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Undergraduate dissertation

El impacto de la marca en los consumidores a través
del uso de filtros faciales

Brand's impact on consumers through the use of
facial filters

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ABSTRACT

Augmented reality, a new technology that has started to gain popularity recently, is beginning to be used by companies in order to interact with potential customers. These days, brands are using this technology on social networks in order to provide consumers with a new and shocking experience that differentiates them from their competitors. Taking the potential of augmented reality into account, this undergraduate dissertation is based specifically on the analysis of how the use of these augmented reality filters can influence the users' perceptions of brand awareness, brand image, brand intrusiveness, perceived diagnosticity, advertising recognition, intention to purchase and intention to recommend. The results of this research could help managers to better understand the customs and opinions of users and potential consumers, and take advantage of this technology using it in the most efficient way.

RESUMEN

La realidad aumentada, tecnología que ha empezado a ganar popularidad recientemente, está empezando a ser usada por las empresas para interactuar con los posibles nuevos clientes. Actualmente, las marcas están usando esta tecnología en redes sociales para proporcionar a los consumidores una nueva e impactante experiencia que les diferencie de los competidores. Teniendo esto en cuenta, el siguiente trabajo de fin de grado, está basado en el análisis del impacto que los filtros faciales de marcas tienen en las percepciones e intenciones de los usuarios. En concreto, se ha estudiado la influencia que el uso de filtros faciales puede tener en el conocimiento de marca, imagen de marca, intrusión de marca, diagnóstico percibido, reconocimiento publicitario, intención de compra e intención de recomendar. Los resultados de este estudio pueden ayudar a los gerentes a entender mejor las costumbres y opiniones de los posibles nuevos consumidores, y aprovechar esta tecnología utilizándola de la manera más eficiente.

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1. Introduction

Augmented reality (AR) are those technologies that incorporate virtual elements into the real world (Xperiencia Virtual, 2018). The popularity of AR has been growing continuously and it seems that it will continue to increase since it still has many possibilities to be exploited (Sariego, 2019). This statement is confirmed by the study of Markets and markets (2018) which reported that, in 2017, the AR market was valued at 4,230 million dollars, but it is expected that in 2023 it will reach 60,550. Companies have realized this fact and that is why more and more are entering the world of AR. Moreover, this technology opens up infinite possibilities and thanks to its versatility it can be implemented in order to achieve different objectives (Grapsas, 2019). Some of these objectives are, for example, reducing costs, optimizing tasks, establishing communication between product and consumer, increasing sales, differentiate from competitors... (Neosentec, 2017). In addition, many industries can take advantage of AR, like tourism, healthcare, education, architecture, and marketing (Yeeply, 2014). In the specific context of marketing communications, AR gives brands a new way to provide consumers with new experiences. An example of this innovative way of doing advertising is the Burger King's campaign "Burn that ad", that encouraged consumers to place their mobile phones in front of their main competitors' advertisements and, thanks to AR, burn these ads in order to gain win a free Whopper. Other case of this, is the campaign carried out by AXE at Victoria station in London, thanks to this technology the brand made angels rain among the trauners. Furthermore, the way in which it allows customers to interact with their environment and virtual elements, surprise and make them remember the brand (Pérez, 2017). Besides, it is estimated that by 2021 the AR industry will generate 20.3 billion dollars (Now Ideas, 2018). Accordingly, these data justify the growing use of this technology.

Currently, AR is present in our daily lives on a regular basis thanks to social networks (Webedia Brand Services, 2018; Figure 1.1). There are already many of them that include this technology, such as Instagram, Snapchat, Facebook, Youtube and TikTok. This AR ability to link the real world to a virtual space, together with social networks, is beginning to transform the way in which brands interact with consumers and carry out their marketing strategies (Hollander, 2020).



Figure 1.1. Facial filters of brands in social media

Brands that decide to employ AR in their marketing strategies and to create their own facial filters, can obtain several advantages. First, facial filters allow customers to interact with brands and improve the bond and get feedback. Second, social networks and facial filters can help brands to reach more audience. Third, they can boost brand awareness since they provide users shocking and innovative experiences that will make potential consumers to remember the brand. Furthermore, using these new ways of doing marketing can give the brand an innovative and fresh image, which will differentiate it from competitors (Nasas, 2020). Therefore, there are three goals that brands want to achieve when they implement AR in their social media strategies: increase their sales, boost consumer engagement and brand awareness (Hollander, 2020). Taking into account this previous information, this project tries to understand the impact of facial filters (AR) created by brands on social media users' perceptions and behavioral intentions. Specifically, the objective is to analyze how facial filters from brands affect variables such as brand awareness, brand image, advertising recognition, perceived diagnosticity, brand intrusiveness, intention to purchase and intention to recommend.

To achieve this goal, this undergraduate dissertation is based on the following structure. After an introductory section, the second section defines AR and is contrasted with the concept of virtual reality (VR). In addition, other terms like Mixed Reality and Pure Mixed Reality are presented. In the following part, it has been explained the use of this new technology in marketing, the possibilities that it provides and the benefits that AR can give to companies. Moreover, some examples of companies using AR in their marketing campaigns are shown. Then, the importance of social networks in people's life is presented, together with the way in which these Apps include AR (facial filters).

Besides, in this section, there are presented different facial filters from the diverse social networks that are explain and a classification of the existent facial filters has been carried out. After, these sections, it is introduced the way in which brands use facial filters on social networks to contact with consumers, provide them new experiences... and some examples of companies using facial filters are shown. Once the theoretic introduction has been made, the design of the survey, together with the definition of the variables studied is introduced. Subsequently, section 4, explains the results of the analysis and in the final section there can be seen some conclusions.

2. Augmented reality on social networks

2.1. The Reality-Virtuality Continuum: definition of augmented reality

The concept of the Reality-Virtuality Continuum (Figure 2.1) firstly appeared in 1994. This idea was developed by Paul Milgram and Fumio Kishino, who presented a theoretical proposal based on the existence of a continuum that fluctuate between the real and the virtual environment.

On the right side, we have what is called virtual environment where everything is produced by a computer. Within this environment the most obvious example is Virtual Reality (VR), which is the use of a computer technology for the creation of an unreal environment where the user is placed (Bardi, 2019). Whereas on the opposite point we have what is completely real, what you can touch and feel. Between both extremes there is what is termed Mixed Reality, where virtuality and reality coexist. According to the authors, inside this Mixed Reality we can find different degrees of how the real and the virtual world are mixed: Augmented Reality (AR), in which the reality is enriched by superimposing virtual objects; and Augmented Virtuality (AV), in which the real objects superimpose the virtual environment.

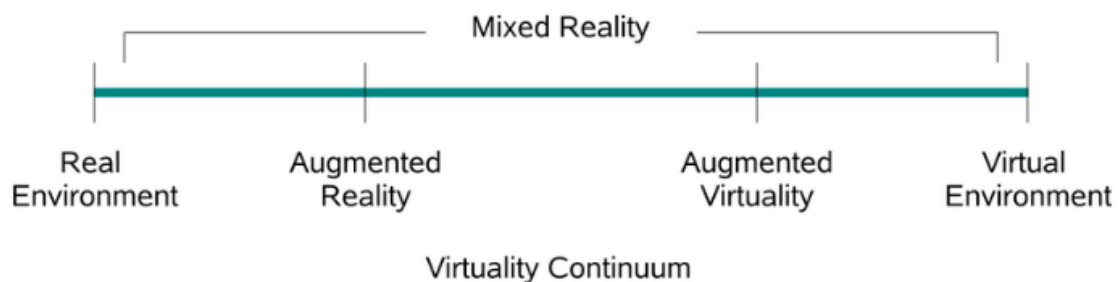


Figure 2.1. The reality-virtuality continuum (Milgram and Kishino, 1994)

For a better understanding of these two last concepts an example is given together with a clearer differentiation. On the one hand, in the case of AR we have Pokemon GO! (Figure 2.2) that was launched in 2016. In this app you can see the real world with the camera of your mobile and, superimposed over it, the characters of the Pokémon saga that are hidden in real world locations. On the other hand, when the interaction takes place in the virtual world, it will be augmented virtuality.

