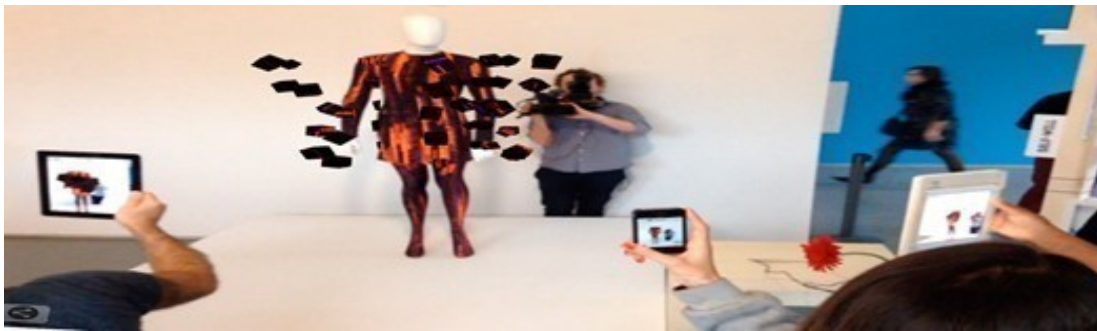# ROLE OF AUGMENTED REALITY IN SHAPING THE GERMAN FASHION INDUSTRY DURING COVID 19

Name - Mangveer kaur Brar

Matriculation no:-037463

University Name :BBW Hochschule - University of Applied Science ,Berlin

Course Group-HM047

Supervisor Professor :-

Professor - Dr. Malte Behrmann(1)

Professor- Dr.-Ing. René Brunotte (2)

Executive summary

This study highlights how augmented reality has helped in shaping the market of the fashion industry post COVID-19. The study has shown how remote fashion trial concepts have evolved from the use of augmented reality. The COVID 19 pandemic has led to huge fallout in the fashion market. This study also highlights how different stakeholders responded to the scenario of fashion marketing during COVID. The study also highlights the importance of intercepting the fashion study and its application through remote technology. The study used Google survey forms to collect data for analysis and this has resulted in benefits. The analysis of the survey has also revealed various aspects of high importance.

Table of Contents

Chapter 1: Introduction

1.0: Background of the study

Before the discussion of the topic that how augmented reality influence the shaping of fashion industries of German, it is necessary to discuss about what actually the term augmented reality means. The term augmented reality which is also written as AR in short is an advanced version of the world in which we live. This advanced version is achieved by usingdigital technology. This technology includes elements which can be seen digitally also the sound or any other sensory responses done by the technology (Silvestri, 2020). Its influence is seen mostly in the companies of the mobile sectors and also in the applications of business. When talking about the main aim of augmented reality, the main aim is to enhance the particular features of the real world and alsodevelop the understanding of those features and based on these features, derivation of some smart and accessible awareness which can have a great impact on application of the world or more precisely the physical world. AR can be used by the retailers for enhancing their services as well as their products. Also it can be helpful in launching a well-planned campaign for the advertisement of new products and also it can be used to collect the user's data. One of the cool features of AR is that it displays everything in 3D which becomes more easily to understand whatever the image is about and also with this 3D technology it attracts consumers which influence any field of business and also fields other than business like it can be used in healthcare sectors in which the body systems can be viewed in 3D making it a lot easier to understand the situation. It is also highly applicable in learning the medical tools (Baranwal and Roy, 2021).

When having a look at the fashion industries in Germany, according to a report of 2019 Berlin has developed itself to remain under top 5 worldwide fashion places with about 200,000 visitors visiting the fashion shows as well as the trade fairs also in terms of design and quality this city is aspiring. Almost 3,100 companies and 24,400 people employed the fashion's capital in Germany according to a report of 2019. Also, Berlin was the first European UNESCO city of design and it was rewarded as the city of design by the UN organization of culture. This became the reason for Berlin being a creative city (Bukantaitė and Sederevičiūtė-Pačiauskienė, 2021). According to a report of 2021 the contribution of fashion industries of Germany in the economy is recorded with around 1.3 million people. The revenue in the fashion field is planned to reach US$24,357m in 2021. This industry has used digital technologies such as augmented reality to increase the

production and also to compete with the other companies of the same field of different countries like China and the U.S. No doubt that the COVID-19 has affected all the markets including all fields and also the fashion industries sectors globally. It started affecting the fashion sector from the beginning of the Covid-19.

1.1: Research objectives

- To understand the impact of augmented reality on the fashion industry.
- To understand the prospects and consequences of application of AR in fashion in the fashion industry
- To identify the challenges associated with augmented reality in fashion industry

1.2: Questions of the research

1. What is the impact of AR on the fashion industry?
2. What are the prospects and consequences of applying AR in the fashion industry?
3. What are the challenges associated with the application of AR in the fashion industry?

1.3: Significance of study

The data of fashion consumption change just after the COVID-19 pandemic stated that they would be change their habits of fashion consumption of which 62 percent of surveyed accepted the term that they will be throwing out the products of fashion less frequently and 59 percent agreed on the term that the will be buying products of high quality so that it can stay longer than the normal ones and 55 percent agreed with the term that they will be repairing the fashion products in order to prevent the need of buying the new one and 22 percent disagreed on the terms. Due to the pandemic these fashion industries were recorded with low economic profits, the leaders of the business were at their best on working on their core constituencies. Still they got affected and the reason behind it was the lockdown and the strict precautions due to the pandemic (Kaczorowska-Spychalska, 2018). But they started to develop again by enhancing a lot of new features; the augmented reality concept was one of the new features which helped the fashion sectors of Germany to regain the economy and to get rid of those tough situations faced due to the pandemic. A reference report

suggests that the German sportswear *puma* launched its first augmented reality shoe, which helped them to gain more profit through this feature especially during the pandemic. The sneakers are covered entirely by 2D qr codes which enhance the AR experience after being scanned through the smart phones camera. To access these features, the wearers must have downloaded the *puma lqd cell app* on their respective smartphones. Limited edition shoes if the retailers want to buy them then they can access them throughpuma.comat 130 euros. The company recorded a huge profit with this product through augmented reality. One of the main reasons why the augmented reality was proved helpful and successful for the fashion industries of Germany during and after the pandemic was that during the pandemic, necessary precautions were taken which included the restrictions of customers entering the shop also the restrictions in traveling and the restrictions in opening the shop for 8 hours a day (Cao, 2018). All these restrictions caused the customers to prefer online shopping rather than going to the shop. Particularly, at this time the augmented reality (AR) has emerged to attract customers even in the lockdown due to the fact that it displayed the images of the object or the product in 3D. This feature can be accessible through smartphones; the customersfelt it easier to buy products online with the help of augmented reality (Papahristou *et al.*, 2017). Also the cool features of this AR is that the products canbe easily fitted in any celebrity's body with the help of the computer, so that the customers can watch it easily whenever the AR show will be held.

1.4: Chapter Summary

The chapter has outlined the background of the study along with the research aims, objectives and the significance. It also helped in understanding how the customers can check the clothing on themselves with the help of this features so it makes them easier on how they will look like before buying the product, thereby reducing the use of changing room and the company can also prevent any kind of defects in their products also they can improve and redesign their products according to customer's need.All of these reasons made the customers choose AR features over the old ways to deal with it. The world of fashion industries have been changed due to the involvement of the augmented reality concept, making them believe in the peoples that they can check the product as well as use the product before buying it. The above mentioned were some of the steps taken by the fashion industries to avoid or to overcome the tough situation of the pandemic which affected almost all the sectors globally.

Chapter 2: Review of literature

2.0: Introduction

The applications of AR (augmented reality) are on the ascent with virtually where there is an option to try before buying anything. This encounter goes from seeing products to furniture at home with regular brands such as IKEA and Home Stop, to essentially taking a stab at fashion brands like Zara, M&S, Gucci, and Louis Vuitton (Baier*et al.,* 2019). Hence, due to this reason AR has immediately become a fundamental innovation for the retailers. Moreover, in this pandemic situation the role of AR has helped the German fashion industry in a better way. In the similar context this study discusses how the AR played a vital role in reshaping the fashion trend in the time of pandemic.

2.1: Overview of key themes

2.1.1: Role of augmented reality in reshaping fashion trends

Fashion industry is a $4.5 trillion industry which is one of the industries, open to innovation and whether in the sense of e-commerce or aesthetic, it is always facilitated as a hotbed for the new trends. With all the new and innovative things fashion is now moving towards the current in technology augmented reality (Abou El-Seoud and Taj-Eddin, 2019).

Augmented reality is really a sense maker as being considered as a tool it could revolutionize the way of interactions of consumers towards their brands (Berkemeier*et al.,* 2019). This technology helps the marketers in blending the real time surroundings into limitless animated designs in a very seamless way.

In the few last decades the witnesses are likely to show how AR is remodeling the entire fashion industrial sector, in terms of retail management, fashion industrial business model etc. Brands in the fashion sector have been introduced a "blending real-time" surroundings with the hands of animated designs. A change in the business model is likely to give customers more satisfaction in making choices, preferences etc. Brands have now a great opportunity in promoting their brands by accelerating a seamless interaction process between consumers and customer management

teams; that has become feasible due to the technological innovation especially augmented reality. So it may look like AR-powered purchasing can be the next forward innovation. According to fashion giants, 20 percent UK consumers though have gone through this AR-powered shopping experience seamlessly (fashnerd.com). Moreover, three quarters of the US consumers have been preferred augmented reality related directed shopping over the creative video contents in terms of entertainment, gaming, and shopping. Overwhelmingly, the researchers are likely to reveal that majority of consumer would like to opt for AR powered technologies; in that way the technologies assist the consumer to purchase the things or can make right purchasing decisions for them (Yahia *et al* 2018). Therefore, AR has been revealed itself as a kind of effective technology that can give the fashionable brands as well as retailers a vibrant opportunity in tailoring made experiences for consumers. However, the rate of adoption to AR in various segments is slow. Moreover, there have been a few brands in the industry that are trying to dip their toes into the AR world. The earlier pioneers regarding AR is liable to include GAP inc. etc who has been taken an entry into AR space with "dressing room", a device "Google tango-enabled" that enable the users in using the app. This app aims to assist the customers in customizing an appropriate avatar based on the type of the body (Sheena and Sudha, 2019). The technological features also enable customers to have a look on the avatars; the patterns and colors how much they are suitable on them with the help of GAP. Different angles are shown in such technological features.
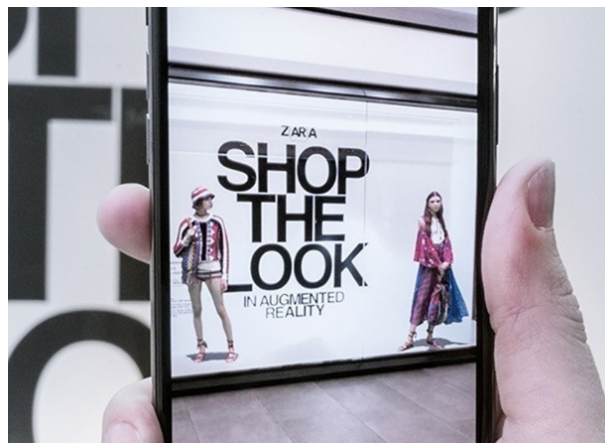
Figure 1: The AR features in app by a fashion giant

(Source: liveareacx.net, 2021)

In this way the technology of AR and innovation enable the brands to showcase their collection in precise as much as possible. AR practically has become useful in delivering customer satisfaction by

enabling them to make right purchasing decisions. The brands are winning the fame by adding value to their services with the help of AR.On the other hand the consumers find their benefit in augmented reality as 62% of them strongly believe that it will help them in their shopping (Abou El-Seoud and Taj-Eddin, 2019)g. For instance, US consumers massively prefer the AR experience while shopping. At present the availability of augmented reality is limited to few of the stores; its unique experience helps the fashion brands to display their forward looking principles. 73 millennial clients are becoming the largest market for the brands this year and that is due to their characteristics of tech savvy (Bermejo *et al.,* 2017). Moreover, due to this characteristic the millennial are captivated with capitalizing the socio and tech media by the clothing retailers.

For instance, Zara, a retail giant, uses augmented reality to display their in-store products. Customers only need to hold their smartphones in front of their choiceable window and all the models will appear before them wearing current line-ups. Moreover the customers just need to click a certain item to automatically purchase them. For online shopping augmented reality could also show packages with alternate outfit pieces from being delivered, which encourages the customers for repeat purchases.Then there is also LVMH's Sephora as a brand in fashion industry. They have been introduced *"virtual artists"* in collaboration with ModiFace. The app was reportedly tried to download over 10 times in million that provided the customers an opportunity to try out various shades of makeup (Nash, 2019). The customers can combine the shades with their preferred shades using their high resolution front-facing camera on the Smart phones. Therefore, as a fast processing AR app in moving outside regarding clothing space of fashion and into the space of beauty; the AR app's successful outcomes are not only revolutionary but also it has assisted the German fashion brands as well as other brands across the globe in increasing the fashion industry's revenue.
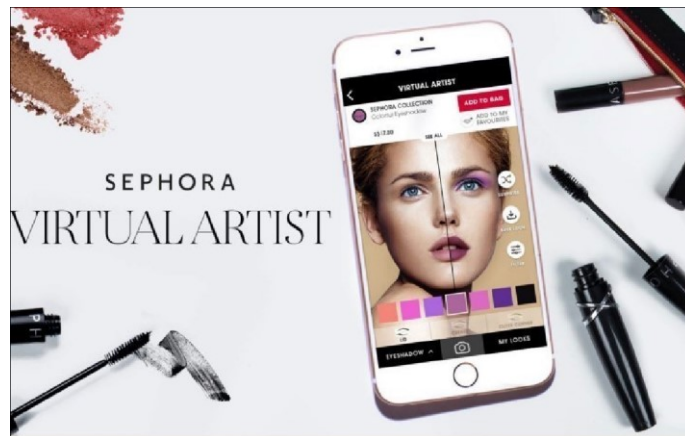
Figure 2: The "virtual reality" implementation by a fashion beauty giant

(Source: firstclasse.com.my, 2021)

It has been observed that while retail stores seem to remain unaffected by the online market, at the same time Zara is showing how to stay at a stop in spite of being a retailer, just with the tech of augmented reality (Boardman *et al.,* 2020). Although fashion brands like Zara are retaining their backbone in the business industry, it's true that e-commerce provides a handsome share of the total revenue global retailers are growing at the rate of 8.8% of the estimated total retail spending in 2018.

