 (≥ 60) because below this confidence level, the ability of API in identifying the correct objects starts decreasing. We also identified the object with the highest confidence level in all the images, and at the end, we used the Word art generator¹ website to propose a single object which is present in the largest number of images of each influencer.

¹ <https://wordart.com/>

The results for objects detection using Google Vision API are shown in Table 3.

Sr. No	Influencer Name	Total number of images analyzed	Average number of objects present	Most common object present in most of the images
1	Ada	100	5	Bag
2	Aria di bari	100	5	Shoes
3	Blue Berry	100	4	Person
4	Chicadeoro	100	3	Flower
5	Chlopak	100	3	Door
6	Chrissy Rutherford	100	5	Animal
7	Dandyinthebronx	100	5	Person
8	Em	100	4	Dress
9	Gemma Talbot	100	4	Person
10	Jodiblk	100	4	Bed

Table 3: Results of object detection and the most prominent object in influencer’s feed

To find out the most promoted fashion object portrayed by the majority of the influencers, we first find out the three most common objects from each influencer’s feed. At the end, the Word art generator was used to sort out the most common object. Results showed that the most common object found in each influencer’s feed was “Shoe”. Results are shown in Figure 4.



Figure 4: Word art generator output of the most promoted object

4.5 Naturalness, brightness and lightness of images

For analyzing overall brightness of images, we used a pre-built Python module which works by first converting the image to YUV color space. The YUV model defines a color space which represents one luma component and two chrominance components. This model first encodes an image considering human perception, which allows reduced bandwidth for chrominance components.

This model allows transmission errors or compression artifacts to be masked by human perception and finally a direct RGB-representation is used. Finally, the brightness is calculated by taking the arithmetic mean of the 'Y' channel.

Regarding the naturalness of images, an algorithm proposed by Huang, Wang & Hu (2006) was implemented. The output of this algorithm is always in the range 0 and 1 where values near 1 represent highly natural images whereas values near 0 represent unnatural images.

As far as the lightness of images is concerned, we used a Python module that works by first converting the image to gray-scale image. Then, a function of Python OpenCv library is used to blur an image. The blur function uses the normalized box filter and a kernel value is returned by this blur function. Finally, the lightness is calculated by taking the mean of the kernel value. This function returns value in the range 0 to 255. If the value is between 0 and 127 then the image is considered dark and if the value is between 127 and 255, then the image is considered as a lighter one.

4.2 Survey structure and design

Surveys are methods to collect quantifiable data by asking a particular group of people questions about their knowledge, perceptions and behavior (Wrench et al., 2008).

The survey was created using the online Qualtrics software and it was distributed among the audience through email, social media channels and word-of-mouth. The responses were collected from 25th November till 2nd December.

The questionnaire was a collection of closed-ended and multiple-choice questions. The first two questions were aimed to make sure that only people who had Instagram accounts and follow fashion influencers could participate in the survey. Often, people have different perceptions about the term 'influencer' in mind, so a definition of an influencer was provided in the survey as individuals who have the ability to influence consumers by promoting and recommending items on social media.

Next, a set of questions were asked to determine the perception of respondents toward the authenticity and credibility of influencers. We asked the respondents if they considered influencers as authentic and credible.

Afterward, rating questions with Likert scale were used to evaluate respondents' perceptions about the value of influencers' authenticity and credibility. The next part of the questionnaire was dedicated to evaluating respondents' perceptions about individual influencers. We displayed five out of ten influencers' feed to respondents and asked them to answer for each influencer questions related to brand attitude, authenticity, credibility, attitude toward the influencer and fit between the influencer and fashion brands. Five instead of ten influencers were chosen to avoid respondents fatigue.

In the end, some demographic questions regarding respondents' background were used as they help to analyze potential differences between respondents' responses within different age groups, gender, education and profession.

In this chapter, we presented the methodology which was followed in the research. The lists of experiments which were a part of this research were also presented. Furthermore, some secondary results e.g. comparison between OpenCV and Clarifai API, the most promoted fashion object in each influencer's feed and the most prominent object promoted by most of the influencers

were represented. In the next chapter, we are going to discuss the findings of the experiments and survey in detail which were an essential part of reaching conclusions.