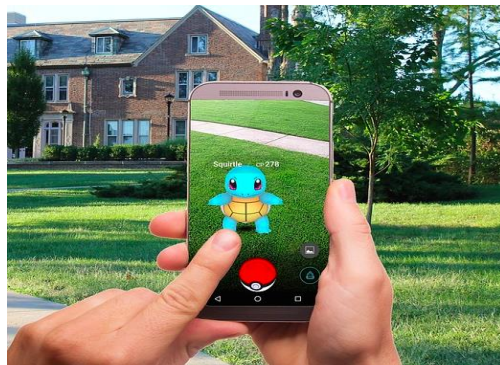


Figure 2.2. Augmented Reality (Pokemon GO!)

However, throughout years the traditional idea of Mixed Reality has evolved. Flavián, Ibáñez-Sánchez and Orús (2019) presented the concept of Pure Mixed Reality (PMR), considering it as an independent environment apart from the Augmented Reality and Augmented Virtuality. In PMR (Figure 2.3), users are able to interact with both types of objects (real and virtual) in real time, and both objects can interact with each other. Nowadays, as the authors have explained on their article, there are only two examples of PMR that are holographic devices: Microsoft HoloLens and Magic Leap.

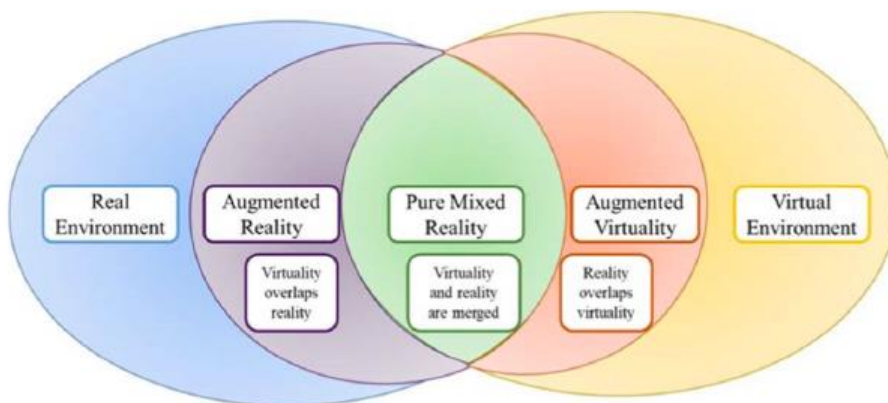


Figure 2.3. The new reality-virtuality continuum (Flavián et al., 2019)

Focusing on AR, this technology has gained a lot of importance during the last years and companies have started to take advantage of it.

Many different authors have tried to give a definition for AR. Azuma give a first definition in 1997 and updated it on 2001. He described AR as “*The combination of virtual and real objects in a real environment; a system that aligns/registers virtual and real objects with each other; and that runs interactively in real time*”. Carmigniani and Furht (2011) defined AR as “*a real-time direct or indirect view of a physical real-world environment that has been enhanced/augmented by adding virtual computer-generated to it*”. (Carmigniani and Furht, 2011). The following section it is going to go deeply in the use of AR by brands and the benefits they obtained due to it. Companies have started to take advantage of new technologies as AR, which has become a very useful tool.

2.2. The use of augmented reality in marketing

AR has become a really significant tool for a wide variety of areas due to its versatility. AR was firstly used for education and scientific ends, but because of the possibilities that this technique can provide to interact with customers, marketers are seeing the benefits that could be obtained when it is applied to brand-customer interactions. The social and technological revolution we have witnessed in the last years (e.g. smartphones) has promoted the development of AR as they allow a closer approach to customers. The reason is that it has been easier for people to access to mobile phones and new technologies. Consequently, in marketing the first AR applications appeared linked to advertising.

The constant technological innovation has improved brand marketing strategies. AR is an example of this type of innovations. AR help brands in their marketing strategies by making it easier for consumers to understand and connect with them and with their products or services. Furthermore, it facilitates users to identify themselves with the message of the brand thanks to the immersive capacity of this technology. In addition, AR has been placed as a perfect tool in order to make customers live new experiences and to make them see what the product could offer in a funny and interactive way. AR allow brands to entertain and capture users’ attention to obtain their objectives (Navarro, 2017). The study of ‘The Drum’ (2018) explains that AR can achieve, among other things, to keep the attention of customers for more than 85 seconds, increase their interaction in

a 20% and improve the *click-through* rate (% of clicks) related with sales in a 33%. Even though it is an ideal way of capturing customer attention, it provides other advantages to companies, such as allowing a potential customer to check the characteristics of a product by seeing and also trying it before buying. Thus, this report supports the increasing tendency in the use of this tool by brands in marketing.

AR is already a very important tool for brands and it is expected that this will increase. According to the data obtained by the International Data Corporation (IDC, 2017), the AR market was expected to reach a market value of \$17.8 billion in 2018. In 2020, it is supposed to grow extraordinarily until reaching a value of \$143.3 billion.

Summing up, this new technique has the ability to provide customers with different experiences that create a stronger link with the brand. AR provide customers unforgettable experiences and this is what makes the public to remember the products and the name of the brand, as people remember more what an ad makes them feel or live than what they hear or see. So, as it is an innovative concept and customers are not used to it, they will remember easily the marketing action.

Several brands are applying this new technique for advertising and some of them have reached the point of creating advertising campaigns mainly based on AR. For example, some companies have used 3D product catalogs, virtual clothing testers, games... Next, different cases are going to be presented in which well-known brands have employed this technique for their campaigns.

Sephora, the leader on global beauty retail, came to the conclusion that for women the main inconvenient for buying their products online was that they cannot know how they will look. The brand created Virtual Artist App in 2017 (Figure 2.4), an application that allows customers to try their products through the camera of their mobiles. It is free, and apart from giving customers the opportunity of virtually trying a wide variety of products, it offers step by step tutorials of trendy looks and also recommendations from Sephora experts.

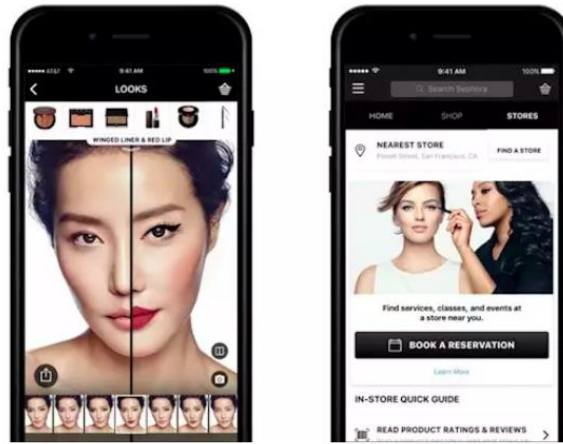


Figure 2.4. Virtual Artist App from Sephora

One of the most widespread uses of AR by fashion brands are fitting rooms. Brands like GAP, Timberland, Lacoste, Mango or Topshop are some examples of this. Moreover, within this group of companies, AR is used by each brand in very different ways.