Therefore, According to Silvestri (2020) The augmented reality when is considered from the perspective of "In-store millennial Clients", there have been 7.3 million "millennials" who are trying to make up the growing population in this year 2021. Those brands are trying basically to become the no. 1 vast market for different fashion items. One of the essential features of the millennial in relation to augmented reality is to understand how they can be tech-savvy in the fashion market. Moreover, for the retailers of fashionable clothing and accessories they are likely to state that the whole scenario is all everything related to capitalizing on social media as well as a tech for captivating millennial consumers (Silvestri, 2020, p.61). Hence, as an example, *"Zara",* which is known as a popular fashion brand and retail giant, considers augmented reality for displaying their in-store showrooms in terms of all their brand marketing operation. Moreover,

Customers even can hold their own handsets or smart phones when they stand in front of a Zara store; they are likely to discover various models wearing different fashionable pieces from the brand's latest fashion line.

Figure 3: Trends via AR

(Source: mobibiz.in, 2019)

Aside from such a wow factor, this kind of feature with AR enables customers in the German fashion industry to experience convenient shopping. Therefore, after especially during the Covid19 situation and after the Covid-19 situation fashion industrial Companies are focusing on utilizing AR for promoting their brand. As a result, Customers also get influenced positively for purchasing fashionable clothing and accessories, etc. This factor is indeed responsible for contributing to the fashion market growth. However, this is just an example of a fashion brand. There have been many other popular brands that are highly motivated to use AR in different ways to accelerate organizational and market growth. Some organizations are focusing on increasing the demand in the market for certain products by using augmented reality, as per the study by Marfia *et al* (2018) However, this thing needs more in-depth research in the light of the German fashion industry, as that is a newly emerging concept in the market. The principal idea is creating interests and increasing the interests among the targeted customers and then serving them at the right time by those products; and augmented reality is something that could enable the fashion retailers to transform the developed ideas into real-time happening (Oppewal *et al* 2019, p.445). However, there has been no doubt on that how many customers have become more addicted to online shopping after introducing AR into the online display system of fashionable products. Many organizations that are why keep focusing on utilizing AR for online shopping. Packages are

subjected to show alternative fashionable items such as outfits, watches, clothing accessories, and other items, etc. Those alternative items, outfits, etc are attached with the delivered pieces; that is liable to entice customers to make purchases repeatedly. According to the research, the analysts have been observed that while there can be seen a rare scenario of physical stores that are not affected by online purchasing and marketplace. According to Silvestri (2020), the research has focused on analyzing the process of extended reality and how that is formed for accelerating the outgrowth of the fashion marketplace; along with this how augmented reality plays its role in reshaping and influencing the field! However, after the Covid-19 pandemic situation, a shift can be seen in a radical manner: most of the operations from shopping up to showrooms as well as fashion weeks had taken a move online. Therefore, while fashion e-commerce retailers in Germany were already created a consolidated significant pillar for fashion shopping. It has been started to evolve for achieving via AR along with VR (Visual Reality)what majorly could be found by customers before in the renowned physical stores: sensory stimuli and interesting experiences. Online traffic when stays have peaked creates more space for technological innovation based on augmented reality. It has disrupted power along with many potentialities in taking over each phase of the fashion industrial value chain. Furthermore, during the phase of quarantine, the fashionable garments and other product's production were slowed down as the workers were absent in the production sectors. AR along with VR and artificial intelligence has been considered as the perfect tools and even the answer for such problems. However, the final outcome of the study is likely to indicate that AR along with VR and other technological innovations through artificial intelligence could set the norm in this field of the fashion industry, fashion media, and technological ecosystem. Practically the day is not very far when AR, VR, etc will reinforce and rule the digitized system of the industrial sector.

Therefore, companies are looking to grow in terms of online shopping experience such as Gap's pilot app made in collaboration with parametric. Now the application by the name of Gap's dressing room helps the customers to try their choiceable outfits anywhere by using Google Tango enabled devices. Moreover, it allows the customer to customize an avatar according to their body type and see how the different pieces of cloth look different on them from different angles. Further, on being satisfied one could buy the product directly from the application. These are the advantages of an augmented reality application. Another exam of which is Wanna Kicks which had been developed

keeping the shoppers in view (Bonetti *et al.,* 2018). It is an application which helps the users to try different pairs of shoes from their 3D models available. A consumer can just choose a pair of shoes and then by pointing the camera towards their feet they could easily make out the compatibility or match of the product with their feet. The application also has the feature of tracking the feet movement which helps to judge by means of walking around with the preferable pair on the feet, which was only practically possible at the retailers by now. Likewise, by bringing the retail store experience in e-commerce could potentially increase the online sales. But the Augmented reality oriented applications are not only limited to clothes and shoes of the fashion industry but cosmetics and accessories are also investing into the immersive techs (Botti, 2019).

2.1.2: Importance of virtual reality in highlighting fashion trends

VR (Virtual Reality) is defined as a significant technology, giving a degree for an incredible jump for unfavorable fields. VR is often known as immersive multimedia, and is a computed imitate environment which can replicate the actual presence in places in imagined worlds or real world. However, this technology helps to provide an in-depth insight regarding history and origin of early virtual reality and explains the current remains of this innovation in the region (Bug and Bernd, 2020).
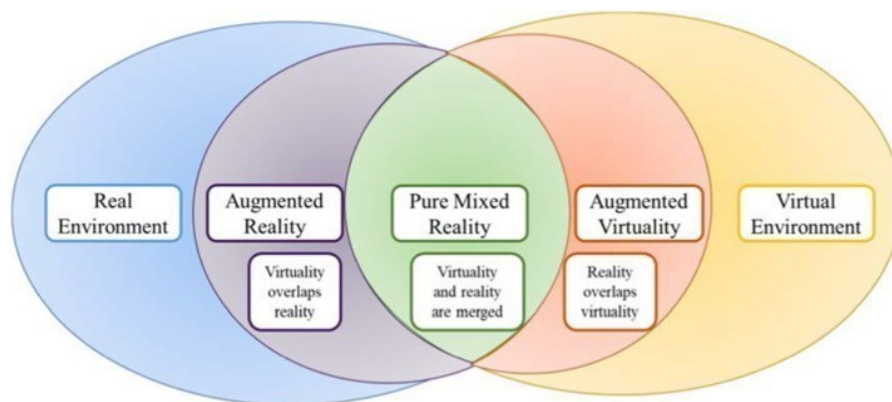

Figure 4:Importance of the VR in fashion industry

(Source: sicencedirect.com, 2019)

According to the study by Donatiello *et al* (2018), the connection between technology and fashion is increasing year by year in terms of depth and number across the globe, the German fashion

industry is not apart from this. Communications, as well as information, are those vital things that create the platform by connecting the world; which is the key role play of them to accelerate any marketplace outgrowth. The fashion industrial field is not an exception as well. On the other side, it also has been found that consumers have significantly changed their minds and buying behavior.

They have also changed their approaches for products: if a relevant example is considered, the vast shares of users, which today makes the customer to buy various fashionable items online rather than in a mortar and brick shop (Oppewal *et al* 2019, p.445). Now, in terms of the fourth wave of "consumer electronics" for example advent of VR as well as AR might have essential implications on such connections. This factor is responsible to create and set a new pathway for discovering products, various new trendy items, etc. Moreover, it also creates very good brand communication. In such a scenario, the research has focused on gamification experiments along with the virtual reality that is likely to show an outcome of presenting a broader fashion game to a large audience with fashion experts. The result is finally has been confirmed that there are broader and promising opportunities that can be useful when technological innovation will take place. That will be possible with the hands of VR. A commercial domain and creative world of the fashion industry will be formed.
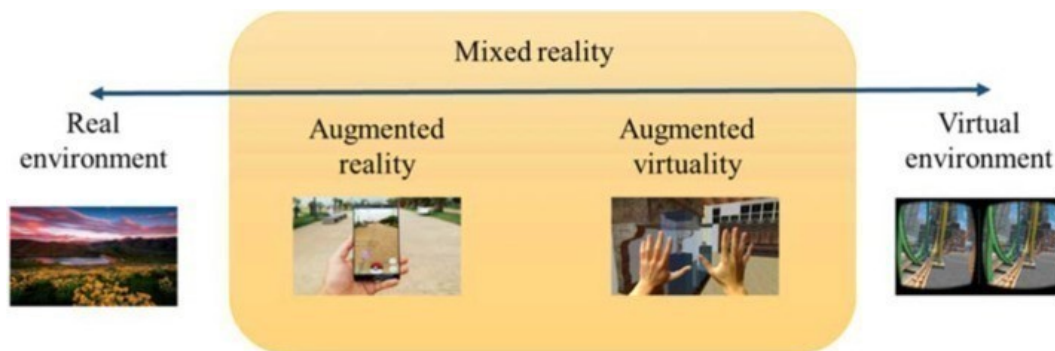
Figure 5: AR and VR importance in terms of technology in fashion

(Source: sciencedirect.com, 2019)

According to a study by Oppewal *et al* (2017), they are likely to argue that technological advances through VR can be regarded as an eye-tracking procedure. It has the capability to make the impossible things possible for measuring unobtrusively the visual attention of consumers; during the procedure of shopping. Mobile vision tracking in the area setting, however, can have several

limited aspects (Oppewal *et al* 2019, p.445). It also includes the highly cumbersome information and data coding procedure as a limited aspect. Additionally, the area setting is liable to permit only limited regulations of necessary interfering variables. In this research, the authors also have been argued on that virtual reality could provide an alternative way of setting that is combined with the mobile vision tracking technological system. The system will provide control and flexibility and that will be provided by practical lab-based experience. This research also has been reviewed on key benefits of the various eye or vision tracking technological innovations as available for any natural as well as virtual environments. Then it also has been described that how the combined VR settings along with vision tracking provide a very unique chance for shopper study. Moreover, the thing is particularly for using Augmented and Visual reality provides extra shopper assistance. A study by Suzan et al (2019), had been conducted a study to understand a unifying definition and importance of Virtual Reality in setting fashion trends. Virtual Reality is widely trying to consider the importance of the stimulation process. That is why various concepts and ideas have been integrated to develop an appropriate procedure regarding this VR. Alongside with the rapid rise of CGI fashion promoters and influencers; the virtual models that include Bermuda, Imma, and Shudu, etc. are making various creative virtual clothes as a fashion brand. For pro-long years now, at the fashion forefront, cutting-edge designers are taking part in this movement, for example, Cat Taylor, The Fabricant, etc. have been significantly pushing the wider boundaries towards tangibility. The brands are now creating virtual fashionable clothing and accessories that are actually rendered on actual or hype real figures. It is an emerging concept that is actually going to be the biggest trend of fashion from the year 2020 to 2022- sweat suits apart. There will be no wonder that people who are likely to spend a sound amount of money and more times as indoor shopping, will change their mind as well as develop interests in purchasing more in the digitized system realm (Alinier *et al* 2019, p.28). The day by day the more development of the features in VR system will create more interest for almost all-purpose fashionable accessories and clothing purchasing. However, in this respect, the authors of this research also have highlighted many more points based on their analysis, review, and understanding. These are:

1.   Virtual reality is something that can move into a new phase of innovation along with new uses in any sector in further times. New technology is likely to be introduced with the hand of VR

and AR for creating more innovative fashion and beauty trends by fashion entrepreneurs and brands.

2.   The term "VR" along with AR is important because of its comprehended capabilities as a "Plethora of Modalities". However, that can be confusing to anybody sometimes.

3.   VR is important in the house of fashion because of its inclusion with immersion level that considers all the characteristics of presenting aspects as per the user (s) senses. Moreover, they can be designed as deceiving purposefully.

Beauty and fashion is one of the undeniable fast-moving and innovative industries when it proceeds to developing innovative and engaging customer strategies. Moreover, enhancing consumer engagement and marketing campaigns leads to huge sales (Inhaabit.com, 2021). It has been observed that by 2022 more than 44percent of the world's population will be using the AR application in their daily life while shopping (Inhaabit.com, 2021). This technology of virtual reality is totally changing the mode of industries in an innovative way (Bug, 2020). It is through the ability of visualizing beauty and fashion items in reality that is able to demonstrate the possibility to leverage AR in making the retail encounter more interactive and engaging. This application is not also accepted by the consumers but also became familiar and renowned in the market. Several retail organizations and brands have implemented this application in their in-store experiences and application. Moreover, there are several advantages after the implementation of virtual reality by the retail brands (Haumer*et al.,* 2020).

For instance, people are buying any product by giving a try on virtually by this application. It can zoom, move and check the details of the product by moving it in a 360 degree to check how the product is visualized in real life. This application is not limited to the online platform but also enhances the experience of the in-store consumers (Horst and Dörner, 2018). A global retailer brand Zara also implemented this application to display its collection of new items at the front of the store so that people passing by the store can get the demonstration of the products in a live runway.