5. RESULTS AND DATA ANALYSIS

In the previous chapter, we discussed the overall methodology of this research and presented secondary results which were deduced after performing experiments. In this chapter, we are going to present the results of the experiments and survey. Experiments included the results of face detection, object detection, images' brightness, lightness and naturalness. Face detection was carried out using the OpenCV module of python and Clarifai API. Google Vision API was used for object detection. For images' brightness, lightness and naturalness analysis, we used pre-built python modules. Finally, IBM SPSS statistics software was used to conduct statistical tests on experimental data. The results are elaborated in the following sections.

5.1 Experimental results

The results from the experiments are summarized in Table 4.

Influencers Name	Objects in 100 images (avg)	Prominent object	Brightness (avg)	Images with faces	Naturalness (avg)	Lightness (avg)
Ada	5	Bag	126.7	54%	0.0824	151.45
Aria di bari	5	Shoes	141.61	78%	0.03838	157.16
Blueberry	4	Person	145.38	53%	0.04051	163.32
Chicadeoro	3	Flower	137.29	32%	0.07344	152.31
Cholpak	3	Door	124.04	35%	0.11873	149.51
Chrissyford	5	Animal	120.31	57%	0.03038	158.23
Dandyinthebronx	5	Person	123.44	76%	0.09195	149.47
Em	4	Dress	128.8	50%	0.1114	153.05
Gemmatalbot	4	Person	148.56	51%	0.06536	158.03
Jodiblk	5	Outerwear	148.58	55%	0.16085	167.28

Table 4: Results related to face detection, objects detection, prominent object in images, brightness, lightness and naturalness of images

5.2 Survey results

In total, 250 people participated in the survey. Responses of 20 people were rejected as they chose 'no' for the first two screening questions. While cleaning, we noticed that responses from 20 people were incomplete so they were removed too. Data were checked for normal distribution, multicollinearity and heteroscedasticity. Since it was not conforming to the principles of data ready for the analysis, we removed outliers as well. After removing outliers, there were 170 responses left for the analysis.

5.2.1 Socio-demographic characteristics

Based on Table 2, most respondents of the survey were aged between 25 to 34. Regarding the education level, they were mostly bachelor degree graduates. There were significantly more women in the survey than males, and their numbers were 104 and 56, respectively. Lastly, most of the respondents were full-time employees (62 respondents).

Category	Profile	Total (n)	Percentage (%)
Age	< 18	8	4.7
	18 - 24	66	38.8
	25 - 34	90	38.852.9
	35 - 40	6	3.5
Educational level	High school	32	18.8
	Bachelor's degree	106	62.3
	Master's degree	30	17.6
	Ph.D. or higher	2	1.17
Gender	Male	66	38.8
	Female	104	61.2
Employment status	Employed full-time	62	36.4
	Employed part-time	24	14.1
	Unemployed	26	15.3
	Self employed	22	12.9
	Full-time student	36	21.2

Table 5: Socio-demographics of the survey

5.3 Descriptive statistics of the results

The descriptive statistics is the first step to have the initial review of the integrated data. A five-point Likert scale was used for all the questions where 1 was the minimum, and 5 was the maximum for all items. Starting with the central tendency, Auth2 and Auth3 from Authenticity had the highest mean of 3.76, and the lowest mean of 3.26 was associated with Credibility3 of Credibility. Overall, the highest mean of 11.26 belonged to items of Authenticity. Medians of all items came out to be either 3.00 or 4.00. Regarding the mode, all items had either mode of 3 or 4 and most of the items had a mode of 4. For the dispersion of data, we calculated the standard deviation of all items. The lowest standard deviation belonged to 0.828 of item Credibility2 whereas the highest standard deviation 1.060 belonged to itemFit2. The results of descriptive statistics are given in Table 6.

Item	Mean	Median	Mode	Std. Deviation
Auth1	3.74	4.00	4	0.909
Auth2	3.76	4.00	4	0.866
Auth3	3.76	4.00	4	0.858
Credibility1	3.33	3.00	3	0.918
Credibility2	3.30	3.00	3	0.828

Credibility3	3.26	3.00	3	0.932
Fit1	3.62	4.00	4	0.937
Fit2	3.47	4.00	4	1.060
Attitude_influencer1	3.30	3.00	3	0.957
Attitude_influencer2	3.44	4.00	4	0.830
Attitude_influencer3	3.40	3.00	4	0.956
Band_attitude1	3.29	3.00	3	1.013
Brand_attitude2	3.44	4.00	4	0.994

Table 6: Descriptives of the results

5.4 Multicollinearity test

Multicollinearity exists in a regression model when two or more independent variables are in high correlation with one another. So, before performing any test, the data was checked for multicollinearity. Multicollinearity exists when the values of VIF are found above 10. In our results, all the values were found in the range below the cut-off point 10, so there was no multicollinearity found among the independent variables. Results from the multicollinearity test are shown in Table 7.