GAP launched the mobile App called Dressing room by Gap (Figure 2.5), an application that allows customers to forget about traditional physical fitting rooms and to see how clothes look like through 5 mannequins with different sizes. The decision of the brand to use this new technology was due to the necessity of enriching customer experience as a consequence of the fall on sales in their physical shops.



Figure 2.5. Dressing room by GAP App

Timberland, together with the technology of Kinect, placed a screen that act as a mirror in one of their physical shops (Figure 2.6). The screen was situated in the showcase and allowed customers to get an idea of how the clothes would fit without having to try them in real life. Something similar was carried out by Lacoste or Topshop. For example, Lacoste has created an AR App (Figure 2.7) through which customers can see how shoes

fit with the aim of reaching a younger public. The brand achieved their goal of reaching more public as 30,000 users have tried it.



Figure 2.6. Virtual fitting room Timberland campaign



Figure 2.7. Lacoste Augmented Reality

Another AR application in marketing is from IKEA (Figure 2.8). This brand realizes that for customers it was not the same to see the furniture in the physical shop than at home, so they decided to launch an App that allow them to see the catalog items directly in their rooms. The App goes a further step and gives customers the possibility to walk around the item and observe it from all points of view. This provided Ikea a worldwide media impact and a good brand reputation due to the simplification in the purchase process for customers (Isostopy, 2018).



Figure 2.8. Ikea virtual catalog

There are many other examples of brands that have already use AR in their marketing campaigns, and some companies have started to expand this technology to advertising on social networks. In the following section it is going to be introduced the Augmented reality in social networks together with facial filters.

2.3. Augmented Reality on social networks

The presence of social networks in people's life has increased a lot in recent years. A study done by IAB Spain (2019) notes that 85.5% of the Spanish population between 16 and 65 years old use social networks, what means that 25 million people are taking advantage of them.

Social networks have seen the potential of AR and nowadays, although we have not perceived it, many have included it. The social networks that use AR are Snapchat, Instagram, Facebook, Tik Tok and Youtube. The way in which these platforms include AR is through facial filters.

The pioneer in this field was Snapchat, an App that was launched in 2011. This social network consists in sending photos and videos that disappear within a few seconds after being sent. This social network offers a wide variety of funny filters.

Snapchat, due to their early entry in the use of this technique, obtained an advantage in comparison with the rest, as this has become very popular. Since its launch Snapchat was built around facial filters, which add various elements to the real world through the camera of our smartphones. This social network helped all types of users to enjoy facial filters thanks to their innovative formula and their ease of use.

The list of filters since the launching has been increasing and this list is updated daily. Filters can be added to pictures and videos with different shades available, like sepia or black and white. Also, with the Snapchat face detector technology, the app explore your face and filters are inserted directly, but there are others that require an action such as touching the screen, raising your eyebrows or looking in different directions. These instructions are clearly given by Snapchat. These filters are created by the social network itself and can also be designed by any user of the platform. Snapchat gives the opportunity to its most creative public to propose new ideas of facial filters. These proposals will be examined by the App professionals and, if they meet with the necessary quality and originality, they could be enjoyed by all users.

Snapchat in 2016 published a list with its most used facial filters till that year (Garcinuño, 2017). Among them (Figure 2.9), the most famous is the one that adds canine ears and nose to the user's face, and a long tongue when he/she opens the mouth. There are also others very popular: filters that add a crown of flowers or butterflies to your face, or the facial filter that gives the user a pink tone to your cheekbones. Moreover, one of the most popular and used filters is called Face swap. This filter changes the face of the

user with the one with whom he/she is taking the photo. Also, Snapchat could scan the photos on the user device and look for more faces to exchange, enabling them to have the face of their favorite football player, singer... Finally, and to conclude with the examples, there is the bee filter that incorporates antennas and some yellow and black stripes on the faces of the users. Also, this facial filter makes the eyes of the person who is using it bigger and is able to change the voices that the mobile phone picks up to a high-pitched tone.

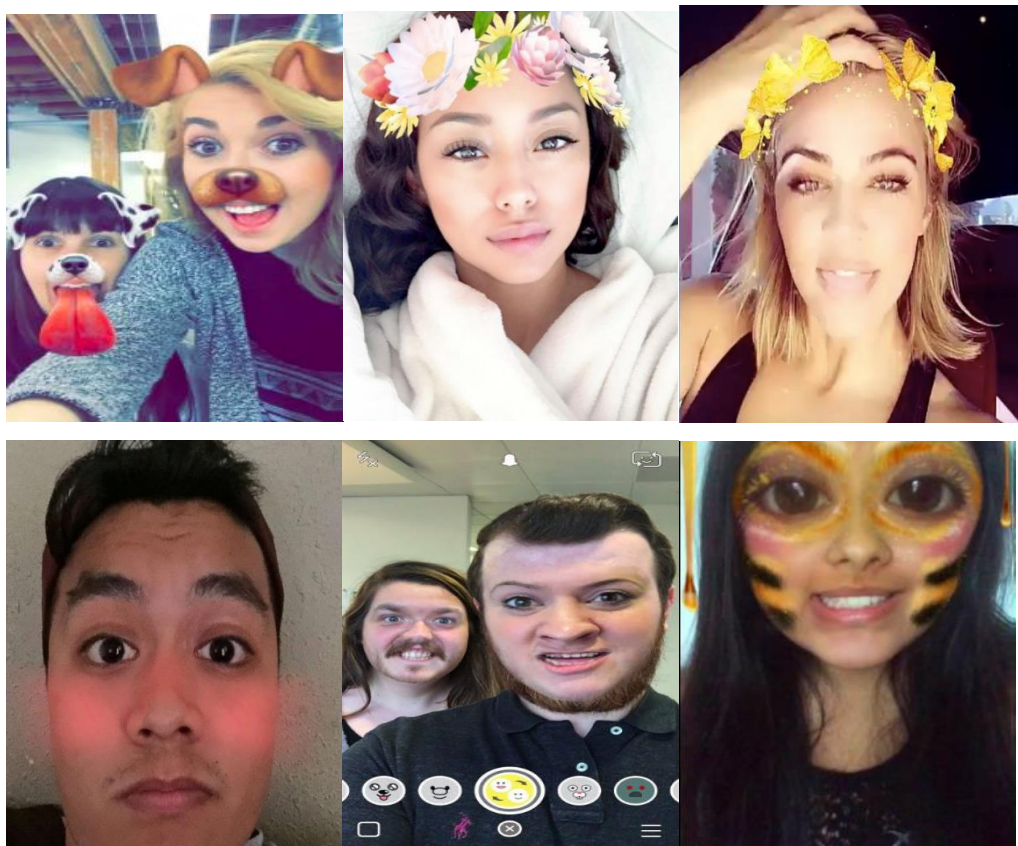


Figure 2.9. Snapchat facial filters

This App appeared as an innovative platform setting the pace for other social networks to follow. This fact has been dangerous for Snapchat as they had the risk of being replaced, and finally this is what has happened, at least out of United States. However, at the beginning of 2019 Snapchat recovered audience due to the launch of two new filters that became really popular. These filters were the one that transformed users into babies and another that changed their sex, but finally it seems that the boom has faded and Snapchat has fallen behind other social networks like Instagram again. Instagram is the App that implemented these augmented reality face filters after Snapchat. This social

network, that appeared in 2010 for IOS and two years later for Android, is a platform that allows users to share their lives through photos and videos. Because it was the first social media platform that allow this, it has become so popular. In addition, it has to be mentioned that the App had a great success since its launch for Android, as it achieved more than a million downloads in just a couple of hours (Tentulogo, 2018).

