



The Importance on Self-Expression  
Through Clothing and Fashion  
A view on Digital Identity and Digital Fashion  
Versão final após defesa

**Carolina da Cunha Nunes**

Dissertação para obtenção do Grau de Mestre em  
**Branding e Design de Moda**  
(2º ciclo de estudos)

Orientadora: Prof. Doutora Catarina Vasques Rito  
Co-orientadora: Prof. Doutora Catarina Moura

**Maio de 2023**



## ANEXO

### Declaração de Integridade

Eu, Carolina da Cunha Nunes, que abaixo assino, estudante com número de inscrição M10519 do Mestrado em Branding e Design de Moda da Faculdade de Artes e Letras / Universidade da Beira Interior, gerido em associação com o IADE – Faculdade de Design, Tecnologia e Comunicação / Universidade Europeia, declaro ter desenvolvido o presente trabalho e elaborado o presente texto em total consonância com o **Código de Integridade da Universidade da Beira Interior**.

Mais concretamente, afirmo não ter incorrido em qualquer das variedades de Fraude Académica, que aqui declaro conhecer, e que em particular atendi à exigida referência de frases, extratos, imagens e outras formas de trabalho intelectual, assumindo assim na íntegra as responsabilidades da autoria.

Universidade da Beira Interior / Universidade Europeia, Lisboa 28 / 10 / 2022





# Dedication

For those who thought I couldn't. Even if they were just voices inside my head.



# Acknowledgments

First and foremost, I wanted to thank my thesis adviser, Prof. Dra. Catarina Vasques Rito for all the hard work and for putting up with my delays and short notices.

Special thanks to all my friends and family that directly or indirectly helped me throughout my life. The lessons learnt, the obstacles overcame, and all the more moments yet to come. I will love to share them with you. To Pedro V., Joana R., Mariana P., Mónica and Marta C. for accompanying me up close in this journey, thank you for all the messages of strength.

A much deserved thank you to Mariana Silva who helped me navigate through the masters program and never rolled her eyes when I asked for help. Even if it was the third time that day.

To my mom and dad, Fátima and Adelino, who invested in my education and encouraged me to follow me dreams.

And above all, thank you to my sister, Beatriz, without her I would not be the person I am today. No one understands me like her. No one pushes me like she does.

Thank you.



## Resumo

Sendo um vasto tema com uma larga variedade em diferentes áreas de estudo, como a filosofia e sociologia, a Identidade apresenta-se como um tema multidisciplinar (Kawamura, 2005). Desta forma, esta investigação teve em consideração ambos estes campos de estudo, conectando-os. Começando por analisar o papel que a Moda tem na Identidade e até que ponto se influenciam mutuamente, bem como qual a importância da auto-expressão através do vestuário.

O foco desta investigação foi o desenvolvimento e impacto que o fenómeno da globalização e a era digital têm, como influenciam e moldam os seus utilizadores e a sua perceção, e o potencial que a Moda pode vir a ter na construção de uma Identidade pessoal, em espaços como Mundos Virtuais e o Metaverso. Assim, a Moda Digital é também introduzida de forma a perceber esta relação entre Moda e o mundo virtual e o que poderá vir a trazer ao universo da Identidade, mais especificamente à Identidade digital.

Este estudo utilizou duas formas distintas de *design* de método para atingir os seus objetivos. Um método qualitativo, a revisão de literatura, onde estudos e autores são revisados, de modo a explorar temas e formar hipóteses, e mais tarde um método quantitativo, um questionário público onde essas hipóteses serão determinadas verdadeiras ou falsas.

As conclusões mostram que a tecnologia está no seu pico com utilização e *engagement* a crescer, e embora não tenha havido informação necessária para deduzir que a Moda Digital poderá ter um papel maior na indústria da Moda no futuro, é possível que possa significar mais liberdade de vestir

## Palavras-chave

Moda;Identidade;Identidade Digital;Metaverso;Moda Digital;Sociedade.



# Abstract

As a vast theme with a variety of studies in different scientific areas, like philosophy and sociology, Identity poses as a multi-disciplinary subject (Kawamura, 2005). This way, this investigation had in consideration both these fields of study, connecting them. It began by analysing the role that Fashion portraits in Identity and at what point do they influence each other, as well as the importance of self-expression through clothing.

The investigation's focus was the development and impact that the globalization phenomena and the digital era have, how they influence and mould users and their perception, and what potential Fashion has in constructing a personal Identity, in environments such as Virtual Worlds and the Metaverse. Moreover, Digital Fashion is also introduced as to understand this relationship between Fashion and the virtual world and what it might bring into the universe of Identity, and more specifically Digital Identity.

This research used types of method designs to pursue its goals. A qualitative method, the literature review, where studies and author's work were revised, to explore the themes and form hypothesis, and a quantitative one, a public survey where those hypotheses were determined either true or untrue.

The conclusions show that technology is at its peak with increasing usage and engagement, and although there isn't clear information to deduct Digital Fashion will become a major success within the Fashion industry, it is possible that it could mean a lot to freedom of wear.

# Keywords

Fashion;Identity;Digital Identity;Metaverse;Digital Fashion;Society.



# Index

<b>Dedication</b>	<b>v</b>
<b>Acknowledgments</b>	<b>vii</b>
<b>Resumo</b>	<b>ix</b>
<b>Abstract</b>	<b>xi</b>
<b>Figures List</b>	<b>xvi</b>
<b>Acronym List</b>	<b>xix</b>
<b>Introduction</b>	<b>1</b>
<b>Chapter 1: Fashion and Identity</b>	<b>4</b>
<i>1.1 Fashion</i>	4
1.1.1. Definitions as a studying Subject	4
1.1.2. Fashion And Change	5
1.1.3. Fast Fashion and Fashion Trends	6
1.1.4. Technology as a Tool for Fashion Democratization	8
1.1.5. Fashion 4.0	9
<i>1.2. Fashion and Identity</i>	11
1.2.1. When Fashion and Identity Collide	11
1.2.2. Expressing The Self Through Clothing	12
1.2.3. Self-Expression and Society's Role	15
<b>Chapter 2: The Virtual Era</b>	<b>17</b>
<i>2.1 Internet Growth</i>	17
<i>2.2. The Web</i>	18
<i>2.3. Virtual worlds and The Metaverse</i>	20
<i>2.4. Social Media</i>	24
<i>2.5. Videogames</i>	27
<i>2.6. Avatars and Digital Personalities</i>	29
<b>Chapter 3: Digital Fashion</b>	<b>31</b>
<i>3.1. Notions and definition</i>	31
<i>3.2. Types and Utility</i>	34
<i>3.3. Limitations and Barriers of Digital Fashion</i>	35
<b>Chapter 4: Methodology</b>	<b>37</b>
<i>4.1. Consumer survey and hypothesis</i>	37

<b>4.2.1 The questions</b>	<b>41</b>
<b>4.2.1 Descriptive analyses</b>	<b>44</b>
<b>4.2.2 Results and Survey conclusions</b>	<b>58</b>
<b>Chapter 5: Discussion</b>	<b>61</b>
<b>Conclusion</b>	<b>63</b>
<b>Study Limitations</b>	<b>65</b>
<b>Further Studies</b>	<b>66</b>
<b>Bibliography</b>	<b>67</b>
<b>Annex</b>	<b>82</b>



# Figures List

Figure 1: Visual representation of the method design. Source – Author.....	3
Figure 2: Product Life Cycle. Source - Author .....	6
Figure 3: 4.0 components and principles within fashion business units. Source – Teunissen & Bertola (2018) .....	10
Figure 4: Growth of population and mobile phone, Internet and Social Media users. Source - DATAREPORTAL.....	18
Figure 5: Mini's Augmented Reality Advertisement. Source - Technabob.....	22
Figure 6: Augmented Reality Google Maps. Source - Google's website. ....	22
Figure 7: Digital Art - Bored Ape Yacht Club. Source - Volcano Post.....	24
Figure 8: Instagram filters. Source – Author. ....	26
Figure 9: Curt Skelton. Source - TikTok .....	27
Figure 10: Number of active video gamers worldwide - 2015 to 2023. Source – Finances Online .....	27
Figure 11: Louis The Game. Source – Author. ....	28
Figure 12: From left to right - Johanna wearing the dress, Iridescence, and Maria wearing the dress. Source: The Fabricant's website .....	32
Figure 13: Digital assets from the The Dematerialised website. ....	33
Figure 14: James Mack on TikTok. Source - TikTok.....	33
Figure 15: Types of Digital Fashion. Source – Author. ....	34
Figure 16: FN Meka. Source - Capitol Records.....	36
Figure 17: Survey – gender of the inquired. Source – Author.....	39
Figure 18: Survey – age of the inquired Source. – Author. ....	39
Figure 19: Survey – residency of the inquired. – Author.....	40
Figure 20: Survey – Education degree of the inquired. – Author.....	40
Figure 21: Survey – Monthly income of the inquired. – Author. ....	41
Figure 22: Survey – I believe in freedom of expression. Source – Author.....	44
Figure 23: Survey – I have an open mind. Source – Author. ....	45