Independent variable	VIF
Avg objects in 100 images	5.176
Avg brightness	1.821
Avg lightness	1.650
Avg naturalness	1.698
Images with faces	3.595
Authenticity	1.222
Credibility	1.222
Attitude towards influencers	1.000

Table 7: Results of multicollinearity test of independent variables

5.5 Normality test

To check if data is normally distributed or not, skewness and kurtosis were calculated for all the dependent variables. Data is said to have normal distribution if values of skewness and kurtosis lie in the range -0.5 to 0.5. In our data, all dependent variables lied in the range -0.5 to 0.5 so they were found to follow a normal distribution of data. Results of the normality test of data are given in Table 8.

Items	Skewness	Kurtosis
Authenticity	-0.312	-0.264
Credibility	-0.05	-0.105
Fit	0.159	0.196
Attitude towards influencers	-0.102	-0.150
Brand attitude	0.013	-0.263

Table 8: Results of normality test of dependent variables

5.6 Heteroscedasticity test

Dependent variables in our model were also tested to check if there occurs a systematic transition to the spread of residuals over the range of the measured values. We used the Glejser approach to detect heteroscedasticity. According to the Glejser test, variables are heteroscedastic if the value is below 0.05. All values for the variables in our model were above 0.05, which showed no heteroscedasticity in the data. Results of heteroscedasticity tests are given in Table 9.

Variable name	Value
Authenticity	0.36
Credibility	0.45
Attitude towards influencers	0.99
Fit	0.56
Brand attitude	0.10

Table 9: Results of heteroscedasticity test of dependent variables

5.7 Factor analysis

Next, we used Factor analysis to form new constructs out of all the items. This test is conducted to check if variables in the model are correlated with one another in such a way that they can be merged into one single variable. The goal of this test is to determine relationships among the variables. For this test, we used Principal Axis Factoring which is more suited to exploratory research. Rotation is also often applied to factors to redistribute the variance. So, we applied the non-orthogonal rotation. Variables, in this test, are said to be correlated if the value of communalities and component matrix are above 0.4 and 0.5 respectively. Construct 'Authenticity' was formed from the items Auth1, Auth2 and Auth3. Similarly, other constructs Credibility, Attitude towards influencer, Fit and Brand attitude were formed in the same way from their respective items. Results are shown in Table 10.

Constructs formed	Items	Communalities		Component Matrix
		Initial	Extraction	Component 1
Authenticity	Auth1	1.000	.706	.840
	Auth2	1.000	.736	.858
	Auth3	1.000	.685	.828
Credibility	Credibility1	1.000	.748	.865
	Credibility2	1.000	.732	.855
	Credibility3	1.000	.750	.866
Fit	Fit1	1.000	.780	.883
	Fit2	1.000	.780	.883
Attitude towards influencers	Attitude_influencer1	1.000	.735	.857
	Attitude_influencer2	1.000	.648	.805
	Attitude_influencer3	1.000	.698	.835
Brand attitude	Brand_attitude1	1.000	.806	.898
	Brand_attitude2	1.000	.806	.898

Table 10: Results of factor analysis

5.8 Reliability analysis: Cronbach's alpha

After the formation of constructs, a reliability test was performed in order to check how consistently respondents answered the questions belonging to each concept. For this, we calculated Cronbach's alpha. Cronbach's alpha with a value of 0.7 is considered acceptable. In our model, all the values were above the threshold value of 0.7, and we concluded that all constructs were measuring what they were supposed to measure. The highest Cronbach's alpha 0.811 was of 'Credibility,' and the lowest Cronbach's alpha of 0.759 was associated with 'Attitude towards influencers'. Yet, all the constructs were reliable and can be used for further analysis. Results are given in Table 11.