In summer 2016, Instagram incorporated a new function that (as they have recognized) was inspired in Snapchat: Instagram Stories. This innovative service consists of photos taken by users that after 24 hours are erased (following the Snapchat model). In May 2017 facial filters finally arrived to Instagram and shortly after, new functions were added. For example, the possibility of including music, stickers, questions, surveys or gifts (Figure 2.10).

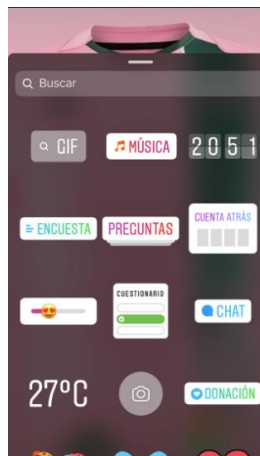


Figure 2.10. Instagram stickers

Instagram stories have become a daily used service by many people and also for brands. Even though stories were already having a lot of success with all these characteristics, a great boom came with the possibility of users to create their own filters. In 2019, Instagram users could start creating AR filters that could be also saved and used by the rest of the users. This new circumstance has caused the multiplication of the number of filters and has made some of them go viral (Barreiro, 2020). Emerging creators have used all their imagination and the result has been the appearance of very different and funny filters. Some of the most popular filters are for example one that tell the users to what animal they look like, to what Disney princess, what would be your ideal career, which film better describe your life... (Figure 2.11)



Figure 2.11. Instagram facial filters

Other kind of filters that have become really popular are those that make users look better. They sharpen users face, make their eyes and lips bigger, their nose smaller... Also, some add freckles to create cuter images (Figure 2.12).



Figure 2.12. Instagram beauty facial filters

In addition, there are some amusing filters that require interaction with users (Figure 2.13). Some examples of this could be one that is inspired in “truth or dare”, or another that gives the user two options and they have to choose the one that they prefer. Moreover, there are others that just insert a virtual item to real world, not in users face and examples of this are a filter that could place a dog on user bedrooms or another that could add a little Yoda dancing on their living rooms.

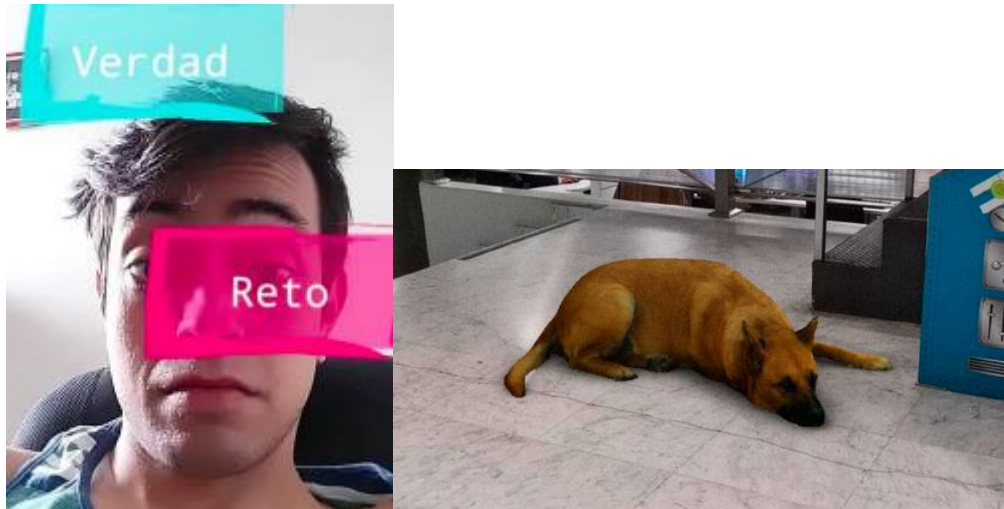


Figure 2.13. Instagram filters

Summing up, due to the possibilities that Instagram has recently given to the new creators, there are lots of different filters and the amount of filters will continue growing thanks to their great imaginativeness.

As for other social networks or Apps linked to facial filters, it is necessary to mention Facebook as this company acquired Instagram in 2012 and the launch of facial filters was also thanks to them. FaceApp is a mobile application that transform users' faces. This App appeared in 2017 and allow users to transform their faces to make them smile, look older/younger or change their sex. This facial filters became really popular and Snapchat copy them in 2019 by offering similar filters to their users.

Recently, other platforms have also introduced facial filters. TikTok and YouTube have seen the great opportunities offered by AR facial filters. TikTok is a social network that appeared in September 2016 and is based on sharing music videos. From the beginning this social network has achieved favorable results, obtaining 130 millions of active users in October 2020. Moreover, following this positive trend in recent months it has managed to outperform Facebook, Instagram, Snapchat and YouTube in number of downloads (Yúbal FM, 2020). This social network offers the possibility of creating one-minute music videos. In addition, it provides users with some artificial intelligence features, eye-catching effects, filters and AR to include in their posts. Besides, TikTok will launch this year a new way of advertising with AR that they have called "AR brand effect". Imitating other social networks, TikTok will allow their users to enjoy interactive visual filters created by brands.

On the other hand, YouTube is an internet portal created in 2005 that allows its users to upload and view videos. In 2018, the option to publish a type of stories similar to those of Instagram and Snapchat was incorporated. These stories have similar characteristics to those of the social networks previously mentioned: short videos to which stickers, music, texts and filters can be added. Moreover, to keep up with other platforms, they have introduced themselves in the world of AR while trying to provide more realistic filters thanks to an automatic learning technology.

Once an introduction of the different platforms that used AR has been made, some differentiations between filters will be carried out. At the end of the development about the different classifications, a table (Table 2.1) has been added with a summary of the information exposed for more clarity.

In general, one differentiation that can be made is between non-interactive and interactive filters. On the one hand, there are non-interactive facial filters that are those that do not require any kind of interaction and are simply apply the filter to the users' face. Some examples could be the already mentioned Snapchat filters that add to the users' head a crown made up of flowers or butterflies, or the one that makes them look embarrassed. On the other hand, there are the interactive facial filters that require the user to do some kind of action. For example, regarding the Snapchat filters that have been already introduced, in the case of the dog facial filters, the users have to open their mouths so that the filter simulates the dog tongue sticking out. Moreover, Snapchat is not the only social network with interactive facial filters. Other filters from Instagram require also some action, like the "truth or dare" filter or similar ones.

Another differentiation that can be made is between the filters that are created by the social network itself, the ones designed by users and the facial filters made by brands. All the platforms that have been mentioned have filters created by themselves. These types of filters are simpler, less creative and in the apps where there are filters created by users, they are much less used. Some examples of this type of filters are the ones shown in Figure 2.14.



Figure 2.14. Facial filters created by the social network itself

Secondly, the filters designed by users are only present on Snapchat and Instagram. Thanks to giving users the opportunity to be creative, the filters have evolved rapidly and are no longer simply nice, but now they also make users look better, some are games... as it has been already seen previously in the introduction with some Instagram filters.

Finally, there are the facial filters made by brands. Some examples are those that will be introduced in the following section. These filters are designed by brands with the aim of being closer to their consumers and as a new way of advertising.

The last way of classifying facial filters is between those that can be applied to the image or video before taking it and those that users can add to images or videos that have already been taken. All platforms that have been already mentioned have the possibility of including filters before taking the photo or video, and all the filters that exist in every app are within this category. On the other hand, only Instagram and TikTok have the possibility of applying facial filters a posteriori and only the filters that are created by the social network itself can be added to an image or video after taking it.