Figure 24: Survey – I see fashion as a medium of expression. Source – Author.....	45
Figure 25: Survey – I would like to have different experiences with Fashion. Source – Author.....	46
Figure 26: Survey – I would like to have different experiences with Fashion by age. Source – Author.....	47
Figure 27: Survey – I feel as if Fashion isn’t capable of innovation anymore. Source – Author.....	47
Figure 28: Survey – I have a very personal sense of style. Source – Author.....	48
Figure 29: Survey – What I wear relates to what I feel at the moment. Source – Author. ...	48
Figure 30: Survey – I feel as if people dress themselves to convey a certain stereotype. Source – Author.....	49
Figure 31: Survey – I feel a constant pressure in being a certain type of person. Source – Author.....	49
Figure 32: Survey – I consider I am the same person both online and offline. Source – Author.....	50
Figure 33: Survey – I consider others are themselves online and offline. Source – Author. ...	51
Figure 34: Survey – I consider like I have more freedom of expression online. Source – Author.....	58
Figure 35: Survey – I consider like I have more freedom of expression online. Source – Author.....	51
Figure 36: Survey – When I hear the word Metaverse I feel... Source – Author .....	52
Figure 37: Survey – When I hear the word Metaverse I feel... by age. Source – Author.....	52
Figure 38: Survey – Have you had interaction with the Metaverse? Source – Author. ....	53
Figure 39: Survey – If so, in what way do you have or had interacted with the Metaverse? Source – Author.....	53
Figure 40: Survey – Have you ever buy a digital asset (gaming skins, virtual clothing, cryptocurrencies, NFTs). Source – Author .....	54
Figure 41: Survey – If you answered no to the last question, would you say you might in the future? Source – Author.....	54
Figure 42: Survey – Do you feel as if the Metaverse could alter the way people express themselves online? Source: Author .....	55
Figure 43: Survey – If you answered yes to the last questions, would you say it would be in a positive or negative way? Source – Author.....	55
Figure 44: Survey – Do you know what Digital Fashion is? Source – Author. ....	56

Figure 45: Survey – Do you know what Digital Fashion is? By age. Source – Author. ....56

Figure 46: How did you come across Digital Fashion? Source: Author. .... 57

Figure 47: Survey – Have you bought a Digital Fashion product or know someone who has?  
Source – Author..... 57

Figure 48: Survey – Do you believe Digital Fashion could be a big part of fashion’s future?  
Source – Author.....58

# Acronym List

AI	Artificial Intelligent
AR	Augmented Reality
BOF	Business Of Fashion
CEO	Chief Executive Officer
COA	Certificate of Authenticity
dApps	Decentralized Apps
IT	Information Technology
IVW	Immersive Virtual World
MIT	Massachusetts Institute of Technology
MMOG	Massively-Multiplayer Online Game
MMORPG	Massively-Multiplayer Online Role-playing Game
MUVE	Multi-user Virtual Environment
NFTs	Non-Fungible Tokens
QR	Quick Response
RFID	Radio-Frequency IDentification
RPG	Roleplaying Games
VE	Virtual Environment
VLE	Virtual Learning Environment
VR	Virtual Reality
VW	Virtual World
WWW	World Wide Web



# Introduction

## Context and research question

The three most occurring themes when talking about Fashion relate to self-expression, Identity and perception of the wearer: how what someone's wears reflect on first impressions, on how people behave around them based on their clothing, and how people prefer clothing that communicates a similar images that they hold themselves as (Feinberg, Mataro, & Burroughs, 1992). This dissertation aims to connect all of them, by using the digital era as a gateway to better understand if how people dress themselves connects to themselves, their surroundings, the way they want to be perceived or merely just how they feel.

In the book *Fashion-ology*, Kawamura (2005, p. 2) describes clothing as not more than just a piece of fabric, a textile, a material garment. Nonetheless, Fashion is something more. To the author, Fashion exists on people's minds and it "is not visual clothing but is the invisible elements included in clothing". Therefore, Fashion can be anything, anywhere and anyone's. Reassuringly, Lipovetsky (2009, p. 9) views Fashion as a form of "modern artificialism", an investment to obtain a status, a way to change and reinvent. There is also a duality brought up by Collins (2011) stating Fashion can both be a way to hide the self, and also revealing it. The multiplicity aspect of self-expressing through clothing leads some authors to see Fashion as a camouflage and others as a way to reinforce multiple perspectives on the self. (Efremov, Kertakova, & Kuzmanovska, 2021).

Nonetheless, with the present digital evolution, and rapid technological growth, the way users express in a virtual setting could be different than the reality of the physical world. Its flexible, decentralized and collaborative aspects (Cohen-Almagor, 2011) allow for a bigger connection to a bigger audience in a way they can be more emotionally full-filled and because of, once again, being able to multiply themselves. However, there is still some debate on if this is a form of misrepresenting the self or if as Markus and Nurius (1986) put, there is a possibility of different 'possible selves', marking Identity as mutable and malleable.

A rising subject within the digital scope of Fashion is Digital Fashion, a form of wearing clothes within the virtual world. Although there are some different views on what Digital Fashion actually is, they all, with different capacities, a wide range of forms and styles and equipped with several technologies and platforms, portray it as a product to dress the digital self. As seen later in this dissertation, the customization of the avatar is crucial to its creator (Bailey, Wise, & Bolls, 2009; Ducheneaut, Wen, Yee, & Wadley, 2009; Lin & Wang, 2014), just as it being a representation of their Identity.

To sum up, this dissertation analyses all the above subjects in order to form an opinion on this how much Fashion can mean to the wearer, how self-expression and freedom of wear can help forge an Identity, even if it means doing it online. Although the Fashion industry is becoming more and more in tune with the reality of digital development and virtual worlds, there is still not evidence enough to support the idea that Digital Fashion is becoming a step forward into freedom of wear. For that reason, this research is looking for broadening and forward into the conversation, following the next question: can Digital Fashion be a passageway into freedom of self-expression through clothing?

## **Goals**

This dissertation aims for an understanding of subject such as Fashion and Identity, their notions, definitions, evolution and ideas. While focusing on a smaller portion of both Fashion and Identity's spectrum, its main goal is not only to understand at what extent Digital Fashion might pose as a next step into freedom of wear, but what this freedom of wear means to self-expression. For this reason this is not only a piece of academic work but hopefully a gateway to open new discussion on the matters of self-liberation through Fashion and clothing.

Other more specific goals of the dissertation, digging deeper into the conversation, pose as a form to tackle smaller questions and subject relating to the latter. By showing the evergrowing and everchanging aspects of Fashion, one can understand how it may become susceptible to embrace innovation and newness. Thus, the development of digital platforms and online communities, pose as critical to the comprehension to the transfer of several industries to it (and that Fashion is an example of). However, it is also important to have a grasp on the relation between Fashion and society (as it is a sociological phenomenon, (Kawamura, 2005)), and how it allows or limits self-expression and Identity.

## **Methodology**

This thesis follows two types of method designs to arrive at its conclusions (Figura 1). Both qualitative and quantitative data is taken into consideration to portrait a better understanding of the current state of the themes and subjects here described.

The first, a qualitative method, where a compilation of several studies, articles and books by different authors help to construct a literature review to expose a range of ideas and points a view. It is composed by three main chapters: the first highlights Fashion and Identity, and how they relate to one another, by also underlining the importance of self-expression through clothing

and the current state of Fashion's industry; the second chapter holds a general overview of the virtual era, diving into social media, the metaverse and avatars, and culminates into analysing the potential for expressing within digital platforms; the third chapter initiates the conversation of Digital Fashion and how it poses as freedom of wear.

Furthermore, three hypotheses are redacted after the information collected from the literature review, with the goal to better direct the next stage, and possibly confirm with the data gathered later. The quantitative method, a public survey was shared amongst digital platforms, receiving 226 answers. As a way to confirm or deny hypothesis based on the qualitative method, it focused on understanding how the public eye perceives Fashion and Identity, how acquainted they are with recent Metaverse related subjects and if they see Digital fashion as a part of the Fashion industry's future.



Figure 1: Visual representation of the method design. Source – Author.

# Chapter 1: Fashion and Identity

## 1.1 Fashion

### 1.1.1. Definitions as a studying Subject

Finding an objective and correct definition of Fashion is not an easy task, just as Bugg (2010) stated as being “impossible to pin down”. Because it can be a study object for so many scientific areas, the notions and explanations of what it constitutes will vary from one another. That said, the various multi-disciplinary tries will fulfil a more concise and broader understanding of what Fashion might truly be.

In the book *Fashion-ology*, Kawamura (2005) brings a sociological approach to Fashion, that, according to the author, distinguishes itself from clothing. It treats Fashion as an absolute psychological and ‘intangible’ force. Kawamura (2005) even states that defining “clothing as Fashion is futile”, even though it can be, because clothing and Fashion distance themselves by their material, or non-material content, respectively. Also, the author (Kawamura, 2005, p. 88) distances Fashion and clothing even more, when putting both industries and systems in comparison. Wearing clothes with the belief that one is wearing Fashion is a product of their minds, by believing it is desirable. Therefore, Fashion is a sort of state of mind, produced by society itself and those living in and by it, inherently making it a sociological matter.

Fashion-ology is a sociological investigation of Fashion, and it treats Fashion as a system of institutions that produces the concept as well as the phenomenon/practice of Fashion. Similar to the sociology of art that studies the practices and institutions of artistic production (...), Fashion-ology is also concerned with the social production process of the belief in Fashion which exists in people’s minds, and which begins to have a substance and life of its own. (Yuniya Kawamura, 2005)

On another approach Fashion is born out of social, political and economic context, being a result of a specific place and history, just as the experience and global context (Bugg, 2010). The author writes a Chambers English dictionary definition<sup>1</sup> but is quick to point out the duality between the two parts of it. The first part, a more consumption focused one, where the “vogue” and “mode” terms are introduced, and the second, where “mould” and “adapt” are used, showing that Fashion can have vary ways to introduce itself, especially in a globalized society. Just as Robertson says (1990, p. 19), ‘globalization’ was a term popularized in academic, economic and communication means on the second part of the 80’s, having since then, multiple meanings.

---

<sup>1</sup> Fashion - *fash'n*, *n.* the make or cut of a thing: form or pattern: vogue: prevailing mode or shape of dress or that imposed by those whose lead is accepted: a prevailing custom: manner: genteel society: appearance. *v.t.* to make; to mould according to a pattern; to suit or adapt. (Chambers Dictionary, 1972, p.475)

Fashion nowadays has become what is considered an accessible “good”, in part, due to the development of technologies that provide a broader audience the possibility of reaching it. If Fashion was once a very closed off and unreachable industry, that was partially put down because of the speed that “instantaneous ideas are shared in cyber space and through the media to a global audience” (Bugg, 2010). This is enlarged by the thought that Fashion is more than a garment (Bruzzi & Gibson, 2001, p. 96).