Constructs	Items	Cronbach alpha
Authenticity	This influencer wants to do his/her best at providing his/her content	0.758
	This influencer has a true passion for his/her field (fashion)	
	This influencer wants to do his/her best at providing his/her content	
Credibility	I trust this influencer	0.811
	This influencer is an honest person	
	I could rely on this influencer	
Fit	There is a clear match between this influencer and fashion brands	0.795
	I would come to this influencer's page to look for information about fashion brands and fashion advice	
Attitude towards influencers	I find this influencer's posts very entertaining	0.756
	The influencer projects great tranquility	
	I really admire this influencer	
Brand attitude	I feel that the brand promoted by this influencer is different from all other brands	0.758
	I feel that the brand promoted by this influencer gives the impression of being natural	

Table 11: Results of reliability analysis of constructs

5.9 Correlation analysis

Pearson Correlation coefficient is a statistical measure that shows the linear correlation between variables and helps to preliminary analyze the data. The results of correlation analysis are given in Table 12.

Pearson Correlations

	Avg objects in 100 images	Avg brightness	Avg lightness	Avg naturalness	Images with faces	Credibility	Authenticity	Zscore (fit)	Zscore (attitude towards influencers)	Moderator (fit)	Brand attitude
Avg objects in 100 images	1	-0.491*	0.521**	-0.075*	0.805**	0.030	0.061	-0.049	0.012	0.071*	-0.012
Avg brightness	-0.491**	1	-0.362**	0.410**	-0.309**	-0.002	-0.002	-0.007	0.052	0.024	0.055
Avg lightness	0.521**	-0.362*	1	-0.343**	0.378**	0.083*	0.045	-0.011	0.017	0.004	0.082*
Avg naturalness	-0.075*	0.410*	-0.343**	1	-0.221**	-0.030	-0.052	-0.027	0.012	0.083*	-0.008
Images with faces	0.805**	-0.309**	0.378**	-0.221**	1	0.029	0.061	-0.013	0.029	0.086*	-0.038
Credibility	0.030	-0.002	0.083*	-0.030	0.029	1	0.426**	-0.134**	0.663**	0.451**	0.626**
Authenticity	0.061	-0.002	0.045	-0.052	0.061	0.426**	1	-0.108**	0.488**	0.343**	0.413**
Zscore (Fit)	-0.049	-0.007	-0.011	-0.027	-0.013	-0.134**	-0.108**	1	-0.211**	0.336**	0.175**
Zscore (attitude towards influencers)	0.012	0.052	0.017	0.012	0.029	0.663**	0.488**	-0.211**	1	0.548**	0.634**

Mod erat or (fit)	0.07 1*	0.024	0.004	0.083*	0.08 6*	0.45 1**	0.34 3**	- 0.33 6**	0.54 8**	1	0.41 4**
Brand attit ude	- 0.01 2	0.055	0.082 **	-0.008	- 0.03 8	0.62 6**	0.41 3**	- 0.17 5**	0.63 4**	0.41 4**	1

Table 12: Results of Pearson Correlation

** . Correlation is significant at the 0.01 level (2-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

5.10 Hypothesis testing

We test our hypothesis by using regression analysis. In the following subchapters, SPSS output tables are presented, followed by the interpretation of the results given in the subsequent chapter "Discussions".

5.10.1 Dependent variable: Authenticity

The first linear regression was run with Authenticity as the dependent variable. The independent variables involved in this test were avg objects in 100 images, avg brightness, avg lightness, avg naturalness and percentage of images with faces. Results are shown in Table 13.1, Table 13.2 and Table 13.3.

Model Summary

Model	R	R square	Adjusted R square	R square change	F change	Sig. F change
1	0.97	0.009	0.004	0.009	1.607	0.156

Table 13: Model Summary of regression model of 'Authenticity'

ANOVA

	Sum of squares	df	Mean Square	F	Sig.
Regression	4.162	5	0.832	1.607	0.156
Residual	437.637	845	0.518		
Total	441.798	850			

Table 14: ANOVA table of regression model of 'Authenticity'

Coefficients

	B	Std. error	Sig.	VIF
(Constant)	2.804	0.506	.000	
Avg objects in 100 images	0.105	0.072	0.143	5.176
Avg brightness	0.005	0.003	0.089	1.821

Avg lightness	0.000	0.001	0.904	1.650
Avg naturalness	-1.513	0.820	0.065	1.698
Images with faces	-1.118	0.340	0.729	3.595

Table 15: Coefficients table of 'Authenticity'

5.10.2 Dependent variable: Credibility

Next, the linear regression was run with Credibility as the independent variable and avg objects in 100 images, avg brightness, avg lightness, avg naturalness and percentage of images with faces as dependent variables. The results are shown in Table 14.1, Table 14.2 and Table 14.3.