2.1.3: Impacted of AR in improvising fashion design trends

AR (Augmented Reality) is a platform that provides a wide scope of opportunity of technology on MR (Mixed Reality). This technology consists of both the real world and virtual object environment. The real world items are profoundly coordinated into the virtual world are virtual spaces to produce new environments and examine where physical and digital entities interact and coexist in significant time. Such assets incorporate ramified presence, storytelling, and many others (Hutzschenreuter and Burger-Ringer, 2018). The innovation of AR essentially broadens the view of the genuine part of people by incorporating critical progressed data into a genuine environment. Moreover, in the real-world circumstances, AR assists a customer to work easily. In the gaming distraction and rational interpretation extended reality conditions are essentially related (Kalbaska and Cantoni, 2017). Hence, by implementing AR devices, the benefits one can get from this project may offer the investors with an easy and quick arrangement where the unqualified novices can even effortlessly capture the entire shrewd network (Klopfenstein *et al.,* 2017).
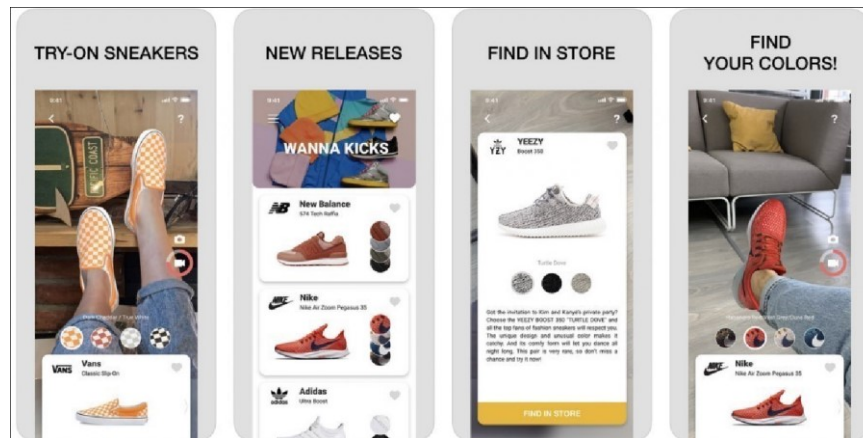
Figure 6: AR as improvising the fashion industry

(Source: sciencedirect.com, 2019)

According to DeGard (2020) in his study has been described about the ideation in order to understand the impact of VR and AR concerning fashion app improvement. Visual merchandising is included with the study concepts. In this current modern epoch, the fashion world is seeking to change the game at every runway moment, where VR and AR are accelerating the changing concept to a great extent. Visual merchandising in Germany in this respect is holding significant importance in making all the brand operations successful. The system helps to develop new ideas and designs for promoting and displaying fashionable clothing and accessories for consumers (DeGard, 2020, p.56). Since, humankind's birthplace there can be found a quest inconsistent manner for new ideas and thoughts that can make the living pattern better with time. Virtual reality and augmented reality have been acted as key role players in advancing all the systems; rather these can be regarded as ongoing advances. Those advancing features are actually liable to guide critical concepts and thinking with minimal manpower utilization, as well as making the carries by humans simpler than before. Likewise, these technologies play an important role in empowering the fashion trends display. The AR plays a role as a gadget for perceiving natural objectives; so that it can accomplish the trends as well as fashion industry to a great extent. In this current era, the consumers' desire, taste, attitude to buying all can be possible to identify with the help of better and developed designs of AR. In this way, it can create a significant impact on the fashion industry.

More and more customers' demands along with various needs, preferences are increasing.

Therefore, augmented reality is helping the industry to increase the better shopping experience for the customers. This can be seen as an extraordinary discovery by fashion innovators and technological experts in this field. Moreover, with the assistance of AR application 3D models can be developed that could take a stab at the various fashionable items, clothing, etc. for creating interest among the customers' minds. Another positive aspect of AR is its capability to scan and examine the fashion products in such a way that it can create a prior picture of the look, or how the item is fitting on a particular model (Bernhardt, 2018, p.1391). This is an innovation that has been changed the direction of the industry. The fashion influencers and models are being capable to provide the precise look of beauty and fashionable products on themselves. The brands are being promoted better, which is a great positive impact of the AR in improvising various fashionable designs and trends. Moreover, such modern utilization of AR can obtain a precise measurement of the customers that can plan as well as design attractive fashionable clothing as per their desires. However, such ideas undoubtedly have been improvised in the fashion designing field across the world. These ideas are basically the part of current innovation, which is unstoppable. According to the study, this era is gradually forwarding towards the scenario in which the fashion designing sector will be controlled completely by those current and upcoming developments.
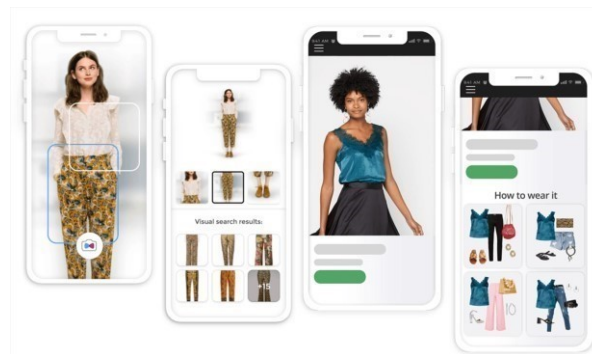
Figure 8: AR satisfies the customers by considering their preferences

(Source: sciencedirect.com, 2019)

Utilizing the inexpensive, compact, and creative interaction and display tools, the functionality of the AR gives the clients access to a new reality that is supported by machine-based information.

When the AR executes itself as a new client interface, it permits an absolutely new way to deal with the fashion stores (Pantano*et al.,* 2017). Moreover, AR is a liberation mechanism which permits the customers to convey telepathically like changing, rotating, and scaling the shades for the model dress and to have the option to investigate them while shipping their telephones while strolling in the world of reality. The clients can situate the digital entrance on a level surface in reality (Muthumanickam and Prakash, 2020).

Moreover, in the advancement of innovative technology, the applications of AR are progressively applied in the clothing industry in a creative way (Patten *et al.,* 2020). Furthermore, nowadays the applications of creativity in the fashion sector have to be according to the consumer's goodwill by trying clothes before buying.

2.1.4: Marketing activities during pandemic for creating an outreach

It is essential to connect with the clients via social media during the pandemic situation. Due to the outbreak of coronavirus the entire world is suffering the loss and attack still today. Despite the precautions taken, thousands of people are getting affected daily that is also causing death to many individuals (Perannagari and Chakrabarti, 2019). Government has also implemented a lockdown to overcome this pandemic and maximum works are done at home by the help of the internet and cellular network. Many people are using social media like Facebook, Twitter, Instagram, etc to connect their customers by making a fan page of their organization or firms. Therefore, Germany should implement the marketing strategies by social media to create an outreach.

It is also important for any sort of business to be found in the online platform. The online media can make any kind of business, advertisement, or any individual famous overnight. Nowadays, every person is working online. The search engine has been growing day by day and will be expanding more in the future (Rese *et al.,* 2019). Recently, many people have stopped buying newspapers due to this COVID-19, and they are searching for the updates in their phones only and reading the current news with the help of the internet. Therefore, the organizations must use the strategy of SEO (search engine optimization) to be on the top of Google's SERPs (search engine results page) so the product of the business can be found easily. People are buying online clothes

in an easy way with all the easy exchange and refund policies (Ro *et al.,* 2018). Therefore, the German businesses should use online platforms to get to their customers easily.

Figure 7: marketing strategy during Covid-19

(Source: sciencedirect.com, 2019)

The smartest move trending in the market is the PPC (pay-per-click) advertisement. This is a model of online advertising where the advertiser or the pulsar pays the user each time when they click their online ads (Ronchetti*et al.,* 2020). This makes the business obtain competitive benefits, and help them to connect their potential clients easily. Further, it is an incredible opportunity to make money inside the budget digital marketing. It has been observed that CPC has diminished by 6% and is probably going to keep on diminishing in the recent days. This also offers the business one more opportunity to gather up that share that has been lost in the market from others pulling back in this time.

The pandemic situation is not only changing the behavior of consumers but also it is changing the critical thinking process of the brands as per the study by Callaghan et al (2018). The way has been greatly influenced by the brand owner as they are now trying to experiment with the latest designs and collections in new processes. They are being inspired by the wider fashion and outer community with the help of which new looks, new choices, new purposes are being formed. The technologies are being utilized to a great extent for ensuring better spread among the targeted consumer groups. It is basically now developing new opportunities for taking fashion brands forwarded and the fashion leaders are uplifting their game by creating precise images of the outfits.

The roadmap of marketing is changing its game with the hands of technological innovation. They are basically taking a peek at the future images of the fashion industrial sector. The future according to the research is very bright. The profit margin will likely to be increased by understanding and catching the fashionable trends with time. Moreover, the understanding includes the specific trends, which are merging based on digital and physical lives of people collide even the coming era.

According to Noyanika Dixit's perspective in her study (2020), The Covid-19 pandemic is majorly responsible to develop new opportunities in marketing and in the fashion industry in spite of the crisis situation. The opportunity is about creating a community for the brands that can show how much they care for fir customers. Moreover, how much they are aimed to maintain the stakeholders' top of the "mind recall" with brands' customer line is also included. The brand owners and marketing departments are trying to push the fashion goods accessories, shoes, dresses, etc. as per the current needs, preferences of the customers right now. They are facing various challenges on social media as well to promote and implement new ideas. Therefore, customers have become so fickle and have diverse choices, preferences for the products. According to the suggestion by the author, the reason is quite clear why the challenging situations have come in the marketing segment of fashion brands. That is why the brands should focus on necessity and demand as their core marketing principle. The author also has been suggested that the fashion industries need to direct the marketing approach in a new way during this covid-19 outbreak as the industry has been considered by a large number of people as an "unnecessary" one. In the new approach of marketing and direction, the fashion brands can ensure that they could keep the necessary conversation going towards all the shoppers without making an outmoded sound in terms of marketing approach in the German fashion industry. The opportunity is coming through online traffic that must be utilized by the brands. This is an opportunity because, all the avenues, malls, stores are shut and all individuals are forced to consider home-staying the unprecedented traffic on social media is are the positive factors for the fashion industry; in simpler terms, the social media platforms are practically booming. Innovative strategies and a new road map should be the core aspects while designing the marketing activities. Therefore, another positive factor is the fashion brands do not need to shell out an enormous level of funds in showcasing their creative designs and activity. Rather it has turned into a one-upmanship game within its own confines of space for both the patrons and brands both. The study also has found that consumers who tend to spend time on the internet have shown

70 percent whopping along with 61 percent of jump in facebook on various social media platforms. According to that revelation of data by a Face book survey it has been reported that the fashion brands' app visiting and exploring have been increased up to 70 percent. Most significantly, the live and reel promoting videos of Instagram and Facebook, etc views have been doubled up within just a week since the first lockdown was carried out. As per the current analysis, the fashion brands are considering this; right now the situation is not ideal to pay attention to projects aimed at garnering revenue. Instead, time has been considered as a great opportunity to generate a new community for the followers. Many businesses in Germany are going through a fighting situation in order to survive; they are trying to build up quality connections among the stakeholders so that they can be benefitted from future planning and implementation. This is the time when marketing departments are ideally trying to fulfill the basic needs of customers to ensure minimum well-being for in crisis moments rather than commercial brand promotional operations (apparelresources.com, 2021).

According to Kardong-Edgren (2019), a Germania designer and marketer should consider the future scenario after the pandemic situation. That is why; many influencers and marketers have been offering great categories of fashion lines with the help of AR. According to this research, the marketing departments should promote a sustainable competitive brand strategy for creating revenue growth in business (Kardong-Edgren, 2019). The "Virtual try-on" has been introduced to promote strategic marketing techniques. By employing such an approach the result is likely to be positive to increase the customers' engagement level with the brands and their buying tendencies can be increased as well.

It has been likely to say by the study that, the fashion brands are quickly focusing and recognizing the impact of AR aspects. They could showcase the marketplace with their products.

The COVID-19 will fade away after some days or months and the total situation will come to a normalcy and the clients spent in their habitats will stabilize. It is necessary to understand that the strategy of SEO is way long and it is vital for the growth of a business (Yoon *et al.,* 2019). Therefore, it is necessary to continue the campaign of SEO as it will give a huge result when the entire market will start to open. Thus, stopping the work on the SEO can affect the business of Germany.

As in this pandemic situation every shop, mall, and store are closed. However people are still in need of fashionable clothes and accessories. This is a period that the brands or organizations should discover approaches to interface with their clients more than ever. It shows sympathy and keeps applicable when their business may have been affected by individuals remaining at home. For example, stores are closed now because the government has announced to shut the fashion industries and clients are not buying clothes (Yoon *et al.,* 2019). Therefore, in this case, the fashion websites must provide free delivery if a customer buys any item via online. Then, various offers should be included like offer buy two get one free, etc. Therefore, the fashion industry of German should focus on these strategies to overcome the market during the pandemic situation.

2.1.5: Importance of media in highlighting trends of fashion

Fashion is influenced by the media by creating excitement and public interest in the latest trends and styles by the help of broad publications of informative articles, celebrity endorsements, and glamorous photographs (Mishra *et al.,* 2021). Moreover, the media works as a barometer for fashion, estimating the low and high spots of the styles of celebrities, showing the changing elements of fashion intelligence of the notable perspectives and ways of life of important famous celebrities, role models, and public figures (Rese *et al.,* 2019). Despite the fact that fashion journalism has been there since the twentieth century, social media has extended its scope of impact by providing the public a clear view on the fashion industry. Shows like the popular New York Fashion Week, was earlier accessible to the high class peoples only but currently it has made available to the audiences all over the world via continuous postings to Instagram, Pinterest, Twitter, Facebook, and many other sites in social media. Fashion advice, editorial comments, celebrity tweets, and photographs furnish online crowds with exposure and inspiration to them to experience the current trends that impact individual style decisions (Rese *et al.,* 2019).

Social media also helps in increasing brand awareness. While selling on the online platform nowadays, it has become the fastest accessible to the customers. It helps in connecting with the clients and keeps up-to-date with the fashion and latest trends related thought (Rese *et al.,* 2019).

Moreover, the leaders assist to build a close connection with the clients and develop a passionate following. An insight of business updated by Facebook likewise features the significance of

featuring the brand value, as purchasers are presently anticipating that their individuality should be better obliged (Reese *et al.,* 2019). Maximum of the purchasers between the age of 18-34years prefer that they incline toward a brand that shares their ethics and qualities. Moreover, the organizations also must provide superior client service. For instance, if the clients are utilizing the social media already and are often active on the sites, they might like to talk with the customer assistance on a foundation of their decision. Empowering clients to speak with the group of the organization in their preferred way offers better support than clients, which will benefit the positive feedback and brand image.