Having Fashion such a close relation with society and those in it, due to the changes in society itself, Fashion is needed a reconstruction. Bugg (2010) states that the design itself must develop into something arguably more in line to what its followers might intent or want of it, just as the terminologies may need a re access as social constructs shift and change with time.

### **1.1.2. Fashion And Change**

According to studies Fashion changes increasingly fast (Amritharaj & Manikandan, 2017). Kawamura (2005) argues the same on a sociological view. She calls change the ‘essence of Fashion’, being that, as of today, due to high competitiveness in the Fashion industry (Bhardwaj & Fairhurst, 2010), brands are increasing the number of ‘seasons’, having weekly renewal, of their selling products, to keep up with trends.

So why does Fashion change so rapidly? No matter which period in history one is talking about, the definite essence of Fashion is change. The Fashion process explains the diversity and changes of styles. This argues that the Fashion system supports stylistic changes in Fashion. The system provides the means whereby Fashion change continually takes place. Massification brought by industrialization in the nineteen-hundreds, caused Fashion to spread more widely, faster and on a greater scale (Kawamura, 2005), whilst Bhardwaj and Fairhurst (2010) report that there was a slowing down of Fashion consumption in the mid 80’s, when consumers became more conscious of their purchases. This growing concern with sustainability and the consequences of Fashion to the environment brought Fashion brands who address them to the forefront (Bugg, 2010). As time passes, so does culture, values and traditions, and consequently, so does Fashion, as Fashion is sociological phenomenon, marked by society and its people (Reis, Miguel, Pereira, Azevedo, & Jerónimo, 2018).

Additionally, the life cycle for Fashion is considered quite small. The four stages are still the norm (introduction, growth, mass conformity and decline - Figure 2), but that time period serves less time than in other industries (Bhardwaj & Fairhurst, 2010). This causes for products to be placed and withdraw from the market, due to its life span. However, to promote it to the right way, different marketing strategies must be made, to ensure better sales and performance (Rizzo, 2020). This is the main reason why fast Fashion brands are so successful.

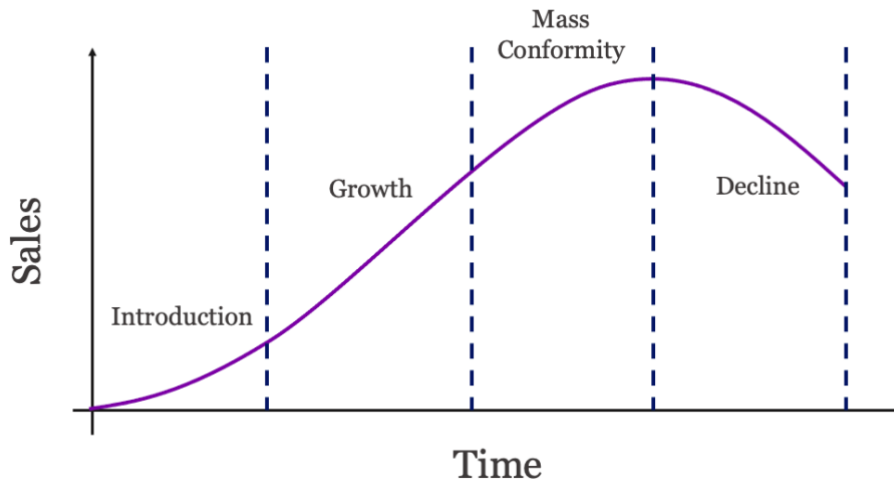


Figure 2: Product Life Cycle. Source – (Bhardwaj & Fairhurst, 2010)

### 1.1.3. Fast Fashion and Fashion Trends

“Low prices, global economy, advances in textile and garment production technology, low wages for workers in third world countries, development of communication and transportation technologies, and increased consumption” are the main reasons Suk (2021) believes to have caused the modern Fast Fashion industry. Fast Fashion has been defined by many people, in various ways, but the common denominators are always: its speed in responding to what the masses want, the efficiency in producing those same products, and lastly, the immense lack of sustainable ways to do so.

The element of speed alone has had a significant effect on a persevering Fashion industry that prizes the constant advancing, progressing, and innovating of business operations. The faster the production, the better; multiplying trends and dying them out almost as soon as they are born (...). Speed generates consumer desires, satiating the desires through accessibility, while granting cyclical profit to the brands involved. In fast Fashion, the concept of collection releases is constant throughout the year as opposed to the classical seasons in Fashion. Fast Fashion is structured around supply and demand, so generating attractive garments worthy of consumer desirability is a critical component. (Alejandra Carrillo-Muñoz, 2015)

Fast Fashion causes for a disposable state of mind, a thought that clothes are for the moment, to capture, and not to last. The cheap production and low prices, call for over consumption, which causes an environment deterioration (Niinimäki, et al., 2020), as the purchases and constant ‘closet cleanings’ causes the consumer to fall into a vicious cycle (Anguelov, 2021). But how did this come of be? The history of Fast Fashion is a not certain one, with researchers believing it to have begun in different stages of the last decades. Carrillo-Muñoz (2015) sheds light on different possibilities: most authors believe fast Fashion started around last century, by the decades of 1980 and 1990, accompanying the globalization of the different

industries of the world; others go even before that with the appearance of QR (Quick Response) (Fernie, 2014, p. 40) as textile companies looked for “a way to reduce the processing time”; in spite of that, there is still some authors who believe fast Fashion only takes place a little after the turn of the second millennium.

The success of Fast Fashion is also well credited to the shift of consumer behaviour. The modern consumer changed its ways of purchase, looking for different pieces that mirror the fast passed life society is living in. The over-abundance of choice took the consumer to integrate a lifestyle of keeping wanting more (Smitheram, 2013). Fraser-Mines (2017) discovered that for the American shopper, longevity of clothing is no longer important, whereas the constant renewal of style and Fashion pieces has become a key principle in their lives. This, combined with the ‘low quality and low durability’ of fast Fashion clothing, that are not meant to last, makes the business model have so many fans and loyal customers. The turnover of merchandise these brands can provide makes the costumer visit the store often. The term ‘micro-seasons’ is already used to describe the Fashion industry due to the consumer’s need for newness. This constant want is produced by the more and more ephemeral aspect of trends.

Trend is a very broad term, with different meanings form different areas of expertise (Gomes, Cohen, & Flores, 2018). To better understand the meaning this study is trying to use trend will have the combined result of three different meanings, just as Vejlgaard (2008, p. 8) wrote. The first, a ‘process of change’ (mainly created by *trendsetters* and possibly on the streets and usually has an abstract form); the second, a ‘product development’ takes after the spread of an industries’ innovations that may move on to make ‘new products’, the third meaning (that has a physical form).

Trends are a form of Fashion that have an intrinsic aspect of not lasting very long. According to Saravanan & Venkatasamy (2015) the characteristic to “come and go” can be credited to the fact that trends are as successful as they are accepted, that is inherently related to the values and social traits of those who belong to the society in question. This prolongs the ‘buying, using, disposing’ factor that promotes overconsumption and perpetuates the non-sustainable cycles (Smitheram, 2013). The author also defends that due to this constant pressure to design new items every week, the creative approach of Fashion has been lost. Additionally, a very prominent reason for the spread of trends and their quickness on disappearing is social media (Carrillo-Muñoz, 2015).

Despite all the latter, transformations in Fashion, either in the developments in its designs, the communication methods and ease in distribution, and especially the low prices due to other innovations and developments, made modern Fashion more accessible and democratic, when was once exclusive to the elites (Lipovetsky, 2009, p. 9).

#### **1.1.4. Technology as a Tool for Fashion Democratization**

Fashion democratization (Bertola & Teunissen, 2018; Suk, 2021; Fraser-Mines, 2017) was, as seen, helped by mass production during the Industrial Revolution. This was possible through the advances on sewing machines, standardized garment sizes and specific cut patterns (Carrillo-Muñoz, 2015), and by the juxtaposition of art and technology itself (Suk, 2021). As this generated fast Fashion, clothing with low quality, and a repetitive and insatiable shopping habit (Lipovetsky, 1998), it also got Fashion away from the “narrow circle of the creations of Fashion designer of the first major *Maisons*” (Rosa, 2013). English (2013, p. 12) points out how the social gap was narrowed when clothes became less expensive, “yet fashionable”. The author also sees department stores as one of the enablers of the crescent fascination of Fashion, making a parallel between them and museums (pag. 19-20). These forms of merchandising techniques also built a way to make clothing purchasing more accessible (Carrillo-Muñoz, 2015), while the industrialized society and the newer generations of women a part of the work force further had a need to a more practical and utilitarian way of dress, what simplified the manufacture of the garment itself.

Meanwhile, as society longed for change, the new, and the present, Fashion evolved into ready-to-wear (Lipovetsky, 2009, pp. 74-76). The author credits Pierre Cardin with the first ready-to-wear (or *prêt-à-porter* in French) collection in 1959, evolving, four years later, to a whole department. On the other hand, Yves Saint Laurent was the one to produce the first ready-to-wear Fashion collection in 1966 (Lipovetsky, 2009) with the “industrial imperatives and not an adaptation to Haute Couture”, which happened with Cardin’s in 1959. Therefore, even if it initiated by imitating haute couture styles, ready-to-wear quickly shifted its ways to target a younger audience (Suk, 2021).

The ready-to-wear/fast Fashion phenomena allowed for other movements to take place, changing, and being changed by Fashion. Fashion can play a prominent role in gender, age, culture, and religion, to name a few, either by identification or differentiation (Suk, 2021). Some examples would be, Yves Saint Laurent fighting gender stereotypes that ruled those previous decades by putting women in trouser suits in the 1960’s and blurring the boundaries between women’s and men’s styles (<https://www.ysl.com/en-fi/la-maison/archives>). Suk (2021) also sheds light on the freedom of clothing respecting religion, writing about laws in western countries, prohibiting Muslim women of wearing their traditional garments, such as burkas.