Model Summary

Model	R	R square	Adjusted R square	R square change	F change	Sig. F change
1	0.89	0.008	0.002	0.008	1.342	0.244

Table 16: Model Summary of regression model of 'Credibility'

ANOVA

	Sum of squares	df	Mean Square	F	Sig.
Regression	3.882	5	0.776	1.342	0.244
Residual	488.812	845	0.578		
Total	492.694	850			

Table 17: ANOVA table of regression model of 'Credibility'

Coefficients

	B	Std. error	Sig.	VIF
(Constant)	2.559	0.535	0.000	
Avg objects in 100 images	-0.012	0.076	0.871	5.176
Avg brightness	0.002	0.003	0.475	1.821
Avg lightness	0.003	0.001	0.035	1.650
Avg naturalness	-0.189	0.866	0.828	1.698
Images with faces	0.069	0.359	0.847	3.595

Table 18: Coefficients table of 'Credibility'

5.10.3 Dependent variable: Attitude towards influencers

To test the impact of authenticity and credibility on attitude towards influencers, a linear regression test was run. In this test, we considered the significance level 0.05, authenticity and credibility were independent variables, whereas attitude towards influencers was the dependent variable. Results are given in Table 15.1, Table 15.2 and Table 15.3.

Model Summary

Model	R	R square	Adjusted R square	R square change	F change	Sig. F change
1	0.701	0.491	0.490	0.491	408.777	0.000

Table 19: Model Summary of regression model of 'Attitude towards influencers'

ANOVA

	Sum of squares	df	Mean Square	F	Sig.
Regression	235.391	2	117.695	408.777	0.000
Residual	244.157	848	0.288		
Total	479.548	850			

Table 20: ANOVA table of regression model of 'Attitude towards influencers'

Coefficients

	B	Std. error	Sig.	VIF
(Constant)	0.595	0.107	0.000	
Authenticity	0.261	0.028	0.000	1.222
Credibility	0.548	0.027	0.000	1.222

Table 21: Coefficients table of 'Attitude towards influencers'

5.10.4 Dependent variable: Brand attitude

Finally, to test the relation between 'Attitude_towards_influencers' and 'Brand attitude' with 'Fit' as the moderator, another linear regression test was performed. To calculate the value of a moderator, the values of Attitude_towards_influencers (independent variable) and Fit (moderator) were standardized first. Then the moderator (Fit) was calculated by taking the product of Z Score (Attitude_towards_influencers) and Z Score (Fit). Results are shown in Table 16.1, Table 16.2 and Table 16.3.

Model Summary

	Model	R	R square	Adjusted R square	R square change	F change	Sig. F change
Without moderator	1	0.636	0.404	0.403	0.404	287.460	0.000
With moderator	1	0.640	0.409	0.407	0.409	195.387	0.008

Table 22: Model Summary of regression model of 'Brand attitude'

ANOVA

		Sum of squares	df	Mean Square	F	Sig.
Without moderator	Regression	278.461	2	139.231	287.460	0.000
	Residual	410.727	848	0.484		
	Total	689.188	850			
With moderator	Regression	281.877	3	93.959	195.387	0.000
	Residual	407.311	847	0.481		
	Total	689.188	850			

Table 23: ANOVA table of regression model of 'Brand attitude'

Coefficients

		B	Std. error	Sig.	VIF
Without moderator	(Constant)	0.852	0.117	0.000	
	Attitude_towards_influencers	0.750	0.033	0.000	1.047
	Fit	-0.36	0.029	0.115	1.047
With moderator	(Constant)				
	Attitude_towards_influencers	0.697	0.038	0.000	1.431
	Fit	-0.019	0.023	0.420	1.129
	Moderator	0.49	0.018	0.008	1.541

Table 24: Coefficients table of 'Brand attitude'

6. DISCUSSION

In this chapter, we are going to discuss the findings of the research and present the outputs of hypotheses testing. A modified research model is presented at the end of the chapter.

In the regression model of 'Authenticity', the significance of F-value was 0.156, which was above the confidence interval of 0.05. It showed that our analysis model did not fit well the data. So the hypotheses H1a, H2a, H3a, H4a, H5a were not supported by our model.