According to a study by Braham, 2017, the complex, as well as uncertainties in the relationships between consumption and production of fashionable items and accessories, might be illustrated by following some special stories. There have been two stories that have shown concern towards major British retailers along with some specific characteristics. Social media should portray those concerns along with the specifications to develop inspirational brand stories in front of customer lines. The stories can be utilized in brand marketing. The concept is that a manufacturer along with a retailer can say a story in which they will present how they feel in working with the brands, how they have developed a soul connection with the corporate governance actions of the brand etc. These stories are mainly considered for editing, furnishing, and certain features to add value to the storylines; in this way, those become subjected and eligible for presenting on various social media platforms. Therefore, people watch and follow the storylines out of sound interests (Braham, 2017). The fashion brands in such a way increase their number of followers, viewers, and admirers, etc. This kind of strategy only is possible in Germany and all over the world fashion industry with the hands of social media and other media platforms. Media tools nowadays have been increased in number that can accelerate the process more as per the author's point of view; and many other pieces of research (Silvestri, B, 2020) have supported this finding as well. According to a brand exemplar, a fashion retailer has been said his story regarding the brand's blue jeans production and supply. Another exemplar of such strategy is concerned with a variant of a usual nightmare that has been said about haunting the store buyers. As per those exemplars and brand's media utilization strategy, the essential clothing and accessories should be considered; for instance, jeans are not considered in the German and other western countries as normal clothing apparel; rather it is viewed as a fairly as well as a standard piece of fabric where changes of style are limited but the

classical designs are widely accepted. Sometimes, media has played a significant role in removing the denim fabric as fashionable clothing from the marketplace (Ahmad *et al* 2018). Hence, these kinds of considerations are influenced by the stakeholders majorly as per the study, and media is regulated to a great extent in contributing to such change and brand promotional factors. The author through this study has stated that if media does an extensive level of coverage regarding the clothing, accessories, and other fashionable items through newspapers and magazines; then it invariably can make the concept of fashion very exciting for anybody (Mezzina *et al* 2018). However, this is also likely to be very or fairly superficial as per the finding of the research. In this regard, the theories of "fashion diffusion" come first that is known as a significant "class differentiation" from a technical perspective, but still, it is likely to be known more democratically as the "trickle-down" ethos of fashion and media is a significant role-player in this aspect.

According to a study by Kontu, H and Vecchi, A. (2016), a sector of business fashion also carries certain characteristics that can be promoted majorly by media houses. Changeability, wearable, likability, etc factors are signified by the media houses. In this way, the popular, as well as classic trends, are spread among the mass people with the help of media. Therefore, the necessity of social and other media houses is evident as people in millions use it for connecting with others in any corner of the world. People share the fashionable objects with their community to spread the trends (Kontu and Vecchi, 2016). Different topics, points of view are explored and stated by people, which is again transported to mass people with the help of media. Henceforth, it is quite apparent that media houses play a ubiquitous and powerful role where many brands from this fashion industry can portray and promote themselves in creative and alluring ways. Moreover, the research is also likely to suggest that the fashion brands should view media as a very powerful resource to extend and promote brand products. This statement is also supported by another study (Ren, 2021). According to the final findings of the research, renowned fashionable brands of clothing and accessories can promote and implement innovative strategies to gain profitability from the targeted market. On the other side, the brands that are in a difficult situation in the covid-19 situation can also increase their survival value by generating a new strategy by considering media a useful resource indeed. That has been stated by Ren in his study in 2021.

According to Pavione *et al* (2020), conventionally, the social media before was used to deliver important news and discussion about the brands and rarely used as a launching purpose of fashion products. Nowadays, it is a rare fact that brands in the fashion industry are not using social media platform to portray a sound presence of them in the marketplace. It has been apparently found that if there is any industry that has been influenced immensely by media houses; then this is the fashion industry and the German fashion industry is not an exception although. The reason behind this phenomenon is the fashion industry's two-dimensional characteristics and one-sided as well. Brands are likely to put their products in magazines and users then can find the products as usual (Pavione *et al* 2020). Various ideas and inspirations are flipped via all the magazines' pages that can motivate the buyers' min to a great extent. That is why it has been believed by the brands that creativity can be flipped from various degrees on the magazine's pages for ensuring maximum reach and views of potential and existing buyers on these products. Models and film stars walk on the runway by wearing creative designs that also are significantly covered by social media and print media houses. Those ideas create interest among the emerging designers to replicate the designs in new patterns. Most necessarily media houses are liable to spread the iconic designers' collection in the mass media and the medium consumer brands try to imitate the designs by considering relatively cheap materials. That is the way media plays a significant role in developing and spreading creativity and inspiration among the people across the globe. The fashion industrial sector, however, generated users as well as trendsetters concerning the emerging trends (Ammoura and Ertemel, 2016). Users generally do not show any opposed mentality about their consumption of relatively cheaper materials' dresses that are inspired by global star fashion brands. That is why people more and more tend to view on social media pages of fashion shows and brands for discovering more new designs. Users also can show their thoughts regarding the new designs and look (Highfield and Leaver, 2016). Their level of acceptance, viewpoints are considered as a useful resource by the fashion brands. That is another reason why social media is considered as a good platform for shaping the fashion industrial sector (Burns *et al* 2019). Brands after discovering the diverse viewpoints of consumers can rethink and redesign, renovate their collection to captivating the minds of their consumers. Media also enables the brand to stay connected with its stakeholders and most importantly existing customers. Media has significantly reframed the industrial structure by allowing the users to consume fashion. In fact, not only fashion but also viewers and users can post their opinion about the trends and new launches. This is their holy contribution to shaping the

fashion industry by developing a good connection between consumers and business persons. Media is the key role-player and influencer indeed.

As per the above discussion and exploration of facts related to media, it is quite clear that how media is acting as a key role player and influencer when it comes to the fashion industry. The pathways and popular media tools are needed to be understood as well. "Celebrity endorsement" is something that is nowadays excessively been utilized by renowned fashion giants. Conventionally, via social media, the celebrities were appeared as a brand model, commercials, public stunts, and interviews. All those have remained very much useful indeed, but nowadays media has taken the game one step forward. On these days, media platforms are used by the celebrities to show live videos; they use and how they carry particular garments are shown. On Instagram reels to Snapchat stories, celebrities post videos and stories to promote a brand. The fashion industry in fact knows that if they need to sell or increase the sale of a particular product then they never opt for television commercials as a fast influential process; rather they will opt for a quick tweet to a public figure or iconic beauty as soon as possible to promote the product as an effective brand commercial.

Implementing advertising campaigns can be a better way to reach potential customers. Social media or the online platform could be utilized by paid marketing and further the vital presence on the platform can make the company achieve its goals. Moreover, the organization can also reward the customers and the followers in the platform of social media by many deals and games. Further, many opportunities are offered by social media to drive traffic to the mobile application and websites (Perannagari and Chakrabarti, 2019). It is important to grab the attention of the clients in the pages of the organization. As driving traffic to the items pages can likewise acquire a bigger crowd to see landing pages, look books, and official blogs for special sales and offers. Hence, advancing the portable application via social media can likewise be a compelling method to drive introduces.

Moreover, the social sites are utilized by the designers to keep their designs up-to-date in the public awareness for competitive markets like Instagram, Facebook, etc in the world of fashion. Therefore, the internet in the extensive openness made conceivable, the association between style trends and public figures, and the strong image marketing value, all these add to the media's effect on the fashion world (Perannagari and Chakrabarti, 2019).

2.2: Application of theory and models

The TAM (Technology acceptance Model) is a theory based on the information systems that specifies how users apply and accept the application of a technology. It is important to consider that user confidence and acceptance are critical for future development and implementation of new advanced technology (Bonetti and Perry, 2017). These days, contemporary business operations have planned for facilitating their operating platform to enhance marketing, personal efficiency, promote cost reduction criteria and increase the rate of profitability (Perannagari and Chakrabarti, 2019). This TAM specifics two factors or criteria that determine the extent of technology acceptance by the target consumers. It includes perceived ease of application and perceived usefulness (Horst and Dörner, 2018). Thus, the application of this theory is advantageous for this present study since it has helped in assessing the consumer utility in the regard of technology application. Since this research is focused on understanding the usefulness of augmented reality in the German fashion sector particularly during the period of covid-19, the application of this model has focused on the ease of AR application and AR usefulness, thus determining consumer acceptance.

2.3: Literature gap

The topic of augmented reality in the fashion industry is itself a new scope that has somewhat been stressed in the past studies. Earlier researchers only tend to discuss bringing new designs and new perspectives. However, implementation and incorporating advanced technology is a huge challenge and too complicated as well which have been discussed in this current study along with considering the market condition due to covid 19 pandemic. This study has made an attempt to discuss and investigate the significance of the utilization process of augmented reality in the industry of fashion. The current study has also indicated the transformation of German fashion sector in the light of augmented reality. This present study has attempted to bring advancement and let future researchers have the ground of prioritizing and considering AR technology while searching for the ways of development.

2.4: Conclusion

From the study, it discusses the role of the AR playing in reshaping the world of fashion during the

COVID-19 outbreak. The impact of the COVID-19 has shaken the fashion industry not only in the German but around the world also. The stores and malls are temporarily closed due to the Covid19. Hence, the retailers brought an application known as AR (augmented reality), empowering the clients to try the clothes or items virtually by staying at their comfort zone or at home. Consumers are easily with the help of Safari web internet and iPhone can securely preview the items directly on their body and can buy the item. Moreover, it also conveys how with the help of AR the trends of the fashion industry improved along with the marketing activities created to reach their potential customer in this pandemic situation. The marketing strategies discussed are the optimal uses of the SEO, connecting the clients via social media or online platform, utilization of PPC to encourage the users, and providing free deliveries and gifts to motivate the clients to buy more. At the last, it explains the application models and theory along with a literature gap that shows what the researchers have got in this present study.

Chapter 3: Research Methodology

3.0: Introduction

Research methodology is the section where researchers are required to define the approach, process and design they have selected for developing the entire study (Alase, 2017). A proper justification is required while suggesting the research design and approach. The significance of augmented reality has increased to great extent in the fashion industry and the prominence has multiplied during covid-19 when there is a need to maintain social distancing. The specification of the research design and approach has been done based on the key criteria of the study.

3.1: Research approach

Here, researchers have considered a qualitative approach for getting a detailed significance of augmented reality. On the other hand, a quantitative approach with numerical data is not suitable in this regard. In quantitative research, surveys are required to collect data whereas primary qualitative involves interview sessions to gather data. A proper interpretation of the responses from the interview session is possible through a qualitative approach. Subjective explanation is possible with this qualitative approach (Fletcher, 2017). Numerical explanations cannot help researchers to

discuss the importance of advanced technology like augmented reality in the German fashion industry. Moreover qualitative approach is useful since it has helped in gathering data from reliable source in less time

Deductive approach has been considered in this current study rather than inductive approach. Moreover, it helps in inferring information from qualitative data. With a deductive approach, researchers have also been able to assess the causal association between variables and the key concepts (Kumar, 2018). Research with deductive approach evaluates an existing phenomenon or theory and examines if the theory is valid in a known circumstances. This way, it has been possible for the researchers to make a comparison between the responses of the participants and the existing parameters regarding the usefulness of augmented reality.

3.2: Research design

The research or study has been designed based on primary design along with interpretivism research philosophy. Primary design has allowed researchers to get directly involved in the data collection process. In this design, researchers are able to make a direct interaction with the participants or respondents which further helps them to detect any loopholes in the response of the participants (Kumar, 2018). Moreover, since researchers are trying to collect raw data about the application of augmented reality, primary research design fits to be appropriate. However, in secondary data, it is not possible to ensure the authenticity of the collected data and the factor of timeliness is overlooked in the secondary design. Thus researchers have preferred primary design in this current study.

Interpretivism philosophy has been chosen in this context to ensure precision and accuracy of data. Moreover interpretivism research generally stresses on implication and employs different methods for rejecting distinct aspects of the concern. Position is not suitable in this context since it calls for quantitative data collection methods which have not been considered in this current research. Through this philosophy, researchers have been able to justify those individuals and their actions transform society through qualitative methods (Ørngreen and Levinsen, 2017). This way it is possible to show how changing demands of consumers have asked for the implementation of advanced technology in the fashion sector.

3.3: Data collection method

Here, researchers have selected the technique of interview to collect data from the participating individuals. Interviews are a justified technique when a small group of individuals are involved in the process of inquiry (Snyder, 2019). Besides, face-to-face interview sessions are also appropriate in this context since a more precise and accurate screening has been possible. Augmented reality is a broad topic and its usefulness in the German fashion sector is commonly known to personnel who are associated with the sector. Thus creative fashion designers and fashion design managers have been interviewed to assess how augmented reality can transform and advance the fashion industry of Germany. Primary quantitative such as survey would not have been fit in this context since short survey sessions would not have allowed researchers to get a prompt and required feedback. Information needs to be obtained in a detailed manner, and then only it would be possible to empower fashion retail in Germany to implement augmented reality.

3.4: Sampling technique

Sampling technique is the process of selecting individuals or subset of the entire population to make detailed inferences (Snyder, 2019). Researchers have used non-probability stratified sampling since the selection of participants has not been done on a random basis. Only 4 managers from the fashion design section and 4 designers from the creative fashion graphics section have been selected. Selecting random individuals for this purpose would not have helped researchers to get accurate responses. Moreover, the individuals have been selected particularly from certain German based companies like Burberry, Hugo Boss, Valisere and Closed Reusch. Sampling technique is selected based on the criteria of conducting study.

3.5: Data analysis

Data analysis is defined as the technique of transforming, modelling and inspecting data with the aim to inform conclusions and discover useful information (Snyder, 2019). Both the logical and statistical techniques can be systematically applied to illustrate, describe and evaluate data. Here, in this current study, researchers have used transcript analysis techniques and comparative techniques to analyse the collected data. With comparative processes, it is possible for researchers to explore the advantages and disadvantages of augmented reality in practical situations. On the

other hand, transcript analysis has helped to get a thorough interpretation of the responses of the participants. Transcription indulges in close and minute observation of information and data via careful listening. This process of data analysis is applicable in qualitative research.