In spite of all the technics that facilitated the design and mass production of clothes, that were followed by democratization, such as the standardizations of garments, a problem follows. The lack of inclusion in body types and disabilities forces for movements which pressure the most knowledgeable brands to shift their perspectives (Foster, 2021). (Busch, 2018) takes it further and implies the usage of the word “democratic” only a hoax and an excuse for Fashion and consumers to dive into consumerism, highlighting the ‘exclusion’ present in Fashion. Hence, the importance on Fashion design especially in this tier of the industry. As Karl Lagerfeld said to Suzy Menkes in 2004: “My concept of ready-to-wear today at whatever level is that it has to be as good as the most

expensive brand. Design is very important and design is not a question of price anymore” (Menkes, 2004).

The access to Fashion has certainly changed and as globalization continues, so will Fashion. From the beginning Fashion has changed with time and the different innovations that would appear, and nowadays is no exception. There is now a potential of newer business models, based on cyber-physical systems (Bertola & Teunissen, 2018).

### **1.1.5. Fashion and Industry 4.0**

The digitalization era is present and has been for a while. There is a dichotomy in society as it both stays apart by only being present for their screen, but feeling the need to “plug-in, to be connected” (Allen, 2009). Bertola & Teunissen (2018) also realize this since Millennials have a closer attention to brands who engage and communicate the most on social media, actively creating a dialogue and making them an ‘active’ receiver. However, this clashes with the more traditional models, like luxury brands, who design less garments and produce at a different rate.

As a result of the technological world, Fashion is undergoing multiple alteration in vary aspects such: retail, advertisement, marketing, distribution, communication and even the design (Bugg, 2010). Brands are making efforts to be closer to their targeted audience and bring something new to the table. Therefore, the usage of these new technological ways makes up for a more accessible (and a step further into democratization), less wasteful, and a more innovative and up-to-date Fashion.

Through the yearly report, *The State of Fashion 2021*, by BoF and McKinsey & Company, it is known that in the midst of the pandemic, online traffic increased by a lot (Amed, et al., 2020). Online retailers grew in revenue, especially in the second quarter of 2020, with Fashion executives seeing online market as the biggest opportunity; livestream commerce also became quite big in various online platforms; and brands had to innovate to make themselves look different in, the partnerships they were making, the design of their collection and even the way they introduced them, either by video, videogames, or livestream.

This way, Fashion gained new forms and reached different markets by enabling digital outlets and systems aiming a wider audience. Therefore, Fashion is increasingly becoming a reachable global market (Carrillo-Muñoz, 2015).

Technology has enabled Fashion to exist in multiple and simultaneous time-space conditions as granted by its immersion in a virtual, digital world. While industrialization was speeding the processes of producing Fashion goods, a new digital age sped up the communication and dissemination of these goods to an interconnected, globalized audience. (Alejandra Carrillo-Muñoz, 2015)

All the latter culminates into the “Fourth Industrial Revolution”, led by a 4.0 paradigm (Figure 3) which is represented mainly by digital transformations. Fashion 4.0 is, therefore, the product of current and possible advances brought by the digitalization of the industry itself (Bertola & Teunissen, 2018). “3D design and virtual prototyping, digital printing, RFID, automated manufacturing, demand planning” are some of the innovations the authors seem to believe will greatly impact the industry, alongside with the “see now buy now” model, which Burberry was one of the first high-end brands to assimilate; a strong engagement to the costumers and consumers through social media is also a preponderant aspect in the authors eyes, as are the possibilities in improving textiles and wearable technologies, that can enhance performance and comfort. The next image shows how, according to Bertola & Teunissen (2018), the last innovation can transform and modify Fashion from within, making it more “sustainable and customer-driven business”.

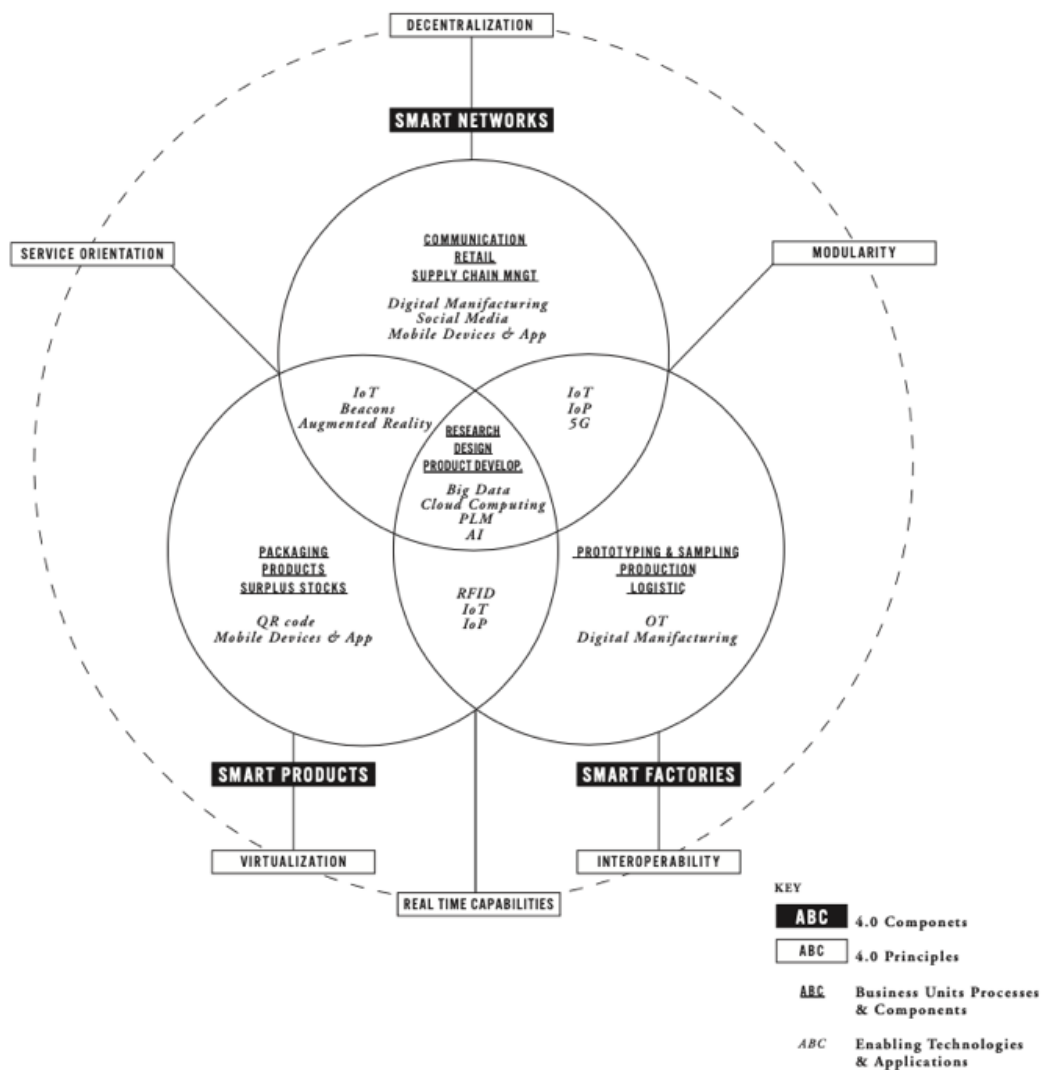


Figure 3: 4.0 components and principles within fashion business units. Source – Teunissen & Bertola (2018)

## 1.2. Fashion and Identity

### 1.2.1. When Fashion and Identity Collide

In the Introduction of *Fashion-ology*, the author is also concerned “with the social production process of the belief in Fashion which exists in people’s minds, and which begins to have a substance and life of its own”. In that way, it can be made a connection between Fashion and identity.

Extensive research has been made on Identity with authors from various fields growing interest in the theme, dating back to the ancient times. Despite the latter, the individuality and self-identity were yet to be put as a proposition due to the view of the self as a pack being. This way, only in modern studies the man has studied himself in a way to better understand its wants and needs on a deeper and philosophical way.

The theme Identity, according to Kaufmann (2004), came of being around the 60’s, and although it started to develop only recently as a Social Science investigation subject, this concept has been in discussion since the ancient times.

Evidently, it is not the concept of identity that is in discussion in today’s models, but the philosophy has been, for long, investigating a definition for it. However, for Kaufmann, the concept of identity is intrinsic to modernity, because the individual living in a traditional community, didn’t see itself as a particular individual, and for that, it wasn’t aware the current debate of identity. (Zanatta, 2011) - Author’s translation

The author creates a flexible line of thought for Identity, presuming it to “not be strict, to be buildable and interchangeable throughout life, negotiable and revocable” while decisions, events and environments can also shape their Identity exceedingly.

Identity is a constituent of Fashion, because dressing the body is always an extension of the ‘experience of the self’ (Lieshout, 2012). This idea is particularly noted when one chooses to oblige or oppose to the imperatives or morals that are installed in society and risking being ostracized by it; by taking the alternative approach to the ‘socially accepted’, a statement is made relating to the identity of the wearer (Lieshout, 2012). The author also theorizes about there being a public and a private body, being that, in words, the private one is more in tune to the individual’s own identity, and whereas the public one might be restricted to those same society norms.

This is mentioned by Doiron (2018) who believes that dressing ‘authentically’ to the self allows liberation above a feeling of social acceptance, it “can make the wearer feel happier, more confident, and comfortable in their own skin” (Doiron, 2018). The dichotomy of dressing for others or for oneself is also a theme the author debated on her work. Amaro (2018) portrays the same idea with the example of a 1980’s Portuguese singer, António Variações, a much criticized one due to his extravagant costumes that belonged to who he was as a person, even if it

transgressed the taboos of the Portuguese culture at the time. This relates to the notion that Fashion even a form of constant innovation in the way it presents itself, struggles with curving to a path of stagnation due to the social pressure of doing so. It balances in the middle of “continuity and discontinuity, tradition and innovation” (Amaro, 2018).