In the case of the regression model for 'Credibility', the significance of F-value of 0.244 was above the confidence interval of 0.05. So, the model used for 'Credibility' did not fit with the data. As a result, hypotheses H1b, H2b, H3b, H4b and H5b were not supported by our model.

In the regression model of dependent variable 'Attitude_towards_influencers', the significance of F-value was 0.000, which was within the confidence interval of 0.05 and showed that the model used in this case fits the data. For this model, the value of Adjusted R Square was 0.491, which showed that 49% of the total variance of the dependent variable 'Attitude_towards_influencers' can be explained by 'Authenticity' and 'Credibility'. The Coefficients table of the model showed that both independent variables 'Authenticity' and 'Credibility' are significant as their p-values were less than the selected cut-off point 0.05. Furthermore, the positive beta coefficients 0.261 and 0.548 of 'Authenticity' and 'Credibility' respectively showed that for every increase of one point in the variables 'Authenticity' and 'Credibility', 'Attitude towards influencers' would increase by 0.261 and 0.548 points, respectively. So, the hypothesis H6 was supported by our model.

Regarding the last regression model for 'Brand attitude', the significance of F-value was 0.000, which showed that the used model fit the data. The value of Adjusted R Square of 0.407, in the presence of moderator, showed that 40.7% of the total variance in 'Brand attitude' can be explained by 'Attitude towards influencer' moderated by 'fit'. The Coefficients table showed that 'Attitude towards influencers' and the moderator 'fit' were statistically significant in this model as their F-values were within the confidence interval of 0.05. The positive beta coefficients 0.697 and 0.49 of 'Attitude towards influencer' and 'fit' respectively showed that for every increase of one point in 'Attitude towards influencer' moderated by 'fit', 'Brand attitude' would increase by 0.697 and 0.49 points, respectively. 'Fit' was proved as a moderator between the relationship of 'Attitude towards influencer' and 'Brand attitude'. So, H7 was supported by our model.

6.1 Accepted framework

Two of the hypotheses were accepted; H6: Perceived authenticity and perceived credibility of influencers are positively related to attitude towards influencers, and H7: Attitude towards influencers is positively related to a brand attitude, moderated by the degree of fit. Therefore, based on these results, a modified framework (Figure 5) is presented to visualize the accepted relationships.

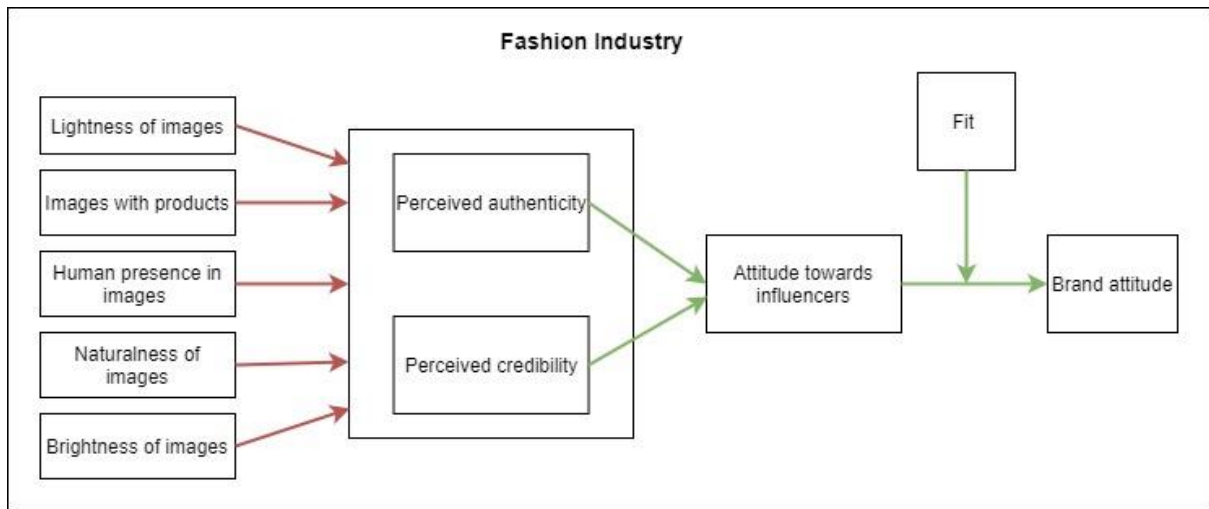


Figure 5: Accepted model

In the next chapter, we are going to discuss the overall tasks involved in this study and the conclusions that we drew after the tests.