3.6: Conclusion

Research methodology is a proper way to discuss the approach and techniques that have been used throughout the study. Here, researchers have considered primary qualitative to explore the topic of discussion. Other than this, interpretivism philosophy with deductive approach has been used. Since the individuals for the interview have been selected with specific considerations, a nonprobability stratified form of sampling has been selected and used for selecting the fashion designer and manager from the fashion industry. Moreover, specific organizations like Hugo Boss, Burberry, Valisere and Closed Reusch have been chosen from where the fashion design managers and creative fashion graphics designers have been selected.

Chapter 4: Analysis of data

4.1: Introduction

The German fashion industry is one of the leading fashion industries in the entire world. With Berlin Fashion week as its center of display for creativity and unconventional designs, the German textile industry garners revenue of around 28 billion euros a year, with the stronghold of around 1300 companies employing more than 130000 employees. Not only that but Germany is packed with popular fashion brands, frequent fashion fairs, top fashion agencies, high-class fashion models and masterful fashion designers, with great creative prowess (Jayakumar and Aboobacker, 2021). The German fashion industry is one of the largest Pro-Fashion industries to exist around the world.

4.2: Interview transcripts and facts

4: Interview questionnaire (Interviewee 1)

A: Which technology do you use for designing formal wear?

Answer: I would prefer to use the most workable apparel software designing tools and augmented reality. Apparel magic is quite useful and gives innovative designs in terms of combining with

augmented reality, and looks can be generated as per I need or a designer may need. One of the basic reasons to go for this technology is my preference for creating an appealing look; as I mean that from a designer perspective to create something exclusively for a brand it is necessary to pay attention to the brand's strategic position concerning satisfying a diverse customer line. There may be found a lot of technologies these days, but still, I would suppose to focus on my designs and Company aims. If we look at the technological features of Apparel magic" the most important thing is its technical programming design. It has contributed a lot in bringing huge design advantages towards the architecture. The architecture is practically cloud-based. However, still, now I have seen in this fashion industry that Companies are struggling in developing new ideas and concepts.

B: How do you train your employees regarding augmented reality?

Answer: I would like to pay attention to product knowledge; how much this knowledge is required that is learned and understood by the employees. The quality of the garments, the special looks of the formal wear, what can make the apparels so useful yet elegant are taught in the training. That is an important part because without this knowledge employees' understanding level will be 0 regarding the products. Most importantly, the products and accessories are kept in front of them on the table to assist them in learning and the training process. The employees are guided in every meaningful way so that later they can operate the operation switch with the help of AR efficiently. Moreover, I would like to focus on technical skills development rather than only knowledge. The employees are likely to know through this training that AR can be the only effective solution at this moment for captivating all workers' generations. AR scenario in terms of AR training also has been in mind since the customer line has been increased.

C: Has the application of augmented reality helped in improvising the roles which fashion technologies can improvise over time?

Answer: Definitely, It has helped the German fashion world to a great extent since I have been engaged with the apparel and fashion manufacturing industry. I have realized how much the taste of people, demography, etc has changed with time. Similarly, invention and innovation are not lagging behind. Augmented Reality has become effective in providing a multifaceted solution to the consumers since it has been developing. In terms of improvising its role customers have

experienced so pleasing and purchasing behavior has become so positive. Sometimes people may think that AR somehow can be the only thing to develop the business; actually, it is not directly. Customers' satisfaction level is likely to be increased with the help of AR.

AR is something that can even improvise the fashion industry over time because it's the phase of technological improvement. The fashion giants are supposed to work more for developing the industry; making the purchasing experiences so appealing, satisfying like never before! All this is likely to happen by improving and exploring the usability of different technologies. AR is one of them that will go through this process and can improvise over time as per my visual perspective.

D: What is the cost involved in implementing augmented reality?

Answer: The cost is huge from my perspective because we need to understand what exactly an AR is, that is being liable to present the actual physical world phenomenon. This thing is achieved when the necessary elements such as sounds, visual presentation, other sorts of sensory stimuli, etc are served via technological innovation. Then how it can be an affordable option to reach targets! Definitely, we need to set up everything under a budget and plan as per the Company's needs. I have found AR and VR are practically an enhanced version of our world of the living. However, the average rate does vary because different sorts of objectives call for different working amounts based on the details' number. Well, I would prefer to set the costing as per the Company's needs, customers' support, implementation of planning, etc. Hence, with time the cost involvement factor will go through changes.

E: How has augmented reality helped in remote marketing during COVID 19?

Answer: The pandemic outbreak basically has unleashed an impact unprecedentedly globally. Lockdowns have been implemented throughout the world. In such conditions, AR has assisted a lot in marketing. Therefore, people are likely to purchase from their heart, they want to feel nice. The problem of lockdown is how the garments can touch people's hearts? A lot of analysis has become effective in accelerating the emotional process of buying because the implementation has been done in such a way that it can give a satisfying look for the outfits. People can feel motivated to buy as per their desire. The algorithm has been considered in such a way that AR can help people

to understand the product quality, fitting, different colors with complexion, etc. It is now an opportunity for the industry to develop the marketing technique remotely to assist the customers at their convenience. The concept of remote marketing has been coined in a more improved way because of this pandemic situation and AR has been considered greatly to attract consumers.

Interview 2:

A: Which technology do you use for designing formal wear?

Answer: Earnestly, I have realized that integrating all the major functional aspects is very important for designing formal garments. Augmented reality is the one in such integration that can effectively portray the connection between the actual world and virtual worlds as well. Therefore, with the usage of AR, we can understand the appropriateness of the design and it is supposed to be looked at on a specific figure. That feature has definitely helped Companies to design various formal wear. We can select colors, types of fabric, shape, threads, etc for the future outcome of the product. Even the look of the design can be customized by us easily with the help of AR integrated technology.

B: How do you train your employees regarding augmented reality?

Answer: I prefer scenario-based training to accelerate the understanding of the Concept. The employees who have certain technical knowledge and skills I choose to be undertaken within the training process. They can capture the scenario based on various designs and fashionable accessories so well. A 3D model is in our mind that can obviously improve the training process further. We already have worked with the 2D models for creating some fashion accessories and designs, which are definitely on trend for a longer period. That is the reason one can effectively think more for future innovation when it comes to the training field. I always focus on interacting with objects during AR-based scenario training.

C: Has the application of augmented reality helped in improvising the roles which fashion technologies can improvise over time?

Answer: Various technologies can be found in terms of the application of AR. In terms of improvisation, AR rendering is likely to include monitors, optical projection and target systems, display systems and handheld devices, etc. However, these all are just basic application technologies under the AR application. AR is linked with its digital sound hearing and visual systems that have been improvised. Moreover, the fashion industry has been positively impacted with the help of AR and VR, because customers can purchase things as per their desires. The visual look on digital systems and the way it has become successful to show the exact fitting l; level, color on complexion, look, etc to customers; so they feel more excited in buying their desirable garments, accessories, etc.

In today's scenario, fashion technology is something that is unstoppable in its advancement and growth. The industry is growing faster in pace like never before! An AI algorithm is something that helps in predicting various style trends as an example of improvisation. The AR and VR along with the usage of AI, innovation of those all can really improvise the fashion industry pro-long.

Technologies are subjected to change the whole systems of marketing, promoting, and consumers' buying. Here the innovation and up-gradation of AR are under sound focus by the fashion giants; so it is expected that AR and VR will play an important role in improvising the German fashion industry over time.

D: What is the cost involved in implementing augmented reality?

Answer: The cost involved is not the same in all cases. It depends upon the needs and strategic digital plan of Companies out there. I personally have work experience of around 35 years in the fashion industry, and I have seen how Companies try to design the technology for different purposes and in different patterns under their product marketing. Hence, as per my experience, the cost involves or ranges from 4000 dollars to 10000 dollars roughly. Sometimes the cost is likely a simple demonstration when it comes to app development for applying AR and VR. We are supposed to accept it as a feature-rich and also "customer-built" app that could take more time and (almost nine months and more) money in developing and implementing augmented reality. Variables are many in our fashion industry that is why the price ranges from a high amount and more to make the system more advanced for almost 1000 customers.

E: How has augmented reality helped in remote marketing during COVID 19?

Answer: We cannot overlook the critical consequences due to the pandemic outbreak. The outbreak and lockdown have impacted greatly on the lives of people. People have become almost locked in their homes, so that is the time when people more and more have reached for different online fashion pages. They try to explore new convenient products and safe delivery. This situation has been considered as an opportunity to create remote marketing through technology, then how we can go without implementing augmented reality and VR. More and more live streaming among people has become the new trend in the fashion industry, not only in Germany but also in terms of the global scenario. People are making buying decisions by gazing at online product stores. AR reality really has provided its great assistance in remote marketing during covid-19 according to my visual practical analysis. More the time will pass the technology is likely to lead the marketing and brand promoting operations in the German fashion industry.

Interview 3:

A: Which technology do you use for designing formal wear?

Answer: According to my preference the technology should be used that can align art and innovation together, so in my opinion Augmented reality and 3D printing are the most effective technologies in designing everyday and special occasion formal wear. Augmented reality is a great technology that can give customers special assistance in purchasing but also we designers and tailoring sector can make designs in prior. We can make important decisions about a design and dress whether they would be launched in the market or not. A smart and blended mirror based on realism is the most brilliant feature of AR; it has especially attracted me and my fellow friends in the German fashion Industry. I have seen that many companies out there are trying to launch advanced mobile applications with the help of AR to assist their customers in purchasing. On the other hand, I use 3D printing in order to accentuate significant decimal points of the articles of clothing. Moreover, 3D printing also helps in designing styles that would be wearable for consumers. AR helps to redefine the final outcome in prior.

B: How do you train your employees regarding augmented reality?

Answer: My focus of AR training is developing the employees' fashion designing and other skills related to fashion implementation. Moreover, I cannot deny that real objects are more important than tons of AR equipment to train the employees. The training is provided on a group basis by enabling them to do hands-on experiments with the designs and customers' requirements. In this way, we can make them achieve aesthetic, creative as well as functional skills at a single point in time. However, I also pay attention to the learning environment to accelerate the AR training process positively.

C: Has the application of augmented reality helped in improvising the roles which fashion technologies can improvise over time?

Answer: It definitely has been helped in improvising the roles. AR is likely to be the most useful technology in improvising over time undoubtedly. The reason is its capability to assist the fashion designers and tailors., artists, customers to give the actual look of the product. Since it has come into the industry I have seen how over time the technology in terms of AR, VR, etc are becoming the lead factor in developing the revenue of the fashion industry. In support of my viewpoint, I can tell you about a real factor of the global fashion industry; the fashion industry moves faster than other industries because of its innovative point. Consumers are supposed to be engaged and we are supposed to create brand new designs, innovative strategies for our more than 1500 customers. In light of those industry factors, AR is something that will change the whole industry by advanced visualization of fashion garments, accessories, and beauty products as well. It can be understood how it has the potentiality to leverage that AR can make the experience of purchasing or retail experience more interactive and engaging.

D: What is the cost involved in implementing augmented reality?

Answer: The cost is not reasonable, because we already know how the industry has benefited from the advanced features of augmented reality as well as virtual reality. The whole system is an advanced step and can develop the virtual technology for the real application that is causing the next giant trend by next year. The application price is likely to range from 5000 dollars to 300000 dollars even more because of its wider implementation than any other technology. However, we
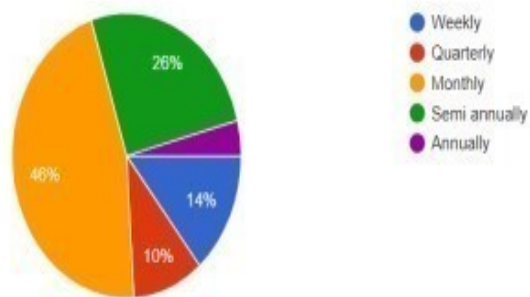
also need to understand the purpose of use and how our Company would like to undertake implementation strategy; even more, factors are associated with the implementation, and then cost comes.

E: How has augmented reality helped in remote marketing during COVID 19?

Answer: I can assuredly say that there is no doubt that augmented reality really has been helped in remote marketing. In the covid-19 pandemic where the lockdown situation has arrived the only thing is social media and other online platforms where people are likely to spend more time. We have used this fact in developing remote marketing; AR is something on which we can rely on. The fast and foremost reason behind this is its brilliant capability to stick to the vital elements of the clothing products. Customers easily can examine and make decisions whether they should buy these or not. However, it is not enough although, more and more improvements are subjected to be executed for creating more appealing sensation through technology among the customers.

How often do you purchase fashion products

50 responses

- Weekly
- Quarterly
- Monthly
- Semi annually
- Annually

26%
46%
14%
10%

Which is the most common online platform used by your for purchasing

51 responses

- Facebook
- Instagram
- Website of company
- Third party merchandise seller

17.6%
68.6%
7.8%
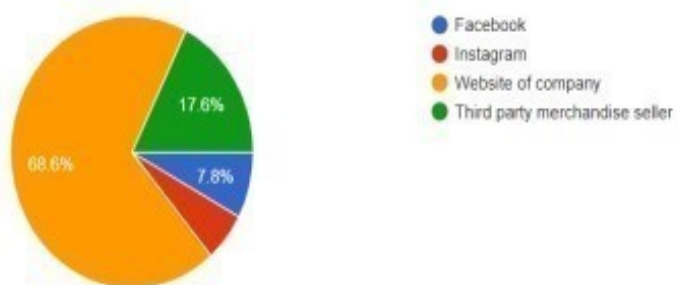
What is your gender

50 responses

- Male
- Female

60%

40%
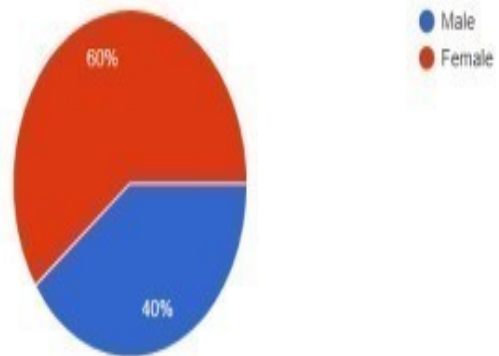
Presentation of facts

Have you ever shopped products remotely through augmented reality

51 responses

- Yes
- No

68.6%

31.4%
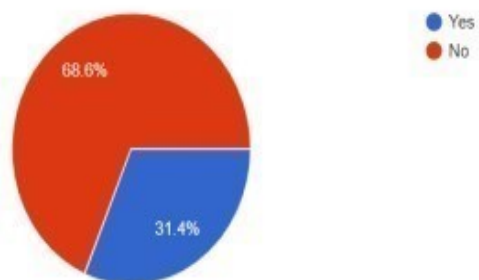
Do you face issues while shopping fashion products online?