Fashion becomes a metronome of cultural development that allows us to observe the constant struggle between the tendency towards stability, immobility, and the opposite orientation, to novelty and eccentricity, in short everything that ties into the idea of Fashion, almost the visible embodiment of unmotivated innovation. (Amaro, 2018)

As certain identity issues arise in society so does the importance of Fashion accompanying them. Gender, a constituent part of Identity has been questioned in a way to defy the current social constructs. As Reis, Miguel, Pereira, Azevedo, & Jerónimo (2018) found unisex and genderless Fashion to be imperative since the subject on gender fluidity continue to be more relevant. Moreover, gender stereotypes and the traditional binary identity are also being broken by brands and society itself:

Gender fluidity and androgyny within the Louis Vuitton advertisement, encourages the thought that the ‘gender norm’ we have been taught has become something so outdated that society needs to reconsider how people can relate to forming stereotypes. Although the Dolce and Gabbana traditional ideas of gender are constraining, this is still an identity some people do associate themselves with. There are some who believe they do completely fit to these standards—but saying they are the complete epitome of gender is damning for those who don’t completely conform. (Watson, 2018)

### **1.2.2. Expressing The Self Through Clothing**

The possibility that clothing might express someone’s identity(ies) is a very discussed and researched matter (Collins, 2011). While some authors do see a correlation between the clothing someone carries and the way identify themselves, others do not relate both. On Collins contribution to the book *Fashion Forward* the way we style ourselves is no other than a confession to the world, on who we are, and/or how we would like to be portrayed. According to Lipovestky (2009, p. 43) clothing was once a form to identify one’s social hierarchy as tradition dictated they would dress a certain way, but in the modern days, as self-expression became a prominent issue, so became individuality through aesthetic, and ultimately, Fashion. Eco (1982), states that “clothing is communication”, that even the smallest detail on it can shift perception and send a different message regarding colour, shoe and even seam choices.

On the other hand, it is also revealed that some might “argue that the moment we begin to wear garments of clothing at all we lose all authenticity” (Collins, 2011) that clothing allows for a role playing, a creation of different personas and a false social self. But it shows things people didn’t know they had to say, a new perspective of the self. A different perspective is brought by Efremov, Kertakova, Kuzmanovska (2021), that also view Fashion as a way of self-expression,

although they believe, that allows the wearer to multiply into partaking in different personalities. Even if there is a possibility people showcase and express through clothing for others and the acceptance, then for themselves, believing “this urge for intimacy is expressed in clothing”, Collins finds Fashion to have a role of confession, as read:

Clothing is a means of hiding the self. Clothing is also a means of revealing the self. Through the sartorial choices we make regarding what to reveal and what to conceal through dress, we bring attention to ourselves as individuals. Many people understand this focus on the individual through clothing as simply a form of self-expression, but I wonder how it may also be similar to confession. Although it might be inaccurate to argue that all Fashion is explicitly or overtly confessional, it seems that there is a connection between the psychological needs filled by clothing and the role of confession in society. I'd like to use the notion of confession to shed light on the underlying sense of inclusion that I believe most people are after. (...) Through the dual activities of revealing and concealing the self, confession and Fashion both appear to be endeavours which seem especially self-indulgent, but they are in fact two unavoidable aspects of living in, and navigating throughout, a world of others. (Collins, 2011)

Also, Fraser-Mines (2017) dives into the possibility that Fashion is “used as a way to express one’s personality and often times represents the culture of a region as a whole” is somewhat a thing of the past. Due to globalization and fast Fashion (which was previously showed) the consumer adjusted and begun to have a faster way of life losing its personal style and succumbing to consumerism and Fashion trends.

This way, clothing can be perceived as a non-verbal type of communication. It can be related to age, gender, personality, socioeconomic status, values, religion, school affiliations and political ideologies (Todorović, Pavko Čuden, Košak, & Toporišič, 2017; Rosenfeld & Plax, 1997; Angerosa, 2014; Saravanan & Venkatasamy, 2015). Also, these social cues may be just as expressive as spoken words. So, being clothing a part of appearance, it provides data for the perceivers to collect. Despite that, it is believed that the current situation of these perceivers also influences how the clothing, and subsequently, the person using them, is seen.

Nowadays the fact that dress is not merely an item in a wardrobe is increasingly acknowledged. It separates from its function to protect and cover the body, and also conveys a message sent through clothing, proving to be more than that – it expresses our personality, attitude, background, heritage etc. (Todorović, Pavko Čuden, Košak, & Toporišič, 2017)

The fact that clothing does not only have an objective and practical side, but also a way to express different aspects makes it a powerful way to communicate those same differences. This is greatly seen in costume design in cinema and theatre. Here the costume designer has to ensure the audience understands the character. That all they represent, how they speak and who they are, is all portrayed in the costumes that they are given. This is supported by Ruth E. Carter, the famous costume designer, did an episode in the Netflix series ‘Abstract’ (Roma & Sorrentino, 2017) here she explains what being a costume designer means to her: “you have to understand a little bit about people, what makes a person who they are, where they live, what they believe in.

Sometimes that is really reflective on the outside. It's storytelling". The expressiveness of clothes is her day-to-day life.

Nonetheless, there are studies that might say the opposite. Clothing and Social Identity (Feinberg, Mataro, & Burroughs, 1992), an empirical view on the meaning of clothing, was conducted in 1992, and although it has 30 years, it can still give a good view on the actual relation. Despite its conclusion having a bit of a duality, causing doubt when it comes to actual answers, some can still be taken out of it. It showcases the importance of clothing as an identity symbol: a) it is of a daily use; b) it is of public display and c) it is easily manipulatable. These statements relate to two points that are important to this paper: the prominent role clothing may have in expressing the self and the society response to that clothing and the fact that it affects the relationship it may have with the individuals wearing them, and how they are perceived.

When the subjects chose clothing to represent their personalities, there was a close correspondence between the observers' perceived meaning of the clothing and the self-reported social identity of the individual (Study 1). When the clothing choices were limited and did not necessarily reflect the individual's personality, the differences in clothing brands conveyed different meanings although these differences did not reflect actual identity differences (study 2). Therefore, while it is clear that clothing may carry meaning, it is too simplistic to say that the meaning always reflects actual differences in social identity. (Feinberg, Mataro and Burroughs, 1992)

However, it also states that clothing might not truly represent oneself, and therefore, "not have always been found to be related to the identity of the wearer", the reasons being: one, the vastness of a person's personality cannot be completely defined by their clothing, and so "it is important to specify what aspects of the person's his/her clothing is related to"; two, that these choices "may reflect things other than identity"; and three, the congruence between both the wearer and the viewer have to be taken into account when this kind of research is being conducted (Feinberg, Mataro, & Burroughs, 1992)

Additionally, English (2013, p. 75) attributes the increase of sharing ideologies and cultures, by a globalized society, to the reason why individuality and using clothing as an identifier is no longer a truth.

Despite the latter, it does not invalidate the premise that people do feel that connection for themselves. Here, the depth of the studies for this paper evolves, separating what perception and intent are, concluding that clothing represents different characteristics to different people. From the investigation pursued by Feinberg, Mataro and Burroughs (1992), there are some evidences of the possibility that social identification and clothing may form a relation, in spite of this one, not being "a simple one". As said, clothing and the justification on why its wore "may have meaning", and throughout the piece there are several authors that support the relationship just stated ("Individuals tend to prefer consumer goods whose meanings are consonant with their sense of social identity" (Belk, 1987; Csikszentmihalyi & Rochberg-Halton, 1981; Furby, 1978;

Solomon, 1983) and “many researchers have singled out clothing as an example of a product having significant social identity congruence” (Bull, 1975; Davis, 1984; Kaiser, 1985; Stone, 1962).

Like Feinberg, Mataro and Burroughs (1992), (Angerosa, 2014) also conducted an empirical study where the two main questions were 1) is there a significant difference in the way a model is viewed in various clothing styles, and 2) is there a significant relationship between a person’s perceived level of clothing interest/satisfaction and the way they rate the model. The conclusion for the first question, like the ones she investigated herself, proved that there is a correlation in how one is viewed based on the clothing they present themselves in. For the second one, and opposed to what her previous literature review indicated, she did not find a relation that corroborates the relation between the respondents’ interest in clothing and the ratings they would give the model. Lastly, the author did accomplish the conclusion that different clothing styles do affect how ones is perceived, communicating different things relating to what and how they wear.

### **1.2.3. Self-Expression and Society’s Role**

Self-expression is the way one shows themselves to the rest of the world, how they would like to be viewed as. As the Cambridge Dictionary defines: “expression of your personality, emotions, or ideas, especially through art, music, or acting” (<https://dictionary.cambridge.org/dictionary/english/self-expression>). Associated with the intrinsic characteristic of change, Lipovetsky (2009, p. 37) acknowledges the social pressures implicated in adopting those same changes in a way to integrate a certain social domain.

Collins (2011) dives into the importance of inclusivity and acceptance, even though Fashion. Stating that humans cannot be completely alone, within need of approval by their society, the author finds a series of paradoxes in modern society itself. Whilst “we are encouraged to stand as individuals”, a critic is put upon someone who shares and focuses on the self. On this point of view there is a true connection between someone’s psychological need filled by clothing. The author also talks about that this is routed, hence the need one has of feeling inclusion among the society it’s in. This is also believed by Rosenfeld and Plax (1997) work, where they invoke other authors, when it is stated “conformity in dress was related to an individual’s desire to be accepted and liked rather than to appreciation of form and harmony”

Later on, the author poses the term ‘confession’ to explain self-expression, defining it as “a public admission of something deeply personal and intimate” (Collins, 2011). This parallel is set because “it both hides and displays”. Being so, the author proposes three different goals as to why this confession is made, and ultimately, the reason behind why self-expression is a part of human life. The first, *acknowledgment*, the ‘I see you’ perspective from others, in a way to differentiate from others. The second, *affirmation*, the ‘I recognize you’, looking for identification in a particular group. And the last, *transformation*, the ‘I accept you as a member of my group’, acquiring a status within the group.

Although Collins (2011) affirms the significance within the first two goals, it is the third one, *transformation*, that she believes to be the most desired. The overlap between Fashion and ‘confession’ is especially shown here due to, not only, the recognition, but for the need of “appraisal of worth”.