7. CONCLUSION

In this chapter, a summary of the tasks performed and the important conclusions that were drawn during the study are presented.

This study was about investigating the visual characteristics that make the audience perceive influencers as authentic and credible. This study also aimed to test the impact of authenticity and credibility on attitude towards influencers. In the end, the relationship between attitude towards influencer and attitude towards advertised brands was tested where influencer fit acted as a moderator.

For this purpose, we worked on the data sets of images of 10 Instagram micro-influencers belonging to the fashion industry. Due to the paid versions of API and time limit, we randomly selected 100 images from each influencer's feed. Influencer's stories were out of context, so they were neglected during the data collection stage.

Through the literature review, it was found that image characteristics like lightness, brightness, naturalness, presence of face and number of objects in images might have an impact on influencers' credibility and authenticity. However, this relationship has not been tested before in the social media influencers context, which laid the foundation for the current research.

Experiments to test the impact of above mentioned characteristics on influencers' authenticity and credibility, such as face detection were carried out using Clarifai API and OpenCv package of Python. Comparisons of these methods showed that OpenCV's gave better results for face detection, so we used these outputs in future tests. For objects detection, we used the Google Vision API object detection model. Further, we used Python pre-built modules to get results related to lightness, brightness and naturalness of influencers' images.

In the end, a survey was conducted to get the audience's perceptions about authenticity, credibility, attitude towards influencers, influencer fit and brand attitude. 170 responses were analyzed using the IBM SPSS statistics software. After preliminary tests, we ran several linear regression tests to draw the conclusions.

It was found that our proposed analysis model did not fit the data. So, the hypotheses that characteristics like lightness, brightness, naturalness, presence of face and number of objects in images have a significant impact on influencers' perceived authenticity and credibility were not supported by our model. However, authenticity and credibility were found to have a significant impact on attitude towards influencers. The relationship between attitude towards influencer and brand attitude was also found significant, and influencer fit was found to moderate this relationship. It was also found out 'shoe' was the most promoted object by our set of influencers. Concluding, research question RQ1 (To what extent do image properties like lightness, darkness, naturalness, brightness, presence of face and presence of objects affect the perceived authenticity of an influencer?) can be answered as images' brightness, lightness, naturalness, presence of face and average number of objects in images do not have a significant impact on an influencer's perceived authenticity. Similarly, images' brightness, lightness, naturalness, presence of face and average number of objects in images do not have a significant impact on an influencer's perceived credibility.

7.1 Managerial Implications

For the managerial implications of this research, brand managers who already are or thinking to apply influencer marketing for their products' advertisements. This is done in order to find out why authenticity and credibility are important in influencer marketing and what makes the audience perceive influencers as authentic and credible. Moreover, the discussion and accepted model revealed that brands should work hard to find influencers who are authentic and credible, as consumers value content which is authentic and credible and these principles are in a direct relation with the attitude towards influencers. Furthermore, managers should consider those influencers who align with their brand and are an ideal fit for the brand as influencer fit moderates the relationship between attitude towards influencers and the brand attitude. As this research was on micro-influencers belonging to the fashion industry, we also found out the most promoted fashion product by each influencer. In this way, brands of those fashion products can reach the respective influencers. Concluding, by utilizing the stated managerial implications it could help managers and executors to focus on the most effective characteristics when choosing what influencers to use, to create a positive brand attitude for the consumers.

7.2 Limitations and future research

As for most studies some limitations exist, which need to be addressed. As a first limitation, due to time restrictions, our dataset was composed of only ten fashion micro-influencers. We only focused on the images of influencers, so Instagram stories and videos on influencers' feed were not included in our data. Similarly, due to time and resource constraints, we picked up 100 random images from each influencer's feed for the experiments as well as for analysis. This could have affected the accuracy of the final result. Moreover, regarding the survey, the number of responses collected was 250. But, we only considered 170 responses for the data analysis as the others had not passed the control questions about their presence on Instagram and if they followed any fashion influencer. However, this could also mean that the analyzed number of responses only included the right respondents for the population.

For future studies, researchers could work on Instagram stories and videos and could try to analyze which characteristics make stories and videos look authentic and credible. Moreover, according to our model, the visual characteristics we addressed in this research were not found to have a significant impact on authenticity and credibility. Due to time constraints, we accepted these results. But the future researchers are recommended to include these characteristics in their studies.

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