49 responses

- Yes
- No

38.8%

61.2%
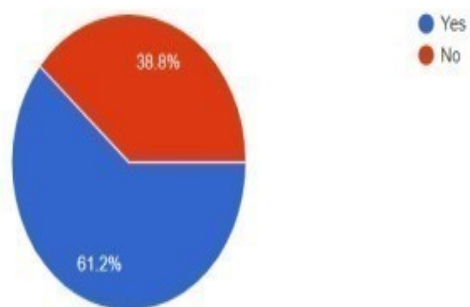
What are the most common issues which you have faced while purchasing online products

47 responses

Quality issues — 29 (61.7%)

Delivery delays — 18 (38.3%)

Replacement issues — 13 (27.7%)

Refund issues — 8 (17%)
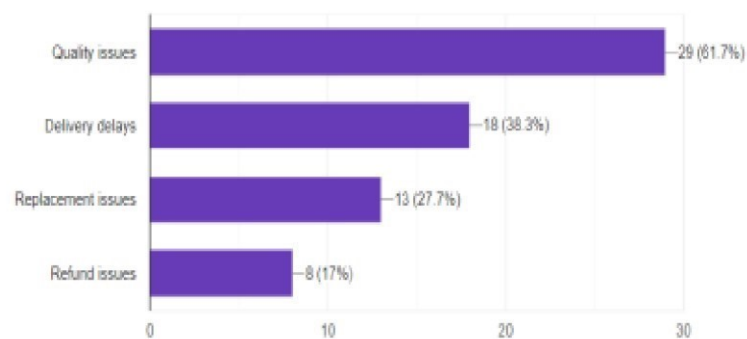
Do you feel that the price of the fashion products have increased during pandemic?

51 responses

- Yes
- No

49%

51%
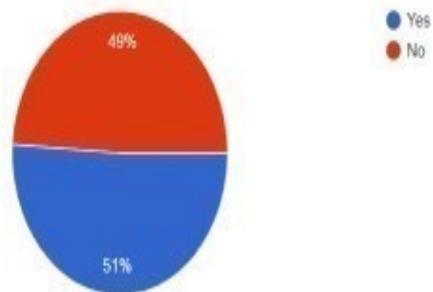
How often have you shopped during the pandemic

51 responses

- Not quite often
- Certain occasions
- Quite often

37.3%

35.3%

27.5%

Where do you purchase products from

50 responses

- Online
- Offline

44%

56%
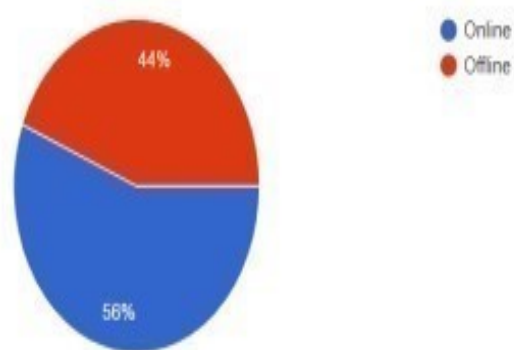
Table 1: Presentation of data
(Source: Developed by author)

AUGMENTED REALITY:

With the introduction and growth of augmented reality, many companies have implemented this technology to the promotion of their products in such a way that it has become an integral part of marketing. Since Augmented reality adds to the existing world, many companies have found it easier and more efficient to promote their products and services through 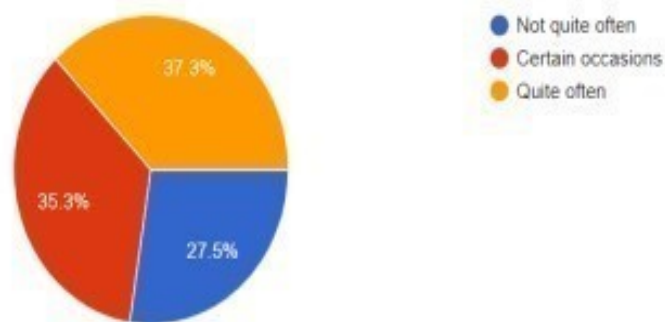the help of augmented reality (Herz and Rahe, 2020). For the very reason that augmented reality is easily accessible, companies have been successful in providing the customers with a virtual model of their products which would create a pretty accurate visual representation of the actual product within the perceivable space around a customer.

Many fashion companies have started to implement augmented reality into their product retail applications, where the customer experience is improved as they can interact freely within the application (Ameen*et al.,* 2021). Companies such as American Apparel lets their customers change the colour of the clothes they are browsing, Shoe company converse lets their customers virtually try their shoes out, Topshop, a British brand, allows their customers to virtually try their clothes out, implementing this technology way back in the early 2010's. Another clothing brand, named Marks and Spencer, implemented the technology targeting kids by adding interactive animated animals in their virtual catalogue to grab their attention and increase sales.

IMPACT OF COVID ON THE GERMAN FASHION INDUSTRY:

After the covid-19 outbreak which peaked around the beginning of the year 2020, it impacted the entire world in terms of business and damaged a lot of industries and the German fashion industry isn't an exception to the damage the entire world faced. Due to the large-scale outbreak of the pandemic, a lot of German fashion brands were experiencing a decrease in sales. The accessibility of their products to their customers had reduced due to the closing of a huge chunk of their physical showrooms (Herz and Rahe, 2020). Fashion weeks, which are an important part of the German fashion culture, could not be held due to strict quarantine procedures.

The behavior in terms of fashion consumption had also hugely been impacted by the pandemic as people were more into factors like the durability of the clothes they were buying, which meant people wanted more high-quality items than ever. People also refraining from throwing away old

clothes and one more encouraged upon repairing their fashion items then buying new ones, since it was financially more sustainable.

This also meant that the luxury apparel market was going to suffer because a lot of people had lost their livelihood and changed their preferences.

AUGMENTED REALITY IN FASHION:

A lot of fashion brands have implemented augmented reality to provide the customers with an instore experience, without them ever stepping out of the house. With the availability of online stores where a customer could browse through a list of clothes, the implementation of Augmented reality enhanced the experience for customers as they could get a better idea about the fashion items they were interested in (Klein and Todesco, 2021). This turned out to be beneficial for fashion companies as they could advertise their products in a more interactive way and it encouraged a whole new wave of marketing strategies and AR campaigns.

INFLUENCE OF AUGMENTED REALITY IN THE GERMAN FASHION INDUSTRY:

With the crisis implemented by the covid-19 outbreak, the German fashion industry was suffering in ample amounts. They were facing a dip in sales and a change in user behavior. To tackle the situation of people not being able to visit their stores, German fashion companies started implementing and promoting fashion items through augmented reality. The German sports fashion brand Adidas already had pre-existing AR showrooms and successful AR product launches in the past. The brand shifted onto AR product launches where the customers could see an AR representation of the products they wanted and they liked, even before the physical product was launched which helped them sustain their business. Regular fashion weeks that would previously be held in different parts of the country were stopped due to Covid. Many fashion brands either cancelled or postponed their fashion displays in terms of ramp walks. Many brands completely cancelled their schedule for an entire year. A good chunk of companies started holding professional ramp walks in terms of live streams where customers could see new fashion items by professional fashion designers (Janssen, 2018). These same fashion companies started displaying the products through the help of augmented reality where people could interact with the products they had seen professional models wear in a ramp walk. A lot of companies were allowing their customers to create their own customized avatars which represented them and allowed them the freedom to

choose and customize their own designs. This is helping these companies to be more innovative and stay relevant in the market.

4.3: Conclusion

The corona outbreak forced a lot of fashion brands to become more innovative with the promotion of their products with the introduction of augmented reality into the picture. It revealed the faulty parts of the German fashion industry and offered it a new start to reshape the entire system under which it operated. Professional fashion designers had become more conscious of what they were creating. The implementation of augmented reality into the German fashion industry helped change the entire experience of fashion into something more personalized and of much greater emotional value. But the most important thing, it saved a lot of German brands from going bankrupt.

Chapter 5: Conclusion

5.1: Discussion

Technological advancements are shaping the way the world is behaving against any action. It has a huge effect on the daily lives of people who are the prime consumers of technology-based products. Be it a food delivery or buying daily groceries- technology has taken all over the world. As the most advanced technology, Augmented Reality is gaining popularity due to its capacity to showcase things virtually in the real world. Pandemic also had fuelled the growth of the technology remarkably due to its efficiency to deliver flawlessly. The below discussion would shed some light on the contribution of AR technology in bringing growth in the German fashion industry given the Covid-19.

The European continent is home to 175 largest fashion brands, and Germany comes second in the category in case of the number of companies working and the revenue. However, this figure excludes the independent fashion designer working in the industry, making the country the largest consumer and manufacturer of fashion brands in the entire European region. Furthermore, the surge of the global pandemic led every industry to lose their business to millions. In this time, the technology worked wonders for the industry to survive by using AR technology. The technology

helped the businesses showcase their products remotely and assisted buyers in using the try before buying feature to build customer assurance effectively (Janssen, 2018).

German fashion industry incorporates apparel, accessories and beauty retails products etc. and accounts for one of the largest contributing industries in the German GDP growth. The cumulative contribution of the industry is 66 billion euros to the GDP of Germany. Within this, 29 billion euros were received from the product purchases, and 20 billion euros contributed through the purchases from the supply chains. The industry also supported 1.3 million skilled laborers in the country.

Covid-19 had the most significant effect overall on the industry globally; the German fashion industry was also a part of the disaster spread of this disease. With an imposed lockdown in the country, the stores went on closing for an indefinite time. This pandemic made the industry lose a significant amount of business at the time of crisis. Notably, the German fashion industry lost 1.5 billion euros daily compared to what it was in 2019. In addition, this event has a bigger impact on the brands and lets them lose a significant amount of inventory.

Along with the brand's operations, the related supply chain and other small industries also experienced greater losses due to the outbreak. Brands paying less or no wages to their suppliers and workers made them significantly lose their jobs in the aftermath (Balaji*et al.,* 2018). The luxury brand stores closed as power the government order due to their non-essential nature. The rise of the pandemic changed the greater perceptions of the consumers significantly. This change was due to the situation that caused people to spend time at home and not outside. The global economic crisis and many people losing their jobs and businesses shutting their operations down made the consumers realize about being conscious of their shopping choices. The new trend of buying makes the consumers opt-in more sustainable clothing lines than fast fashion products. Customers also choose mindful products that are environmentally friendly and sustainable. The pandemic also led consumers to shift their shopping habits from buying physically to online shopping. Due to imposed lockdowns all over the country, physical stores were closed, which made the shopper choose online shopping facilities more than ever.

Luxury apparel, shoes, bags, and accessories also saw a great deficit in sales. The decline of the flight operations also led the industry to lose businesses coming from the inbound customers. The

key term of Augmented Reality refers to the advanced technology using which virtual demonstration can be presented for any physical product in the real world. The technology has gained significant popularity due to its seamless contribution to virtually making maximum business showcase the fashion-related product. However, AR technology is much more than what it seems. It led its audience to experience any animated product or figure without being present at the place. For example, various shopping sites use Augmented Reality for letting their customers test the products before buying them. This technology led the customer to be more assured about their shopping experience. Introduction to AR technologies in smartphones has also made it convenient for the buyers as they get to choose their products just a click away. The fashion industry of Germany has experienced a great loss during the pandemic. This loss was incurred due to the closure of many physical stores (Balaji*et al.,* 2018). However, e-commerce profiles experienced a great surge in their business due to lockdown. The introduction of AR technologies in the shopping sites of Germany also reassured customers of buying the products. The

technology revolutionized the buyers' shopping experience extensively and led to create completely different markets altogether. Augmented shopping is also known as virtual shopping, as the prime marketing strategy by fashion brands. The technology has proven to increase the shopping facility feature online. A brand using virtual fitting rooms powered by AR technology is the new age shopper's way of custom fitting.

Many fashion brands have shifted from their offline stores to online to build convenience for the customers. The pandemic has led customers to shift their buying persona from stores to the virtual space to easily access their favorite clothes and accessories and try them as they used to do in the stores. In addition, the convenience of using AR technologies in brands websites has made the overall shopping experience wholesome. Apart from brands, e-commerce platforms such as Mytheresa, Zalando, Asos, Otto etc., are the key stakeholders selling the branded products seamlessly to the customer using their virtual space. The pandemic will have a lasting impact and will likely adopt new ways of sustaining the business during the crisis. New trends that the businesses might think of adapting involve people buying products with experiential properties rather than just serving fashion purposes. This trend emphasizes sales increase of precious fashion jewellery and clothing lines providing experiential quality and is sustainable (Önday, 2018). Due

to the decline of income, people may not maintain a sustainable buying culture due to uncertain ways of income. The pandemic has pushed consumers to act defensive towards their purchase habits. Key players of the market are now using sustainable business practices to reassure their customers of their product's value proposition. The fashion industry in Germany tends to adopt other ways also to make their processes risk proof. With the changing business environment and customer buying trends, brands need to be more defensive in their marketing strategy during the crisis. AR technology has brought a new arena in the industry with its new and remarkable capability of customer service techniques. The future might see breakthrough innovations like the AR technology taking place instead of the conventional physical markets (Park *et al.,* 2020). Shifting to e-commerce platforms are the newest trends that businesses consider as the most sustainable way to make the industry grow without feeling any lag by any emergency. Diverse channels for marketing are also getting involved in the assistance of the industry. With the use of technology, the fashion industry has received 28% growth during a pandemic. Understanding the customers' buying behaviour can lead a long way for the industry to receive better growth in the future.