In Kawamura’s book (2005, p. 22), amongst others, the author quotes the perspective of three different authors. Herbert Spencer, in *The Principles of Sociology* (1966), implies that Fashion comes of the statute of the wearer, who has the power to turn clothing into Fashion only by their position in society. On the other hand, Ferdinand Tonnies, in *Custom: An Essay on Social Codes* (1963), argues that those who follow Fashion indicate an “acceptance of leadership”, to express the want of joining to be and/or remaining a member of that group. Lastly, she brings Georg Simmel, of *The American Journal of Sociology* (1957), to introduce he’s paradox between the constant changing in Fashion, and the fact that it is a form of “imitation and social equalization”. In other words, the elites start a Fashion (here as trend), and when the masses catch on to it, they abandon it for a newer form. This way, the segregation perpetuates, and the effort of its continuation ends up prevailing.

This is a shared view by Kawamura (2005) herself, in the introduction portion of the book, where she states that clothing isn’t Fashion until a vast number of people assume it as so, by adopting it. On the other hand, the term ‘imitation’ is also very prominent in the second chapter. The author argues that this term was commonly used in earlier work, since the more contemporary ones share a more diverse and general view on Fashion, crediting the multiple definitions and meanings Fashion has gathered. However, she still gives out those points of view my distinguishing different types of imitation (referencing other authors). Herbert Spencer (1966) states that imitation is intrinsic to Fashion and poses two types of it: Reverential imitation, as a sort of *homage* to whom is being imitated, and Competitive imitation, by trying to assert a sort of equality of both parties. Kawamura (2005) emphasis the work of Gabriel Tarde in the *Laws of Imitation* (1903), where he finds three stages: invention, imitation and opposition. These are interconnected and pose cyclically, influencing one another. Tarde (1903) also heavily refers to archaeology to make analogies on how the human and its societies may not be as original as they think. But, opposing to these ideas of ‘imitation as a positive behaviour (Kawamura, 2005, p. 21), Thorstein Veblen in *The Theory of Leisure Class* (1957), has a very pejorative view on imitation, when talking about objects of Fashion design.

Esparza (2017) started “*Style Semiotics: The Influence of levels of Professional Style of Dress on Perceived Competency*” by acknowledging the rate at what people are used to been repeatedly advertised on new products and services, what makes them subject to the feeling they need those same products and services to feel happy and accepted by society. This once again, causes for mass consumption.

## Chapter 2: The Virtual Era

As the last chapter introduced how technology influenced Fashion, from its earlier stages, that will be continued by investigating the newer and more sophisticated form of technologies, to better understand contemporary Fashion. Technology, as seen before, was a big pusher of Fashion's popularity and accessibility, allowing it to grow into new places and forms, one of them being the transition to the virtual world.

Computer Science innovations play a major role in everyday life as they change and enrich human interaction, communication, and social transactions. (Mystakidis, 2022)

### 2.1 Internet Growth

What is the Internet? What is it for? How does it work? The history of the internet, although a recent one, is vast and complex (Leiner, et al., 2009). Flexible, decentralized and collaborative are some of the adjectives that Cohen-Almagor (2011) uses to describe it, as its developments were made in a freely and open way due to the lack of restrictions, focusing on growing as a “network of networks”.

The Internet, in similarity to other technologies, developed over time, being that it was once a bit simpler. It started with J.C.R. Licklider of MIT in August 1962, where he envisioned a “a globally interconnected set of computers through which everyone could quickly access data and programs from any site” (Leiner, et al., 2009). This was achieved after the Soviets created the Sputnik in 1957 (Opfer, 1999), and as advances were made so was carried the Cold War, where the Soviet Union the United States did their best to outdo the other (Cohen-Almagor, 2011). After that the Internet suffered many developments and advances in order to get where it is today, making it a daily strong presence:

Daily online usage plays a significant role in the everyday lives of consumers worldwide. The internet has changed the way humans interact and reshaped traditional communications media such as film, television, music, and telephone. The emergences of new digital technologies and websites have accelerated forms of human interaction through online forums, instant messaging, and social networking. (Statista, n.d.)

Currently, in the Statista website, Joseph Johnson (2022) writes that 4.9 billion people are currently connected to the internet, what accounts for almost two thirds of the world's population. Although eastern Asian, especially China, makes up for the majority of the users, the northern Europe countries are the ones whose population is the most connected, where almost 100% of the population has access and/or is a user (Johnson, 2022). Also on this note, DATAEPORTAL (2022) report on online presence, shows how the world's population is more and more connect to the internet, is more active on social media, and spends more time on the Web (DATAREPORTAL, Social, & Hootsuite, 2022).



Figure 4: Growth of population and mobile phone, Internet and Social Media users. Source - (DATAREPORTAL, Social, & Hootsuite, 2022)

## 2.2. The Web

Usually, the internet is used in a form of Applications Programming Interface (API), facilitating the inter communication between computers over the Internet (Naik & Shivalingaiah, 2009). Nowadays, in a web browser, a user can find text, images, videos, and other interactive multimedia via hyperlinks. But it was not always like that. Web pages began to be hypertexted documents. This was the Web 1.0 era.

As the internet started to be a form of sharing information rapidly, the Web 1.0 is characterized by pages of text, in very little to no “interaction or content contribution” (Naik & Shivalingaiah, 2009). Although there may be some disagreement to when this era started and ended, Vojříř & Kučera (2021) date the beginning to the work of Tim Burners-Lee in 1989, to about 2005. The main goal during this period was to provide and access information (Hiremath & Kenchakkanavar, 2016). Later on, the term Web 2.0 was introduced as the next big thing within the World Wide Web (WWW) and came as a more interactive form to search and browse the internet (Naik & Shivalingaiah, 2009). It is the era of social media, especially as a way to network and participate in conversations (Hiremath & Kenchakkanavar, 2016), making a way of connecting people by active participation in podcasts, blogs, social media, videos and 2d portals (Patel, 2013).

The third generation of the WWW, also known as the ‘Semantic Web’ (Patel, 2013), was, once again, though and executed by Tim Burners-Lee. The goal is to create a connection between the data and integrate it so that it may be converted into “smart data” and therefore, meaningful information (Morris, 2011). The metadata is selected and the search engines make for a more

curated form of content sharing by the means of tags. This means millions of information is retrieved and read by the search engine and the most accurate and precise ones will appear as a priority. The inherent freedom in this form of web causes for an immersion of the user, allowing for a wider connection of everything and everyone. Avatar representation, Multi-user Virtual Environments (MUVes), Integrated games, are a big part of this new generation of the Internet and cause for the growth of interaction between people and applications. Companies leverage from this form of technology by allowing their platforms to serve their users to a very specific form of content (Google Maps Facebook Marketplace) (Patel, 2013).

In spite this last division of the periods of the web, it does not hold up a certainty. There is an ambiguity amongst the authors in what constitutes what. Vojíř & Kučera (2021) describe so examples in their work:

With regard to the semantic web, it should also be mentioned that the semantic web does not necessarily have to be marked as Web 3.0. Due to the ambiguous views and definitions of the versions or phases of the Web's development, semantic markup can also be attributed to Web 2.0. Some authors only regard applications that really understand data, such as search engines that respond with specific answers, not with a set of web links, as Web 3.0 applications.

The same applies to the following, as it is already spoken of a Web 4.0 and a Web 5.0, centred in machine learning and nanotechnology, respectively (Patel, 2013), although, depending on the author can contemplate different aspects. Web 4.0, or Symbiotic Web, is focused on founding interactions between people and robots, as artificial intelligence (AI) will be at its core (Shukla, 2022; Patel, 2013). However, as some authors also view this version of Web to have avatars live in a virtual 3D environment, others believe this to be part of another era, The Web 5.0 (Vojíř & Kučera, 2021). Although web 5.0 is still just an "underground idea" the growth of technology makes to believe its possibility. According to Karan Patel (2013), the main goal is to make the web 'emotionally sensitive', the reason why is also known as 'Emotional Web' converging digital and physical spaces (Shukla, 2022). This causes for a more and more decentralization of the web.

Lastly, Web 6.0 is already a topic, even though a very little discussed one. The main goal is to make independent machines, opposed to the artificiality inherent to the previous eras (Król, 2020). Of course, this independence may concern some, as dystopic movies and tv series appear and make them sound dangerous. Tierra was a project started in 1990 by Thomas S. Ray, where the goal was to create a virtual universe, with algorithms that would replicate (Ray, 1991), and hopefully create and sustainable ecosystem. Unfortunately, development was made, but critics were quick to point out the cyclical aspect of the creation and death of the "creatures", creating a loop with little to no evolution (Bedau, et al., 2001).

However, the current state of the Web poses as a centralized force, with major players in command. Vojíř & Kučera (2021) work focuses on this matter, shedding light over the dangers

inherent to the shift in power: the power of decision the search engines have when deciding the algorithm and subsequently which links appear first; censorship from countries policies and how media can polarize and influence certain decisions on its users. This last was the star subject in an episode of the *Your Undivided Attention* podcast (Raskin, Harris, & Kaiser, 2019) where the guest, Brittany Kaiser, shared her experience as a Cambridge Analytica insider in an American political campaign. Here she offers her point of view on how the algorithms are made and how they send messages to specifically target their recipients to behave a certain way.

Following that, the lack of awareness users have on how their data is handled may be the root of some acclaimed negative aspects of the internet Vojříř & Kučera (2021) mentioned:

This concentration of users itself is not necessarily negative, but the users often cannot fully control their data and they cannot easily transfer them between platforms due to technical barriers and network effects. This puts the platform providers in a powerful gatekeeper position where they can analyse also as influence behaviour of Web users.

As of today, a mindset of the users would be necessary to ensure a change in this paradigm, especially when advances on such forces are occurring daily. It is important to realize that the beginning of a version in the Web does not mean the end of the other, as web 1.0 is still important and very much used in static emails and companies' presentations, or the social networks, part of Web 2.0, that are constants in many people's lives (Vojříř & Kučera, 2021). Therefore, there isn't a current version in the present, but a mix of them all, with space open to newer version as previously shown.