Table 2.1. Classifications of facial filters

NON-INTERACTIVE		INTERACTIVE	
Present in all social networks No action required E.g., Snapchat flower crown filter		Present in all social networks An action from users is required E.g., Snapchat dog filter	
DESIGNED BY THE SOCIAL NETWORK	DESIGNED BY USERS	DESIGNED BY BRANDS	
Present in all social networks Simple and less creative E.g., The rabbit facial filter	Only available on Snapchat and Instagram More complex and more imaginative E.g., Instagram “truth or dare” facial filter	Only available on Snapchat and Instagram Marketing purposes E.g., Gucci (Figure 2.15)	
APPLIED BEFORE TAKING THE PHOTO/VIDEO		APPLIED AFTER TAKING THE PHOTO/VIDEO	
Present in all social networks All facial filters available in the platform		Available on Instagram and TikTok Only facial filters created by the platform	

As it has been explained before, AR has made its place in social networks through facial filters. AR has been very well received and it is increasingly used. Experts agree that future goes towards AR and together with the popularization of social networks that are used by all types of people, it seems that this technology will have a long way in these platforms. Companies have realized about these opportunities to improve their productivity and marketing and social media departments have the challenge of taking advantage of this virtual tools where there is still a lot to build. In the next section, it is going to go deeper into this idea: the use of AR on social networks by brands.

2.3.1 Application of augmented reality by brands on social networks

Social networks are one of the best tools for brands for showing their products/services. Instagram, Facebook, Twitter or YouTube are just some of the main platforms that companies are using on a regular basis to make their brands well-known. However, it is not enough to have a profile, but you need to know how to manage it. Their combination with new technologies, as AR, offers a huge range of possibilities, so it results in a very powerful instrument for brands. Additionally, as it has been previously

explained, the fact that a social network allows brands to create their own filters has opened the way for many other ways of marketing and reaching potential customers.

As time goes by, an increasing number of brands have seen this as an opportunity and have entered in this trend that, under a funny package, hides a new way of advertising. To support this claim, it can be said that 1 billion users are expected to use AR in 2020 and an expenditure of 2.6 billion in AR advertising in 2022 (IAB, 2019). In addition, a case of a real company that also shows the importance of taking AR into account is Taco Bell. In 2016, this brand launched in Snapchat their own facial filter that was shared by millions of users and viewed over 224 million times the first day of launch. Furthermore, according to IAB (2019), over 70% of the users of the social network Snapchat have used or viewed facial filters every day and more than 300,000 filters have been created by the Snapchat community. Moreover, these filters were viewed over 35 billion times. Other studies highlight that this market will reach 6,300,000 dollars in 2020 (SuperData, 2020) and that 20% of executives in 2018, and 40% in 2019 placed AR as an effective marketing strategy (Perkins Coie, 2019).

Once some evidences about the relevance of AR have been exposed, it has to be added that thanks to the versatility of AR facial filters, companies from different sectors can get benefits adapting them to their own needs and characteristics. One of the first brands to take advantage of this was the distinguished firm Gucci. It created an AR face filter that makes users look like a Baroque painting by putting on them makeup and wigs from several centuries ago (Figure 2.15). This filter gave the brand a closer, fresher and a more casual image. In addition, with the launch of their facial filter, somehow modified the old image they had, transforming their situation.



Figure 2.15. Gucci's Instagram filter

Another example of a brand, among the many that have used AR in this sector, is Dior (Figure 2.16). For the presentation of the autumn-winter 2019-2020 collection, the company created a filter that allowed users to try the outfits and the accessories of the fashion show. The brand was pretending to get more people to know their new clothes.



Figure 2.16. Dior's Instagram filter

Although the fashion sector is within the ones that are most actively using AR, there are many others that are also using it. Focusing on the sport sector, some of the most important football teams in Europe have their own facial filters so their fans can cheer them on. These filters paint the user's face with the colors and crest of their favorite team, and allows them to simulate that they are hitting the ball with their heads while confetti fall as in a celebration (Figure 2.17).



Figure 2.17 Football team facial filters

Another example of an industry that is taking advantage of AR facial filters is entertainment. Many films have used this new technology as a way of advertising. For the launch of the film *The Joker*, it was created a facial filter that painted the user's face with the recognizable makeup of the well-known character (Figure 2.18). However, movies are not the only ones that created facial filters, series have also implemented them. For example, the Spanish *La Casa de Papel* has a couple of filters: one that tells the user which member of the criminal gang is and another that places the face of the user in a body dressed, in the recognizable outfit of these characters.



Figure 2.18 Joker's facial filter

Some events are also implementing this technology, as Black Friday promotion launched by the Grancasa mall last November (Figure 2.19). The action consisted of a promotion in which, if the client wanted to achieve 10€ for free, they just have to download a coupon and make a purchase with a value equal or higher than 30€. In addition, the mall created three different Christmas filters that could be used by clients to obtain an extra of 5€ for free. Grancasa used facial filters for a different purpose than the previous both companies did. They tried to increase their sales by making easy and funny the fact of obtaining 5€ for free. However, in order to obtain the extra 5€ through the facial filters, they must have previously spent 30€ at least, so at the end they are encouraging clients to spend money.



COMPÁRTELO:



Figure 2.19. Grancasa's Black Friday promotion

The implementation of AR gives brands many benefits and opens the way to new opportunities. However, they have also some negative facts. For some companies they may not be very useful depending on the type of entity or public for which they are intended. Although there are older people who use social networks, it is less usual; hence, for some companies whose target consumer is in this age range, it may not be so useful. In addition, a misuse of facial filters could turn against companies and become a major disadvantage (e.g. filters that are not appropriate for the consumers they want to target). Thus, companies should carry out an appropriate study of their target consumers so that they can offer an AR face filter that suits them.

Overall, considering the multiple benefits that facial filters can provide, this tool can help companies reach a wider public. Consumers who did not know the brand before can discover it through the filter. The user could find the filter, think it is funny and start being curious about the brand. Additionally, AR facial filters give brands a closer, fresher and a more casual image, as in the case of Gucci.

In conclusion, an increasing number of brands have started to use social networks because they open many ways to promote themselves and reach new consumers. The way in which brands take advantage of these platforms is through AR facial filters, facilitating them the fact of making themselves known through an innovative, funny and much more dynamic manner. The great visibility that these filters can provide to companies is very positive as they allow them to reach a bigger range of potential consumers and gives them a fresher and more modern image, while being closer with users. As a consequence, this new technology provides all kind of brands with many benefits thanks to their flexibility.

It seems that the use of AR on social media is going to continue in the future. In addition, investment in this sector is expected to go on increasing over the years.

3. Methodology

3.1. Design of the survey

A questionnaire was developed to understand how consumers perceive the use of AR facial filters on social networks. In the introduction, the questionnaire gave a brief explanation about AR and facial filters, and some examples of companies that had implemented them. Then, participants were asked if they had ever used facial filters and, in the case that the answer was yes, if these AR face filters were promoted by a brand or were not. These users of AR face filters were asked about their behavior on social networks (frequency of use, on which social networks they have used AR facial filters and with which frequency they have used them). The social networks considered in the questionnaire were Facebook, Twitter, Instagram, Snapchat, TikTok and Youtube, as they are some of the most popular ones (Martín, 2020). The next section included questions about the participants' perceptions (e.g., originality, interactivity, enjoyment) and behavioral intentions toward the AR face filters. If participants had previously answered that they had experience with AR filters promoted by brands, they answered some questions regarding their perceptions (e.g., brand awareness, brand image) and behavioral intentions toward the brand. The respondents noted to which sectors belonged the brands whose AR facial filters they had used and mentioned the name of some of them. Finally, socio-demographic questions, including gender, age, education level and daily usage of social media, were asked.

3.2. Definition of the variables

In this section, the variables that were used in the questionnaire, and will be considered for the analysis, are defined. These variables are brand awareness, brand image, advertising recognition, perceived diagnosticity, brand intrusiveness and intention to purchase and recommend the Brand.