5.2: Implications

In conclusion, it can be stated that the global pandemic has caused several opportunities and business-centric crises in the fashion-related industry in Germany. The situation also becomes extraordinarily adverse for the industry leaders with luxury brands left with piled stocks of old manufactured products. The most fruitful ways adapted by the brands were shifting to e-commerce platforms for selling their products and incorporating AR technology in the e-commerce websites and personal websites for better customer experience. The AR technology left an awe-inspiring effect on the customers buying related fashion products. The technology helped buyers to try before they made the buying decision of every good virtually. The seamless technological support has made a complete facelift to the conventional shopping habits of the customers in the country. Customers shifting to online purchases and using AR technology to check to get their trials done at one have provided an extraordinary experience to shoppers around the country (Kortekamp*et al.,* 2019).

Though the brands can also consider other steps too for making their business more sustainable, for example, the brands can make experiential products which are going to be the coming age buyer trend; people are more looking for low prices. Still, good quality products are due to a shortage of income, so the brands can consider providing a better deal for their customers by designing an economic clothing line. Shortly, 3D mapping can also be introduced in the industry, which may complete the whole experience virtually. The pandemic and the coronavirus influenced economies and markets of various ranges. It has increased the significance of implementing cutting-edge technology to keep operations running in any situation (Pillai*et al.,* 2020). Many changes have occurred as a result of the pandemic, including increased digitalization, social alienation, and the significance of disinfection. The collapse of shopping centers, low ecommerce shipping, and the prospect of consumers not coming out to purchase have all had a crucial influence on the retail sector. This condition is predicted to remain even after the pandemic is over. Meeting the clients' requirements is critical in this situation, and augmented reality in the retail sector might be a gamechanger.

The impact of AR on fashion German fashion industry along with prospects and consequences:

According to the respondents point of view, when the feartures are developed right in augmented reality it atracts the customers more than normal branding. An innovative feature and design can create a buzz regarding the brand. It forms a discussion on social media especially about the popularity; what is great about the product etc. That is ideally implemented by the fashion giants and designers to promote the brand's clothing, formal wear, fashion accessories etc. Fashion is an industry which grows with trends and changes first. People are influenced easily by innovative designs, trends of garmenmts. Innovation in fashion has become smoother since augmented reality has been emerged in the market. AR and VR helps to give better visualization in prior like how the complete design and dress will cast a look on the wearer; how well it does fit on the figure; whether the complextion is suitable etc. Moreover, most of the designers and tailors world like to combine the AR with other technologies to give a more subtle factor to the farments and formal wearer. As per the findings AR will be a leading technology in fashion industrial sector for improvising its role over time. Moreover, fashion sectors and Companies are likely to give appropriate training to

their employees for acclerating the crative design in products. The AR scenario based training, hands-on expriments with objects are used to improvise the fashion industry with the help of AR. AR also can be combined well with apparel magic software design,

3D painting or model of AR etc. AR is practically liable to give a ravishing purchasing experience to consumers. Consumers can increase their consversation with the people, who are sitting otherside won behalf of a brand; because they can make the customers better visualization of the products; they can look the accentuated vital points of the garments. In this way AR has boosted the buying confidence of the customers. Customers can understnad better whether the products will look appealing on them or not. Valuable conmsumers' data is considered greately by the German fashion industrial sector; rather it is subjected to be considered by the global fashion industry.

To identify the challenges associated with augmented reality in fashion industry

However, according to the findings, AR must be reinnovated with new features with time. The reason according to the partcipants buying am apparel or dress is an emotional process because customers are emotionally attached with the colors, design and pattern of the dress; wherther this can give them an appealing look or not. The whole scenario is considered greately by the fashion giants that is why they need to implement AR in a more sustainable way. AR must visualize the real world in a more practical or actual manner; there world be zero difference between AR and actual product; as per the German fashion giants' perspective on AR and other technologies regarging fashion.

Whenever a buyer buys a product online, they may visit a brick-and-mortar business first to examine the products in person. Considering the circumstances and standards, in-person trips to the shop have diminished. While things are gradually returning to pre-Covid levels, it is wise to be ready for the worst. Augmented Reality is a technology that combines digitally created material into a recipient's real-world situation. Clear optics and an accessible world in which people are mindful of their surroundings and themselves are among the characteristics. When customers shop with augmented reality they can interact with companies and products through digital experiences. It enables them to virtually put on, try out, interact with, or personalize their items. These instances help in providing more extensive, understandable product information than traditional web encounters. The trends are evident, yet this transformation is still in its early stages.

The ability of augmented shopping to provide benefits to clients today is primarily dependent on how much the technology can portray the most important product qualities in context (Kim *et al.,* 2017). Humans expect to see multiple turning points when augmented shopping will become the usual shopping experience, as these vary by fashion market. Customers' demands are frequently met by retailers customizing content. By collecting client data, AR assists retailing companies in filtering out information online for its consumers so that they may search for relevant things without wasting so much time. Virtual reality also aids in the effective completion of tasks. Retailers can benefit from both AR and VR when used together. Due to the extremely widespread use of smartphones, augmented reality has grown in popularity as a cutting-edge tool that gives businesses an almost limitless number of ways to interact three-dimensionally with consumers via their smartphones. The augmented reality consumer journey is a modern electronic experience that turns the user experience through an immersive encounter. With AR to assist customers, merchants can assist customers by providing a trial run of the goods they wish to purchase. It aids them in making better decisions. It can build their morale to the point where they can complete the deal even if they are at home. Waiting outside the trial chambers for one's chance could take a long time. Digital mirrors have since been developed, allowing consumers to search the sizing of the garments they prefer (Bermejo *et al.,* 2017). They can check how that clothing looks and fits their bodies on a computer screen in front of them.

This is a fantastic feature of augmented reality in shopping. Customers can now do this when purchasing online as well. Lenskart, for instance, currently allows clients to test on glasses online. The software detects the user's face and places the pair in the digital mirror of the user. It even suggests glasses based on the size of a user's face. These kinds of gamification techniques are crucial for increasing retail sales. Most tangible stocks which are touched in stores must be sterilized regularly as a precautionary measure till vaccines appear to be a reliable answer. In this case, augmented reality can give virtual try-on in stores, reducing the need for consumers to touch items before making final judgments. Sanitizing computer screens, for example, is quicker and easier than disinfecting each piece of jewellery or accessories after each use. There are still some limitations with nearly 7,000 languages spoken around the world, but they are only temporary. With Translation AR mode, anyone may see most of the 40 different languages as if it is their language. AR-based purchasing apps have features that channel dialects in a region-specific way.

Retailers can better understand their offerings using augmented reality and artificial intelligence solutions. Even if someone utilizes printed advertisements, the AR material in them will lead them to the language that is most convenient for them.

Virtual shopping is not limited to clothing; it is also feasible to browse for home furnishings. People are trying to make the proper decisions when it comes to home furnishings design, and these applications make it easier, which encourages customers to make the transaction even more. IKEA is at the cutting edge of technology, allowing customers to see how furniture will appear in their households. It allows consumers to choose the style, size, and hue of furnishings as well as relocate it around the house according to their tastes. Not surprisingly, the handbags and accessories industry will see its double-digit rise—15.6 per cent in 2018—drop into the single digits—8.7% —by 2022. Even though its actual figures are the smallest, such projections put bags and accessories in one of the healthiest categories of online fashion. Wholesalers selling directly to customers, as well as consumer pressure on jewellery producers to be more honest about price, are the biggest risks to the jewellery business. Furthermore, prominent worldwide brands are likely to boost the jewellery sector, snatching market share from small artisan stores. Fashion retailers can incorporate Netflix-like personalization into the onsite encounter by monitoring user activity, typically via sessions by session or from account to account. Ecommerce shops can be customized to match onsite activity or previous purchases (Baier*et al.,* 2018). In the development of ecommerce, customers will expect the same level of personalization in the fashion business as well.

Finally, augmented reality is causing a digital shift in the retail business, resulting in more engaging retail shopping. It's a technique that benefits both the customer and the retailer by allowing them to interact online. It's time for corporate executives to consider new ways that technology may propel them forward.

References

Abou El-Seoud, S. and Taj-Eddin, I., 2019. An android augmented reality application for retail fashion shopping.

Ahied, M., Muharrami, L. K., Fikriyah, A., and Rosidi, I. (2020). Improving Students' Scientific Literacy Through Distance Learning With Augmented Reality-Based Multimedia Amid The Covid-19 Pandemic. *Jurnal Pendidikan IPA Indonesia*, *9*(4), 499-511.

Ahmad, S. Z., Ahmad, N., and Bakar, A. R. A. (2018). Reflections of entrepreneurs of small and medium-sized enterprises concerning the adoption of social media and its impact on performance outcomes: Evidence from the UAE. *Telematics and Informatics*, *35*(1), 6-17.

Alase, A., 2017. The interpretative phenomenological analysis (IPA): A guide to a good qualitative research approach. *International Journal of Education and Literacy Studies*, *5*(2), pp.9-19.

Ameen, N., Tarhini, A., Shah, M.H. and Nusair, K., 2021. A cross cultural study of gender differences in omnichannel retailing contexts. *Journal of Retailing and Consumer Services*, *58*, p.102265.

Asadzadeh, A., and Samad-Soltani, T. (2021). Applications of virtual and augmented reality in infectious disease epidemics with a focus on the COVID-19 outbreak. *Informatics in medicine unlocked*, 100579.

Baier, D., Rese, A., Nonenmacher, N., Treybig, S. and Bressem, B., 2019. Digital technologies for ordering and delivering fashion: How BAUR integrates the customer's point of view. In *Digitalization cases* (pp. 59-77). Springer, Cham.

Baier, D., Rese, A., Röglinger, M., Baier, D., Rese, A. and Röglinger, M., 2018, December.Conversational User Interfaces for Online Shops?A Categorization of Use Cases.In *ICIS*.

Balaji, M.S., Roy, S.K., Sengupta, A. and Chong, A., 2018. User acceptance of IoT applications in retail industry. In *Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications* (pp. 1331-1352). IGI Global.

Baranwal, P. and Roy, T., 2021. Purchase Intention among Generation Z in the Fashion Industry through Social Media Marketing. *Psychology and Education Journal*, *58*(2), pp.8890-8898.

Berkemeier, L., Zobel, B., Werning, S., Ickerott, I. and Thomas, O., 2019.Engineering of augmented reality-based information systems.*Business & Information Systems Engineering*, *61*(1), pp.67-89.

Bermejo, C., Huang, Z., Braud, T. and Hui, P., 2017, June.When augmented reality meets big data.In *2017 IEEE 37th International Conference on Distributed Computing Systems Workshops (ICDCSW)* (pp. 169-174).IEEE.

Bermejo, C., Huang, Z., Braud, T. and Hui, P., 2017, June.When augmented reality meets big data.In *2017 IEEE 37th International Conference on Distributed Computing Systems Workshops (ICDCSW)* (pp. 169-174).IEEE.

Boardman, R., Henninger, C. E., and Zhu, A. (2020). Augmented reality and virtual reality: New drivers for fashion retail?. In *Technology-driven sustainability* (pp. 155-172). Palgrave Macmillan, Cham.

Boardman, R., Henninger, C.E. and Zhu, A., 2020. Augmented reality and virtual reality: new drivers for fashion retail?.In *Technology-driven sustainability* (pp. 155-172). Palgrave Macmillan, Cham.

Bonetti, F. and Perry, P., 2017. A review of consumer-facing digital technologies across different types of fashion store formats. *Advanced fashion technology and operations management*, pp.137163.

Bonetti, F., Warnaby, G. and Quinn, L., 2018. Augmented reality and virtual reality in physical and online retailing: A review, synthesis and research agenda. *Augmented reality and virtual reality*, pp.119-132.

Botti, R., 2019. Fashion Sector Outsourcing to African Countries: Taking Advantage of Low-Cost Labor?.In *Sustainable Fashion* (pp. 5-35). Palgrave Macmillan, Cham.

Bouchardy, M. (2020). *Can Augmented Reality enhance tourist experience by regulating visitor flows in the Swiss city of Lucerne?* (Doctoral dissertation, Haute école de gestion de Genève).

Braham, P. (2017). Fashion: unpacking a cultural production. In *Fashion Theory* (pp. 351-372).

Routledge.

Broudy, D., and Hoop, D. (2021). Messianic Mad Men, Medicine, and the Media War on Empirical Reality: Discourse Analysis of Mainstream Covid-19 Propaganda. *International Journal of Vaccine Theory, Practice, and Research*, *2*(1), 365-388.

Bug, P. and Bernd, M., 2020. The future of fashion films in augmented reality and virtual reality. In *Fashion and Film* (pp. 281-301). Springer, Singapore.

Bug, P., 2020. *Fashion and Film.* Springer Singapore.

Bukantaitė, S. and Sederevičiūtė-Pačiauskienė, Ž., 2021. Fashion industry professionals on creativity at work. *Creativity studies*, *14*(1), pp.145-159.

Caboni, F., and Hagberg, J. (2019). Augmented reality in retailing: a review of features, applications and value. *International Journal of Retail and Distribution Management*. Cajner, T., Figura, A., Price, B., Ratner, D., and Weingarden, A. (2020). Reconciling unemployment claims with job losses in the first months of the COVID-19 crisis.

Cao, H., 2018. The growth of e-commerce and its impact on the fast fashion retailers.

DeGard, J. (2020). Ideation To Develop a Virtual Reality App To Improve Fashion Retail Visual Merchandising.

Donatiello, L., Morotti, E., Marfia, G., and Di Vaio, S. (2018, September). Exploiting immersive virtual reality for fashion gamification. In *2018 IEEE 29th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)* (pp. 17-21). IEEE.