## **2.3. Virtual worlds and The Metaverse**

Although a single definition for virtual world does not exist, the key-factors amongst some of them continue to be studied (Spencer, 2008).

As a massive agglomeration of different spaces, people, objects, ideas and terms that are used to describe virtual worlds, adding to its constant development (Girvan, 2018) different types of technology have different names, which sometimes are confused and misplaced. (Girvan, 2018) mentioned some, along with their main differences and overlaps:

(...) virtual world (VW); virtual environment (VE); multi-user virtual environment (MUVE); massively-multiplayer online (role-playing) game (MMO(RP)G); immersive virtual world (IVW); immersive world; immersive online environment; 3D virtual learning environment; open-ended virtual worlds; simulated worlds; serious virtual world; social virtual world; synthetic virtual world; and virtual learning environment (VLE). (Girvan, 2018)

Despite the latter, the most commonly used definition for virtual world is Bell's: "A synchronous, persistent network of people, represented as avatars, facilitated by networked computers" (Bell, 2008). Therefore, there are three main components in this definition:

- synchronous – constitutes and communication in real-time where activities are shared;
- persistent – as the virtual world cannot be paused even when the user logs out;
- avatars – a sort of representation of the user, capable of performing various actions on command.

This pursues the idea that a virtual world has, inherently, a social component. That is also brought to attention by Girvan (2018) on her definition as well: "Shared, simulated spaces which are inhabited and shaped by their inhabitants who are represented as avatars. These avatars mediate the experience of this space as we move, interact with objects and interact with others, with whom we construct a shared understanding of the world at that time". Spencer (2008) also connotes virtual places to a certain degree of social component, by the ability to "pursue conversations, content creation, and the exchange of the goods". Ultimately, the author defines virtual world as "persistent, synthetic, three-dimensional, non-game centric space. Virtual worlds are primarily social spaces that allow for other uses depending on the theme of the particular virtual world. Virtual worlds are either commercial or open source in design and implementation" (Spencer, 2008). In this definition the author brings out another term related to the virtual games, "game spaces", and distinguishes them from the virtual spaces for their purpose-centered nature, with, usually, an ending. Sivan (2008) also strongly connects *Virtual Worlds* to a sense of social engagement by defining it as dependent on four elements: 3D (three-dimensional), community, creation, and commerce – the 3D3C.

Additionally, 'real' is, often times, a word to present the opposing polo to 'virtual' which some authors do not agree with. Chalmers (2016) claims that the majority of philosophers, that work on the subject, view virtual worlds as 'fictional', with which he does not agree. Instead believes it not as a "second-class reality", assuming it as "valuable, real and non-illusory" (Chalmers, 2016). Girvan (2018), just like Rob Shields (2003) opposes it to 'physical', 'material' or even 'natural'. The main differences are the type of experiences taken out of the "simulated environment" (Girvan, 2018). Boundaries between the two worlds are what may lead to a complete sense of immersion, or better, the lack of them.

Augmented reality is at its core a technology that portraits a virtual object onto a 'real' environment through the lenses of a camera. In Carmigniani & Furht (2011) opinion it can be defined as "a real-time direct or indirect view of a physical real-world environment that has been enhanced/*augmented* by adding virtual computer-generated information to it". In its way, is a combination of a synthetic and virtual world meshed with a 'real' one, by bringing digital information to physical surroundings. This type of technology has many different ways of use such

as “medical visualization, entertainment, advertising, maintenance and repair, annotation, robot path planning, etc.” (Carmigniani & Furht, 2011).



Figure 5: Mini's Augmented Reality Advertisement. Source - (Strauss, 2008)

Although that has been some significant advances in this field, augmented realities are not particularly new. Back in 2008, Mini advertised their new model (Figure 5) by enhancing a car onto the pages of a magazine, directing it to a webcam . One of the most recent ones, was implemented by Google on its application, Google Maps (Figure 6). The service now provides direction directly onto the street by pointing the smartphones camera to the desired direction (Google, 2020).



Figure 6: Augmented Reality Google Maps. Source - (n.d., Google AR & VR, n.d.).

Becoming more a mainstream term and technology, a new and more sophisticated form of a virtual reality arises. The Metaverse, is a combination of a lot of the previous technologies, that got its name by merging the suffix ‘Meta-’ meaning “post, after and beyond” and ‘-universe’ (Mystakidis, 2022), reflecting innovative and futuristic characteristics with the union of physical reality and a virtual one. As of definition, even though there are a few, they all touch within the same basic notions:

The Metaverse is the post-reality universe, a perpetual and persistent multiuser environment merging physical reality with digital virtuality. It is based on the convergence

of technologies that enable multisensory interactions with virtual environments, digital objects and people such as virtual reality (VR) and augmented reality (AR). Hence, the Metaverse is an interconnected web of social, networked immersive environments in persistent multiuser platforms. It enables seamless embodied user communication in real-time and dynamic interactions with digital artifacts (...). The contemporary iteration of the Metaverse features social, immersive VR platforms compatible with massive multiplayer online video games, open game worlds and AR collaborative spaces. (Mystakidis, 2022)

For Kostenko and Маньгора (2022) the Metaverse falls into the the generations of Web 3.0 “based on blockchain technology” (meaning the data is store in the nodes of computer network, securiting it by decentralizing it and making it accessible to everyone (Hayes, 2022)), meshing Augmented and Virtual Realities. It also includes “cryptocurrency, NFTs, dApps, digital objects, avatars, eletronic personalities and multisensory interation with people” (Kostenko & Маньгора, 2022) (decentralized Apps). Digital and Collaborative Economies are of rising interest due to their correlation to cryptocurrency (Ertz & Boily, 2020). Although cryptocurrency is a hard term to define due to a variety of context it can derive from, the basic notion sets on the fact that is a digital currency.

At the most basic level cryptocurrency – or digital currency or virtual currency - is a medium of exchange that functions like money (in that it can be exchanged for goods and services) but, unlike traditional currency, is untethered to, and independent from, national borders, central banks, sovereigns, or fiats. (Maese, Avery, Naftalis, Wink, & Valdez, 2016)

Also, Mark Zuckerberg, the creator and CEO of Facebook changed the name of the company to “Meta” causing a rebrand and a new era for the platform, taking it closer to metaverse (Isaac, 2021). There are a lot of other mainstream events that showcases the endless possibilities these types of technologies might bring to different industries. Facebook also has its own cryptocurrency named *Libra* (Facebook Libra, 2022).

Non-Fungible Tokens, or NFTs, has become very prominent since a digital artist named Mike Winklemann sold his work for 69 million USD in March of 2021 (Kastrenakes, 2021), even though it has been around for a couple of years before. NFTs are a piece of digital information that is unique of ownership by its holder. For Rehman, Zainab, Imran, & Bawany (2021) they are “digital assets that are representative of physical or digital creative work or intellectual property including music, digital art, games, gifs, video clips and more”. The meaning of ‘Non-fungible’ in NFT characterizes the non-exchangeable, which determines its uniqueness and represents the specific object. The traceability inherent to the blockchain allows for NFTs to be authentic as long as the proprietor has their certificate. In spite of this, Rees (2022) explains that NFT is the proof of ownership rather than the artwork itself.

But, with the rising of a new form of trading, it also comes the imperative of making sure they are safe. Hindle (2022) alerts to the possibility of fraud and security risks, just as

cybercriminals develop more sophisticated software to access these types of digital assets (Rees, 2022).

These types of digital objects have found their way into many industries, such as the digital art (Figure 7), gaming, music, and Fashion, allowing them to be in several social platforms, game spaces, websites, amongst others.



Figure 7: Digital Art - Bored Ape Yacht Club. Source - (Fialho, 2022)

Although anyone can see the image, only the owner of the NFT has the image that is worth something. It is similar to having a picture of the Mona Lisa but only the owner of the painting (in this case a museum), has the one that is worth something. This is due to a digital equivalent of a Certificate of Authenticity (C.O.A.), a identifier embedded in its code, verifying details such as its creator and owner. Anytime a NFT is bought or sold this metadata will travel with it and record all the transactions, protecting it from counterfeit and the creative Intellectual (TheDematerialised.com)

## 2.4. Social Media

Social media has become a prominent presence in most of society's life, presenting itself as a rising form of time passing activity (DATAREPORTAL, Social, & Hootsuite, 2022), with an average of 2 hours and 27 minutes spent per day on these platforms, in 2021. Despite this, social media has come a long way since its primordial. Its growth has been a steady rise from the beginning, even with new platforms rolling in (Dixon, 2022). These forms of networks have had a way to shape people's interaction, how they perceive each other, and have also played a significant role on identity construction for its users (Levinson, Cogburn, & Vodanovich, 2018).

Being born out of Web 2.0, social media was thought was a way to enlarge the realm of human interaction around the world, providing the possibility to build connection throughout the planet. Like Kommers (2011) affirmed:

Social media enable human relationships through technology. In other words, *social media are the media for social interaction*. The two most visible applications of social media are the building and consolidation of friendships among youngsters, and the building of networks for career development. The two “hottest” applications of social media are marketing and advertising for political/ideological purposes. In social media, just as occurs with the Web2.0, users have become producers and co-creators.

Despite the latter, in the last decade, social media has mould into different shapes and forms or use, as it has taken some different definitions. While Verdegem (2011) focuses on the inter-connection of its users and their content sharing, while Mayfield (2008) and Abubakar (2012) raise the sense of community and connectedness of its users, as well as the appeal for audio-visual way to communicate. Uzuegbunam and Uzochukwu (2016) enforce this idea by entailing a shift in how information got “generated, processed and disseminated”. Users increasingly seek information on social media (Walker & Matsa, 2021) and credibility might become a concern, particularly when they circle around important and serious topics (Shu, Sliva, Wang, Tang, & Liu, 2017; Domenico, Sit, Ishizaka, & Nunan, 2020; Abbasi & Liu, 2013). This is also caused by the way social media is curated to the liking of its user, Costa Netto & Maçada (2019), by algorithms that analyse the individuals habits to offer personalised content, causing the variety to narrow, resulting in what the authors call “filter bubbles” and also groups that share the same ideas and points of view.