Brand awareness is an indicator, obtained through interviews or questionnaires, that allows companies to know how and how much they are recognized by consumers (IAB Trends, 2018). Moreover, brand awareness is divided in: brand recognition, that is,

the capacity of remembering a brand in relation with their characteristics; and brand recall, which is associated with the ability of keeping in mind a brand as part of a category (Hoxha, 2019). What brands look for is to be in the top of mind: a list of the first brands in which consumers think when they have to cover a necessity. It is like a mental ranking that if the brand is in it, indicates it is over their competition (Hoxha, 2019). Some examples of brands with high brand awareness are McDonald's when people think on fast food, Levi's in jeans case, Iphone in the smartphone sector or Starbucks when talking about coffee. In addition, a higher brand awareness would mean higher sales, so in the case there is a low one, more advertising will be needed as the brand is not recognized enough. If brands want to have a good brand awareness, they will have to be aware of some facts like being different, if a company wants to increase this aspect, they will have to provide new experiences to their customers in order to be unique (Hernández, 2020). This idea of presenting consumer's innovative events, is directly related as it has been mentioned in previous sections with AR, so if brands want to improve in this topic, it would be interesting for them to start investing in this technology. Also, it is very important to be present in digital spaces and social networks, as it means that it will be easier for customers to find the brand's product (Turambar, 2018).

Brand image, “An image is the set of beliefs, ideas, and impression that a person holds regarding an object.” (Kotler, 2001, p. 273). Consequently, it refers to the perception that customers have towards a brand. It is a combination of impressions, feelings and ideas that consumers have of a concrete brand. It is a subjective concept as different customers could have different perceptions of the same brand (Pahwa, 2020). In addition, it is really important that the initial feeling perceived by clients with their first visual impression of the brand. This is because at the end, the main goal is to sell and providing positive values to potential consumers since the beginning is a key (Alcalá, 2018). In relation with the first contact with the brand, AR is a great opportunity for companies in order to leave a mark in their potential consumers. Moreover, it allows the brand to be much closer and gives a feeling of trust in clients (Urrea, 2017). In turn, social networks have become a great tool for brands thanks to AR and facial filters. However, the use made of these technologies is very important since facial filters must be consistent with the brand image. For example, if the company transmits an image of sobriety, it would not make sense to have a facial filter of a puppy, they will need a simpler and more neutral one. Everything has to be homogeneous, otherwise consumers will be confused and the brand will not convey that necessary confidence (Núñez, 2019).

Nowadays, consumers have the image that traditional television advertisements always give favorable and sometimes unrealistic arguments, so their credibility has declined in general (De Pauw, Panik, Zarouali, Rozendaal, Cauberghe, and Hudders, 2017; Fransen, 2015). This is why **advertising recognition** is very important, because when consumers detect that something is advertising, normally they will begin to be suspicious. As a result, consumers tend to trust more in their partner's opinions (generally an electronic word of mouth, eWOM) to guide their purchases. This eWOM is present in some platforms like Tripadvisor or in social networks like Instagram, Facebook or Twitter (Hennig-Thurau, 2004). A way of doing this kind of advertising on social media is using influencers to promote brands on their profiles. However, consumers will also believe more in the quality of a brand and trust it more when the influencer endorses it with no commercial reasons. This is because when there are no economic reasons it is no doubt about the true intentions of the influencer and will be a more credible eWOM (Campbell and Kirmani, 2008). Due to the negative attitude of consumers towards advertising, using influencers for marketing purposes is seen as a great opportunity for companies. These may be not perceived as advertising and may be less aggressive, so it is a good way for potential consumers to know a new brand and develop favorable attitudes. The case of influencers is similar to the one of facial filters, as they are not traditional marketing tools and users may not perceive them as advertising and not provoke a rejection response (Sponsorealo, 2020).

Perceived diagnosticity refers to how much consumers think a product experience has been useful for them in order to comprehend product characteristics. Sometimes a unique and fascinating experience can give to consumers an unreal view of the product and may not help them to learn about it (Hoch, 2002). Online product advertising is created to present and provide a clear understanding of products to consumers. Moreover, brands seek to impress customers with their product characteristics (Hoch and Deighton, 1989). Perceived diagnosticity can be positively influenced when using new technologies, like for example when using Sephora or Ikea Apps that allow consumers to try their products before buying them (See section 2.2). This is because the perceived risk about products is reduced as consumers have previously experience with them (Nam, Baytar and Kim, 2016).

Brand intrusiveness can turn into a negative attitude and perception towards the company (Mackenzie and Lutz, 1989). The brand can be considered as intrusive when it is promoted to consumers in an unpredictable way, without any prior will and, normally,

out of context. As a result, with the aim of reaching customers, companies sometimes carry out different marketing strategies that make them feel uncomfortable, causing a negative feeling towards the brand. This can happen with traditional (offline) and electronic (online) marketing (TresMedia, 2020). However, internet advertising is normally considered more intrusive than other traditional ways (Cho and Cheon, 2004; Li, 2002). Different researches have shown that brand intrusiveness on the Internet is refused by more than 90% of the users that have been exposed to it (Insights One, 2013). Moreover, 1 out of 5 adults claims to use an ad blocker and the 33% say they used it sometimes (Kantar Media, 2018). The general conclusion that specialists have to take into account is that, when users enter the Internet with a particular aim, unexpected and invasive advertising causes rejection as it can be seen as something that is preventing them from doing what they wanted (TresMedia, 2020). To prevent users from blocking advertisements and feel them as intrusive, brands need to design more creative and impressive advertising. Thus, experts in marketing and advertising recommend brands to communicate their message in a different way (ReasonWhy, 2018). AR face filters can represent a new means of generating non-intrusive brand communications.

4. Analysis of results

This section will be arranged according to the different set of questions asked in the questionnaire. Considering that the final degree project is about the impact of facial filters have on the brand, the data from the participants that had used AR facial filters from brands will be used for the analysis (N=191).

4.1. Characteristics of the sample

For a better understanding of the results obtained in the questionnaire, the socio-demographic characteristics of the sample are shortly analyzed. The results are displayed in Table 3.1. Nearly 80% of the respondents were female. Moreover, approximately 3 out of 4 were between 19 and 25 years old, and the rest were mainly younger than 18 years old. As for their level of education, it can be said that all the participants had any type of studies and more than 50% were currently undertaking a university degree (see Table 3.1). The other percentages were more or less similarly distributed between primary

school, high school or having finished the university degree, being all around a 10% , and slightly below was the percentage of people with a PhD.

Table 3.1. Sociodemographic characteristics of the sample

Variable	Number	Percentage
Gender		
Male	41	21.47%
Female	150	78.53%
Age		
Less than 18	35	18.32%
Between 19 and 25	146	76.44%
Between 26 and 32	5	2.62%
More than 32	5	2.62%
Education		
Primary school	21	10.99%
High school/VET training	21	10.99%
University (currently undertaking)	115	60.21%
University (finished)	20	10.47%
PhD	14	7.33%

4.2. Social media use analysis

Regarding the daily frequency of use of social networks, the Table 3.2 shows that the majority of the users of branded AR face filters used social networks between 3 and 4 hours a day, while a minority uses social media less than 1 hour. In Table 3.3, it can be observed the daily use of social networks according to different age groups. Only the 20% of participants older than 32 used social networks more than 2 hours a day. Moreover, looking at the two groups with the youngest people (“Less than 18” and “Between 19 and 25”) and first focusing the attention on the youngest group, the majority used social media between 3 and 4 hours a day (40.00%), but closely followed by those who are connected more than 5 hours (37.14%). Thus, almost 80% of users younger than 18 years old use social media more than three hours a day. For participants between 19-25 years old, the majority used social media between 3 and 4 hours (43.15%). However, the percentage of using social networks more than 5 hours decreased (21.92%), while the one of using them between 1 and 2 hours increased (30.14%). It seems to be a trend that shows that as the

age of the participants increases, the time spent on social networks decreases. However, this is a small sample and this could not be extrapolated to the entire population.