Ducange, P., Pecori, R., and Mezzina, P. (2018). A glimpse on big data analytics in the framework of marketing strategies. *Soft Computing*, *22*(1), 325-342.

Elfeky, A. I. M., and Elbyaly, M. Y. H. (2021). Developing skills of fashion design by augmented reality technology in higher education. *Interactive Learning Environments*, *29*(1), 17-32. Ellis, L. A., Lee, M. D., Ijaz, K., Smith, J., Braithwaite, J., and Yin, K. (2020). Covid-19 as 'game changer' for the physical activity and mental well-being of augmented reality game players during the pandemic: Mixed methods survey study. *Journal of medical Internet research*, *22*(12), e25117.

Ertemel, A. V., and Ammoura, A. (2016). The role of social media advertising in consumer buying behavior. *International Journal of Commerce and Finance*, *2*(1), 81-89.

Fletcher, A.J., 2017. Applying critical realism in qualitative research: methodology meets method. *International journal of social research methodology*, *20*(2), pp.181-194.

Gazzola, P., Pavione, E., Pezzetti, R., and Grechi, D. (2020). Trends in the fashion industry. The perception of sustainability and circular economy: A gender/generation quantitative approach. *Sustainability*, *12*(7), 2809.

Gazzola, P., Pavione, E., Pezzetti, R., and Grechi, D. (2020). Trends in the fashion industry. The perception of sustainability and circular economy: A gender/generation quantitative approach. *Sustainability*, *12*(7), 2809.

Gkeredakis, M., Lifshitz-Assaf, H., and Barrett, M. (2021). Crisis as opportunity, disruption and exposure: Exploring emergent responses to crisis through digital technology.

Häkkilä, J., Colley, A., Roinesalo, P., and Väyrynen, J. (2017, November). Clothing integrated augmented reality markers. In *Proceedings of the 16th International Conference on Mobile and Ubiquitous Multimedia* (pp. 113-121).

Hanafi, H. F., Abd Wahab, M. H., Wong, K. T., Selamat, A. Z., Adnan, M. H. M., and Naning, F. H. (2020). Mobile Augmented Reality Hand Wash (MARHw): mobile application to guide community to ameliorate handwashing effectiveness to oppose COVID-19 disease. *International Journal of Integrated Engineering*, *12*(5), 217-223.

Haumer, F., Kolo, C. and Reiners, S., 2020. The impact of augmented reality experiential marketing on brand equity and buying intention. *Journal of Brand Strategy*, *8*(4), pp.368-387.

Herz, M. and Rahe, V., 2020. Virtual Reality Becoming Part of Our Lives—Assessing Consumers' Perceived Applicability of Virtual Reality. *Augmented Reality and Virtual Reality: Changing Realities in a Dynamic World*, p.113.

Highfield, T., and Leaver, T. (2016). Instagrammatics and digital methods: Studying visual social media, from selfies and GIFs to memes and emoji. *Communication research and practice*, *2*(1), 47-62.

Horst, R. and Dörner, R., 2018, October. Opportunities for virtual and mixed reality knowledge demonstration. In *2018 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)* (pp. 381-385). IEEE.

Hutzschenreuter, T. and Burger-Ringer, C., 2018.Impact of Virtual, Mixed, and Augmented Reality on Industries.

Inhaabit.com, 2021.*Augmented Reality: The Latest Trend In The Fashion Industry* Available ahttps://inhaabit.com/augmented-reality-the-latest-trend-in-the-fashion-industry/ [Accessed on: 23rd May, 2021]

Iwanaga, J., Loukas, M., Dumont, A. S., and Tubbs, R. S. (2021). A review of anatomy education during and after the COVID-19 pandemic: Revisiting traditional and modern methods to achieve future innovation. *Clinical Anatomy*, *34*(1), 108-114.

Janssen, C., 2018. Consumer Acceptance of Mobile Augmented Reality Shopping Applications in Stationary Retail Trade.

Jayakumar, B. and Aboobacker, M.R., 2021. Environmental Impact Assessment of Augmented Reality Technology Implementation.

Kaczorowska-Spychalska, D., 2018.Shaping Consumer Behaviour in the Fashion Industry by Interactive Communication. *Fibres& Textiles in Eastern Europe*.

Kalbaska, N. and Cantoni, L., 2017, April. Digital fashion competences: market practices and needs. In *Workshop on Business Models and ICT Technologies for the Fashion Supply Chain* (pp. 125-135).Springer, Cham.

Kardong-Edgren, S. S., Farra, S. L., Alinier, G., and Young, H. M. (2019). A call to unify definitions of virtual reality. *Clinical Simulation in Nursing*, *31*, 28-34.

Kazlacheva, Z., Stoykova, V., Georgieva, K., and Ilieva, J. (2018, December). Application of innovative technologies in fashion design education. In *IOP Conference Series: Materials Science and Engineering* (Vol. 459, No. 1, p. 012080). IOP Publishing.

Kerdvibulvech, C., and Chen, L. L. (2020, July). The Power of Augmented Reality and Artificial Intelligence During the Covid-19 Outbreak. In *International Conference on Human-Computer Interaction* (pp. 467-476). Springer, Cham.

Kim, H.Y., Lee, J.Y., Mun, J.M. and Johnson, K.K., 2017. Consumer adoption of smart in-store technology: assessing the predictive value of attitude versus beliefs in the technology acceptance model. *International Journal of Fashion Design, Technology and Education*, *10*(1), pp.26-36.

Klein, V.B. and Todesco, J.L., 2021. COVID-19 crisis and SMEs responses: The role of digital transformation. *Knowledge and Process Management*, *28*(2), pp.117-133.

Klopfenstein, L., Fedosyeyev, A. and Bogliolo, A., 2017. Bringing an unplugged coding card game to augmented reality. *INTED Proceedings*, pp.9800-9805.

Kontu, H., and Vecchi, A. (2016). The strategic use of social media in the fashion industry. In *Social Media and Networking: Concepts, Methodologies, Tools, and Applications* (pp. 10531076). IGI Global.

Kortekamp, S.S., Werning, S., Thomas, O. and Ickerott, I., 2019. The Future of Digital Work-Use Cases for Augmented Reality Glasses.

Kumar, R., 2018. *Research methodology: A step-by-step guide for beginners*. Sage.

Liu, X., Shin, H., and Burns, A. C. (2019). Examining the impact of luxury brand's social media marketing on customer engagement: Using big data analytics and natural language processing. *Journal of Business Research*.

Liu, Z., Liu, J., and Osmani, M. (2021). Integration of Digital Economy and Circular Economy: Current Status and Future Directions. *Sustainability*, *13*(13), 7217.

Madsen, D. Ø., Silva, E. S., and Hassani, H. (2020). The application of big data in fashion retailing: a narrative review. *International Journal of Management Concepts and Philosophy*, *13*(4), 247274.

Meißner, M., Pfeiffer, J., Pfeiffer, T., and Oppewal, H. (2019). Combining virtual reality and mobile eye tracking to provide a naturalistic experimental environment for shopper research. *Journal of Business Research*, *100*, 445-458.

Mishra, R., Singh, R.K. and Koles, B., 2021. Consumer decision-making in Omnichannel retailing: Literature review and future research agenda. *International Journal of Consumer Studies*, *45*(2), pp.147-174.

Mohanty, P., Hassan, A., and Ekis, E. (2020). Augmented reality for relaunching tourism postCOVID-19: socially distant, virtually connected. *Worldwide Hospitality and Tourism Themes*.

Mukherjee, A. (2021). Technology and the Simultaneous Collapsing and Expanding of Organizational Space: A COVID-19 Experience. *New Ways of Working*, 343.

Muthumanickam, G. and Prakash, V.S., 2020. Impact of augmented reality applications on fashion industries. Journal of Xi'an Shiyou University, *16*(11), pp. 82-85

Nash, J. (2019). Exploring how social media platforms influence fashion consumer decisions in the UK retail sector. *Journal of Fashion Marketing and Management: An International Journal*.

Önday, Ö., 2018. What would be the impact of Industry 4.0 on SMEs: The case of Germany.*International Journal of Management*, *7*(2), pp.11-19.

Ørngreen, R. and Levinsen, K., 2017. Workshops as a Research Methodology. *Electronic Journal of E-learning*, *15*(1), pp.70-81.

Pantano, E., Rese, A. and Baier, D., 2017. Enhancing the online decision-making process by using augmented reality: A two country comparison of youth markets.*Journal of Retailing and Consumer Services*, *38*, pp.81-95.

Papahristou, E., Kyratsis, P., Priniotakis, G. and Bilalis, N., 2017, October.The interconnected fashion industry-an integrated vision. In *IOP Conference Series: Materials Science and Engineering* (Vol. 254, No. 17, p. 172020). IOP Publishing.

Park, J.S., Ha, S. and Jeong, S.W., 2020. Consumer acceptance of self-service technologies in fashion retail stores.*Journal of Fashion Marketing and Management: An International Journal*.

Patten, E., Ozuem, W. and Howell, K., 2020. Service quality in multichannel fashion retailing: an exploratory study. *Information Technology & People*.

Perannagari, K.T. and Chakrabarti, S., 2019. Factors influencing acceptance of augmented reality in retail: insights from thematic analysis. *International Journal of Retail & Distribution Management*.

Pillai, R., Sivathanu, B. and Dwivedi, Y.K., 2020. Shopping intention at AI-powered automated retail stores (AIPARS). *Journal of Retailing and Consumer Services*, *57*, p.102207.

Rauschnabel, P. A., He, J., and Ro, Y. K. (2018). Antecedents to the adoption of augmented reality smart glasses: A closer look at privacy risks. *Journal of Business Research*, *92*, 374-384.

- Rauschnabel, P. A., Hein, D. W., He, J., Ro, Y. K., Rawashdeh, S., and Krulikowski, B. (2016). Fashion or technology? A fashnology perspective on the perception and adoption of augmented reality smart glasses. *i-com*, *15*(2), 179-194.
- Ren, Z. (2021). The impacts of COVID-19 on the retail industry.

Rese, A., Schlee, T. and Baier, D., 2019. The need for services and technologies in physical fast fashion stores: Generation Y's opinion. *Journal of Marketing Management*, *35*(15-16), pp.14371459.

Ro, Y.K., Brem, A. and Rauschnabel, P.A., 2018. Augmented reality smart glasses: Definition, concepts and impact on firm value creation. In *Augmented reality and virtual reality* (pp. 169181).Springer, Cham.

Ronchetti, M., Nobile, T.H., Oliveira, N.K. and Cantoni, L., 2020. Digital Fashion Competences: Market Practices and Needs during Covid19.

Seals, A., Olaosebikan, M., Otiono, J., Shaer, O., and Nov, O. (2021). Effects of Self-focused Augmented Reality on Health Perceptions During the COVID-19 Pandemic: A Web-Based Between-Subject Experiment. *Journal of Medical Internet Research*, *23*(6), e26963.

Silvestri, B. (2020). The Future of Fashion: How the Quest for Digitization and the Use of Artificial Intelligence and Extended Reality Will Reshape the Fashion Industry After COVID-19. *ZoneModa Journal*, *10*(2), 61-73.

Silvestri, B., 2020. The Future of Fashion: How the Quest for Digitization and the Use of Artificial Intelligence and Extended Reality Will Reshape the Fashion Industry After COVID-19. *ZoneModa Journal*, *10*(2), pp.61-73.

SIMION, L. C., and AVASILCĂI, S. (2020). Smart Factory and Amp; Management 4.0 Vision

For Apparel Industry In Romania. In *Proceedings of the INTERNATIONAL MANAGEMENT CONFERENCE* (Vol. 14, No. 1, pp. 572-584). Faculty of Management, Academy of Economic Studies, Bucharest, Romania.

Singh, R. P., Javaid, M., Kataria, R., Tyagi, M., Haleem, A., and Suman, R. (2020). Significant applications of virtual reality for COVID-19 pandemic. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, *14*(4), 661-664.

Siregar, Y., and Kent, A. (2019). Consumer experience of interactive technology in fashion stores. *International Journal of Retail and Distribution Management*.

Snyder, H., 2019. Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, pp.333-339.

Sudha, M., and Sheena, K. (2017). Impact of influencers in consumer decision process: the fashion industry. *SCMS Journal of Indian Management*, *14*(3), 14-30.

Tkachuk, V., Yechkalo, Y., Semerikov, S., Kislova, M., and Hladyr, Y. (2020, October). Using mobile ict for online learning during covid-19 lockdown. In *International Conference on Information and Communication Technologies in Education, Research, and Industrial Applications* (pp. 46-67). Springer, Cham.

Videnov, K., Stoykova, V., and Kazlacheva, Z. (2018). Application of augmented reality in higher education. *ARTTE Applied Researches in Technics, Technologies and Education*, *6*(1), 1-9. Wang, M., Callaghan, V., Bernhardt, J., White, K., and Peña-Rios, A. (2018). Augmented reality in education and training: pedagogical approaches and illustrative case studies. *Journal of ambient intelligence and humanized computing*, *9*(5), 1391-1402.

Yahia, I. B., Al-Neama, N., and Kerbache, L. (2018). Investigating the drivers for social commerce in social media platforms: Importance of trust, social support and the platform perceived usage. *Journal of Retailing and Consumer Services*, *41*, 11-19.

Yoon, C., Louie, R., Ryan, J., Vu, M., Bang, H., Derksen, W. and Ruvolo, P., 2019, October. Leveraging augmented reality to create apps for people with visual disabilities: A case study in indoor navigation. In *The 21st International ACM SIGACCESS Conference on Computers and Accessibility* (pp. 210-221).

Yosep, M. A., Mohamed, M., Yusliza, M. Y., Saputra, J., Muhammad, Z., and Bon, A. T. Does Digital Marketing Platforms affect Business Performance? A Mini-Review Approach.

apparelresources.com, 2020, marketing *a fashion brand successfully in times of COVID-19*

Accessed from: https://apparelresources.com/business-news/retail/marketingfashionbrandsuccessfully-times-covid-19/ [Accessed on: 18.07.2021]