Table 3.2. Frequency of use of social networks (daily)

Frequency of social media use	Number	Percentage
Less than 1 hour	7	3.66%
Between 1 and 2 hours	59	30.89%
Between 3 and 4 hours	77	40.31%
More than 5 hours	48	25.13%

Table 3.3. Frequency of social media use depending on age

	Number	Percentage
Frequency of social media use: Less than 18		
Less than 1 hour	0	0.00%
Between 1 and 2 hours	8	22.86%
Between 3 and 4 hours	14	40.00%
More than 5 hours	13	37.14%
Frequency of social media use: Between 19 and 25		
Less than 1 hour	7	4.79%
Between 1 and 2 hours	44	30.14%
Between 3 and 4 hours	63	43.15%
More than 5 hours	32	21.92%
Frequency of social media use: 33 or older		
Less than 1 hour	0	0.00%
Between 1 and 2 hours	4	80.00%
Between 3 and 4 hours	0	0.00%
More than 5 hours	1	20.00%

The most popular social networks for users of branded AR face filters are Instagram and Youtube (Table 3.4). In both cases, the percentages of participants with no profile and that have never used them are very low, while the highest ones are from individuals that employed them between 4 and 7 days in a week (Table 3.4). On the other hand, TikTok and Snapchat are the social networks in which most of the participants had no profile or had never used them. Regarding Facebook and Twitter, in both cases, the percentages in all categories as it is seen in the table are not very high so frequencies are very similar.

Table 3.4. Frequency of use of social networks (weekly)

	Facebook	Twitter	Instagram	Snapchat	TikTok	Youtube
No profile	12.04%	19.37%	1.57%	14.66%	47.64%	3.66%
Never	34.03%	28.27%	0.00%	48.69%	45.55%	4.71%
1-3 days	28.80%	21.99%	6.28%	20.94%	2.62%	26.18%
4-7 days	25.13%	30.37%	92.15%	15.71%	4.19%	65.45%

The relationship between previous experiences with AR face filters and profiles on social media has also been studied (Table 3.5). This analysis has been carried out taking into account the respondents that had a profile and the frequency of use of AR face filters (in the case of having use the social network). The results showed that just a 4.66% of people having an Instagram's profile had never used any branded AR face filter. On Snapchat, a high percentage of respondents having a profile had used branded AR face filters (59.43%). In contrast, there is the data from Facebook and TikTok in which only a 6.45% and 2.19% (respectively) of the participants with a profile had used them.

In addition, results from Table 3.6 showed that the 33.51% of the participants that had used face filters from brands claimed that they employed them at least once a week, and 29.84% used it every or almost every day. The minority answered that they used them at least once a month (16.75%), but nearly followed by the ones that used it with a lower frequency (19.90%).

Table 3.5. Relationship between previous experiences with branded AR filters and profiles on social media

	Facebook profile	Instagram profile	Snapchat profile	TikTok profile
Previous experience with branded facial filters	6.45%	95.34%	59.43%	2.19%

Table 3.6. Frequency of use of facial filters

Frequency of use of facial filters	
Less frequency	19.90%
At least once a month	16.75%
At least once a week	33.51%
All or almost every day	29.84%

4.3. Users' perceptions of branded AR facial filters

Taking a look at the answers given by the participants regarding the brands that they remembered on social media using facial filters, a word cloud has been created with the tool Tagxedo. This has been made in order to see which are the brands that participants keep in mind the most, such as Kylie Jenner, Game of Thrones, Adidas or Dior (Figure 3.1).



Figure 3.1 Word cloud with the most remember brand filters

Focusing on the sectors to which these brands belong, it has been seen that participants remembered more brands from the fashion industry (e.g., Dior, Gucci, Louis Vuitton...). Also, sports fashion (e.g., Adidas, Nike) is another industry that the respondents keep in mind the most. Facial filters from Influencers or food get users' attention too, but to a lesser extent than fashion ones. The sectors less remembered (but still remembered) by the contestants were films (e.g., Disney), series (e.g., Game of Thrones) and entertainment (e.g., Real Madrid, Candy Crush)

Next, the variables related to the brands will be analyzed. As can be seen in Table 3.7, brand image and brand awareness obtained mean values above the middle point of the scale (4). This means that participants perceive favorably the brands that use of AR filters. In addition, brand intrusiveness and intention to purchase are the variables less significant for the respondents that do not reach the average value (4). This result in the case of intention to purchase has a negative meaning, although it could be expected that the use of AR filters does not generate purchase intentions; but on the other hand, it is

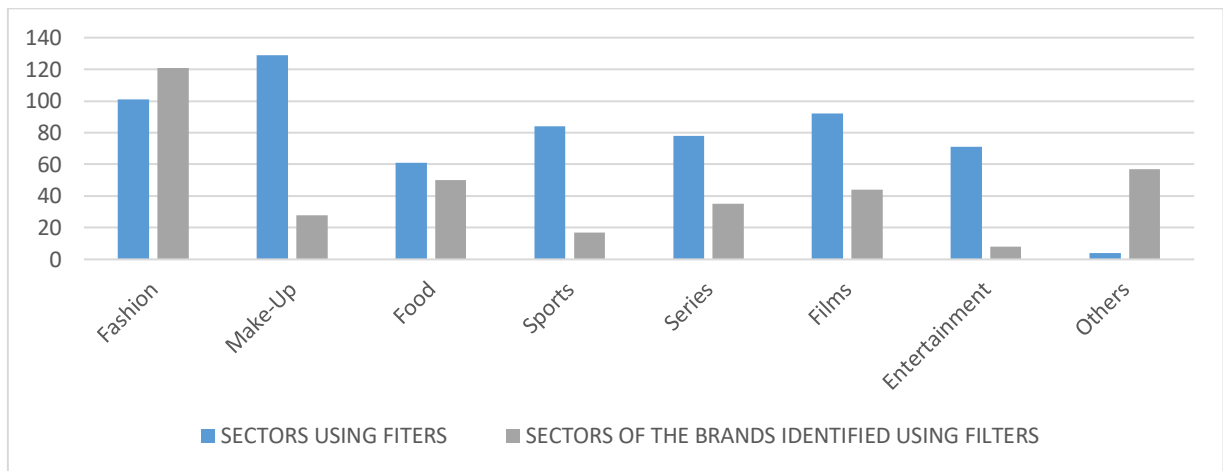
positive for brand intrusiveness, since if this value was high it would imply that participants could have adverse attitudes towards brands. Furthermore, if the mean values are contrasted with the middle point of the scale (4), through one sample T tests, they were all significant with the exception of perceived diagnosticity (Table 3.7).

Table 3.7. Average values of the variables perceived with brand filters

	Average	Standard deviation	One sample T test t(191) (sign.)
Brand Awareness	4.46	1.72	3.72 (0.000)
Brand Image	4.79	1.74	6.28 (0.000)
Advertising Recognition	3.46	1.95	-14.30 (0.000)
Perceived Diagnosticity	3.80	1.85	-1.52 (0.13)
Brand Intrusiveness	2.67	1.68	-3.81 (0.000)
Intention To Purchase	3.29	1.75	-5.59 (0.000)
Recommendation Intention	3.43	1.82	-4.32 (0.000)

Another fact that is going to be studied is whether users really remember brands using facial filters from the sector they think they remember (Table 3.8). The column “sectors using filters” is made up by the answers given by respondents when they were asked about the sectors they remembered using facial filters (close-ended question, fixed categories). On the other hand, the column “sectors of the brands identified using filters” is generated with the feedback obtained from their answers to the open-ended question about the specific brands they remembered. As it can be seen, the biggest difference is in the make-up sector, that although most of the respondents believed to remember brands of this sector using facial filters, then they were not able to name specific brands. However, this big difference may be due to the fact that Kylie Jenner has not been considered within the make-up sector and if it is taken into account within this sector the situation changes. Kylie Jenner was mentioned by participants 40 times when asked for specific brands they remembered using facial filters and if this amount of responses is added, the difference decreases and the sport sector becomes the one with the greatest difference in data. In addition, there were differences in the sectors of sports and entertainment. Taking into account the first column, the most related sector to facial filters is the make-up one, followed by fashion. However, focusing on the second column, the participants named more brands from the fashion sector.

Graphic 1. Comparison between the sectors participants think they remember using filters and the ones they actually remember



Moreover, an analysis has been made in order to see if there are differences in the variables of perceptions and intentions towards a brand depending on the sector (Table 3.9). Firstly, regarding brand awareness, there are not big differences between the means of the different sectors, so they are more or less equally recognized by consumers. However, it has to be highlight that Make-Up and “Others” (Influencers, artists...) obtained the highest values. In addition, the sector with the highest brand image is the make-up sector, while entertainment had the lowest mean value (Table 3.9). In the case of brand intrusiveness, all values are below the average (4), this is a positive fact for them since consumer are not uncomfortable with brands marketing strategies. The same occurs with advertising recognition, and again all values are below the average. An important variable for brands that show the usefulness of the marketing strategy is perceived diagnosticity, and the make-up sector is the one with the highest value (Table 3.9). Finally, about the two last variables in the table, intention to purchase and intention to recommend, make-up and sports are the sectors with the highest values.

Table 3.8. Perceptions and intentions towards a brand depending on the sector

	Fashion	Make-Up	Food	Sports	Series	Films	Entertainment	Others
Brand Awareness	4.47	4.84	4.49	4.69	4.74	4.40	4.63	4.84
Brand Image	4.79	5.15	4.89	4.74	4.92	4.90	4.65	4.99
Brand Intrusiveness	2.53	2.84	2.27	3.22	2.44	2.36	2.93	2.49
Perceived Diagnosticity	3.70	4.26	3.88	3.78	3.71	3.34	3.85	4.00
Advertising Recognition	3.39	3.58	3.09	3.39	3.20	3.39	3.41	3.39
Intention to Purchase	3.37	3.94	3.17	3.83	3.32	2.89	3.63	3.37
Intention to Recommend	3.53	4.10	3.38	3.61	3.18	3.02	3.07	3.44

5. Conclusions

The purpose of this undergraduate dissertation was to analyze the impact that facial filters (AR) have on brand's perceptions and behavioral intentions. In order to better understand the state of the art of AR technologies, a review of previous literature was carried out. At the initial stages, this technology was costly and not very popular. However, it has evolved and become a key tool for companies. The improvement in the usefulness is a consequence of the advances in the smartphone industry and in their applications, that have allowed to bring AR closer to users. Brands are realizing the advantages that this technology can provide and many are increasingly using it and incorporating it to their marketing strategies. Moreover, thanks to the versatility of AR, each company can adapt this technology to its needs and thus design a marketing strategy consistent with the brand. This allows brands to provide customers with new experiences and, as a result, catch their attention and increase brand awareness. In addition, the use of AR is one of the best ways for improving brand's engagement (Pastrana, 2013).

Social networks are gaining popularity, the employment of Instagram and TikTok is raising while others like Twitter or Snapchat are decreasing, but in general, their use is increasing. Brands have seen this tendency and are taking advantage of the use AR in social networks. The way in which brands do this is through facial filters that add virtual objects to reality through mobile cameras. Brands have realized that users find facial filters something enjoyable, makes them remember the brand more and create brand awareness.

Regarding the results of the analysis, the youngest people of the sample use social networks between 3 or 4 hours a day. Moreover, Instagram is the social network most used by the participants since almost all of them use it between 4 and 7 days a week

(92.15%). Besides, nearly all the participants that have profile on this social network have used their facial filters (95.34%). Taking into account the two aspects that have been just commented, Instagram is shown as a great opportunity for brands. In addition, other social networks are widely used with more than a half of the participants having an account and using them, Youtube (91.63%), Facebook (53.93%) and Twitter (52.36%). However, a very low percentage of respondents who have used these Apps have experiences with their facial filters. On the other hand, it is the case of Snapchat, that less than a half of participants used it (36.65%), but the majority have used their face filters (59.43%). In conclusion, as it can be seen thanks to the data obtained, Instagram is shown as the best opportunity for brands if they want to promote their products through social networks.

Regarding the brands that have gained the most thanks to having used facial filters in social networks as promotion tools, we found that Kylie Jenner, Game of thrones, Adidas or Dior were highly spontaneously remembered by respondents. Relating this data with the variables previously introduced, it can be said that these brands have achieved a high brand awareness as are the ones most remembered by participants. In general, brand image and brand awareness obtained very favorable perceptions, meaning that brand facial filters manage to give the brand an image of being friendly, modern, or natural. In addition, they help to recognize the brand among the competitors. On the other hand, the variable with the lowest mean is brand intrusiveness, this fact is also positive as this imply that participants in general do not consider brand facial filters as an annoying distraction. If to this we add the result obtained in the variable advertising recognition, a mean also low, it can be said that brands are doing a good job in general since neither the consumers are detecting the facial filters as advertising nor they feel bothered.

The variable perceived diagnosticity has neither get positive nor a negative value, a mean close to the average value (4), this could be because users employ facial filters in social networks simply to hang out and not with the purpose of purchase, so the diagnosticity is not high.

Finally, regarding behavioral intentions, the results are not favorable since it seems that the facial filters do not favor the purchase intention but neither do they have a negative effect as the fact of using filters does not make them want to buy less the brand. Summing up, it seems that filters are more useful to generate a positive image and attitude towards the brand. They are well seen so their impact on the shopping behavior may be more long-term and indirect through the creation of this favorable image and attitude.

Taking into account the variables analyzed and related to the sectors of the brands mentioned by respondents, it can be said that brand facial filters provide all sectors a high brand awareness and brand image, being the make-up sector the one with highest means. Additionally, all sectors have obtained low values of brand intrusiveness and higher but below the mean (4) of advertising recognition, being positive for all sectors. Moreover, regarding perceived diagnosticity, participants considered that facial filters from the make-up sectors have been the most useful in order to better understand the characteristics of the products. Finally, in relation to behavioral, in general participants would not be willing to do neither of the two actions, since data collected is below the average. However, the sector that got the highest values is the make-up sector followed by sports. Summing up, the sector that obtained the best results in all variables is the make-up sector, so it is the one that could benefit the most if they use facial filters in their marketing strategies.

In spite of the interesting results collected with the survey, there have been some limitations in the research that leave some research lines open for the future. For example, from the 191 participants who answered that they have used brand facial filters, 146 are between 19 and 25 years old and only 10 over 25. This segment of populations, as it has been also studied, is the one that most uses this AR facial filters, but future research would be compelling in order to generalize these results to the rest of age ranges. Finally, it would be interesting to study in the future, depending on the sector which would be the potential consumers they are targeting in order to design facial filters and a social media strategy that matches and be attractive for them.

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