While some view a problem with the latter, others saw the opposite: an easier opportunity for the “muted voices”, that could now be shared. This is explored by Manning (2014) when he emphasizes the broadening of access and interaction people have had to and with social media, by its decentralization. For the author, the potential for participation in these platforms and interconnection between its users is almost mandatory.

In the 2020 Netflix’s documentary, an Edward Tufte’s quote appears in the screen reading “There are only two industries that call their costumers ‘users’: illegal drugs and software” (Orlowski, 2020, p. min. 30). This is also further explored minutes later by Doctor Anna Lembke, specialized in Addiction Medicine, that talks about the need for human connection, and therefore, “there is no doubt that a vehicle like social media, which optimizes this connection between people, is going to have the potential for addiction”.

Some investigators also see a problem regarding the ‘falling of prey’ of social media users to the attention and need for other’s validation, especially on social media, since the audience is a lot bigger than what we, as a society, were accustomed to endure (Orlowski, 2020, p. min. 39). Both Gallinari (2017) and Burrow and Rainone (2017) arrived at a conclusion that the greater the number of ‘likes’ (form of appreciation) the higher the self-esteem and self-value of the person

receiving them. Kommers (2011) also stated that people have a tendency to build their identity by social comparison, causing individuals to “articulate their position in relation to other people even among groups”. In spite of the latter, Manning (2014) has a more positive view around social media viewing it mostly as a way to broaden identity, self-reflection, tending to existent and creating new relationships, perform work functions, seek information, share ideas and entertainment.

Furthermore, new experiences are being developed by brands to assert engagement with the consumer. AR filters on social media (Figure 8) are one of them (Rauschnabel, Felix, & Hinsch, 2019; Cowan, Javornik, & Jiang, 2021). AR filters are, according to Rios, Ketterer and Wohn (2018) a sort of ‘mask’, transforming the user’s features or their surroundings using augmented reality. These authors also found some reasons to why people use these filters, like to look better or make people laugh. Ibáñez-Sánchez, Orús and Flavián (2022) used the 1973 ‘Uses and Gratifications Theory’ by Katz, Blumler and Gurevitch, stating that if the filters are viewed as an entertainment tool, they might help explore “utilitarian, hedonic, social and personal benefits”. The results of their research suggest that filters are associated with a very ephemeral gratification on a social basis and on a personal one, the gratification is connected to its trendiness and popularity (with the feelings dissipating as the filters are more and more used).

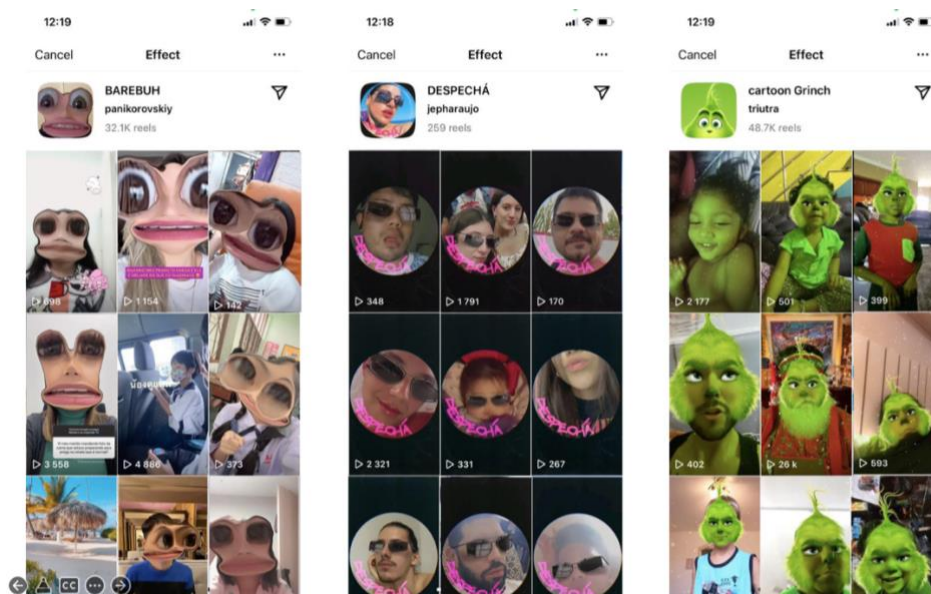


Figure 8: Instagram filters. Source – Instagram (n.d.).

And as these types of filters operate, there are other kind of software to actually change someone’s appearance. Curt Skelton (n.d.) is a TikTok user and content creator that gained a lot of following by debunking other account’s attempt to stage videos using Artificial Intelligence and Visual Effects. Afterall, he himself of a product of AI, rundown by this woman who, with the help of a lot of cutting-edge technology, transformed herself into him.

She explained it all in a video (Curt. [@curt.skelton], 2022) that left the followers confused and impressed.

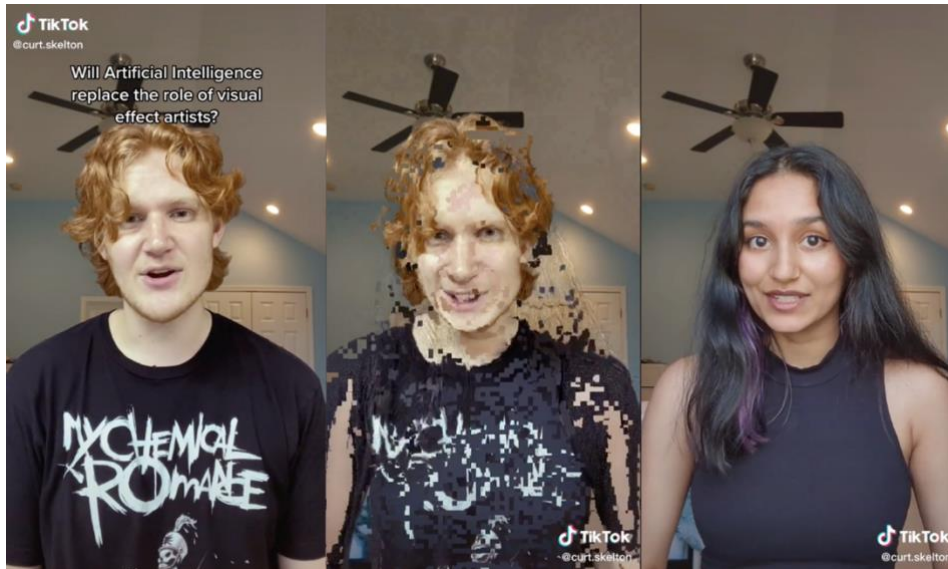


Figure 9: Curt Skelton. Source - (Curt. [@curt.skelton], 2022)

## 2.5. Videogames

The first ever videogame dates back to the year of 1962, programmed by Steve Russel in one of the MIT's labs. *Spacewar* was a simple game with two spacecrafts combating each other, and although it may seem simple it was cutting edge for the time's technology (VentureBeat, 2011).

From then, videogames have changed. From a computer that filled an entire room, to arcades, to home consoles, to laptops and portable consoles (Glancey, 1996), this industry continues to get bigger and improving its games. The next forecast predicts that, by next year, over 3 billion people will be an active video gamer, as the numbers keep rising on usage and purchases.

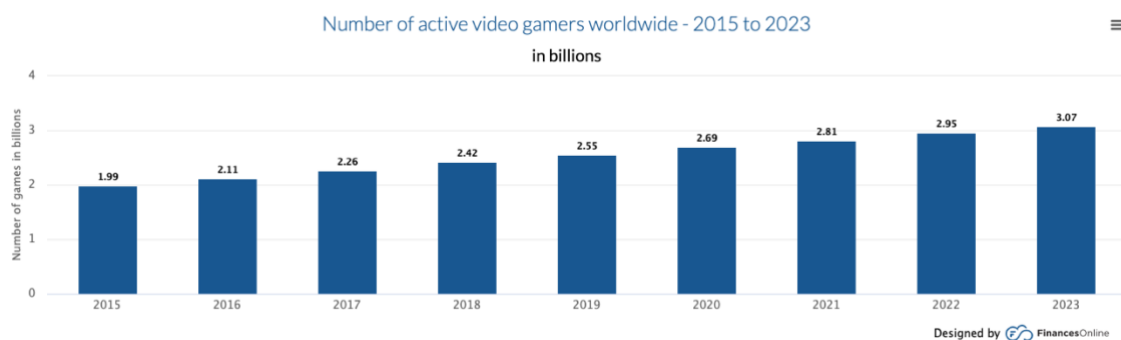


Figure 10: Number of active video gamers worldwide - 2015 to 2023. Source – (Gilbert, 2021)

But why does the popularity of gaming continues to grow? Tomi Adebayo, known online as GadgetsBoy, might explain. As one of the minds behind PlayHouse by Smartech, a space opening at Selfridges London, he was asked that same question, where he referred to it as a “Form of escapism (...) and connect with friends and family, or meet new, like-minded, people” (Core, 2021). This point of view is also supported by Prinsen and Schofield (2021), by enhancing the potential videogames have to fully immerse the player in a digital world. Roleplaying games (RPGs) are one of these, casting a way to let the player not only observe, but explore and interact with it, and even having an ‘alter ego’. Moreover, Massively Multiplayer Online Role-Playing Games (MMORPG) allow a great social interaction with the other players, giving it a sense of “engagement, immersion, and satisfaction with the game” (Prinsen & Schofield, 2021).

As these types of videogames become popular, Fashion brands also hop on the trend by developing products and services through these technologies. For example, the Balenciaga Fall 21 show depicted a store with the looks that would be the Fashion show itself, and by letting the player roam the room and seeing the garments, created a different experience for the costumer. Although the game is no longer available, the page links to a YouTube Video that shows how the game would be played (Balenciaga, 2020). Also, Louis Vuitton partnered with Possible for a true video game where the main character, Vivienne, has to collect 200 candles to commemorate the brand’s birthday. The character has many clothes and accessories to choose from (Louis Vuitton Malletier, 2021)

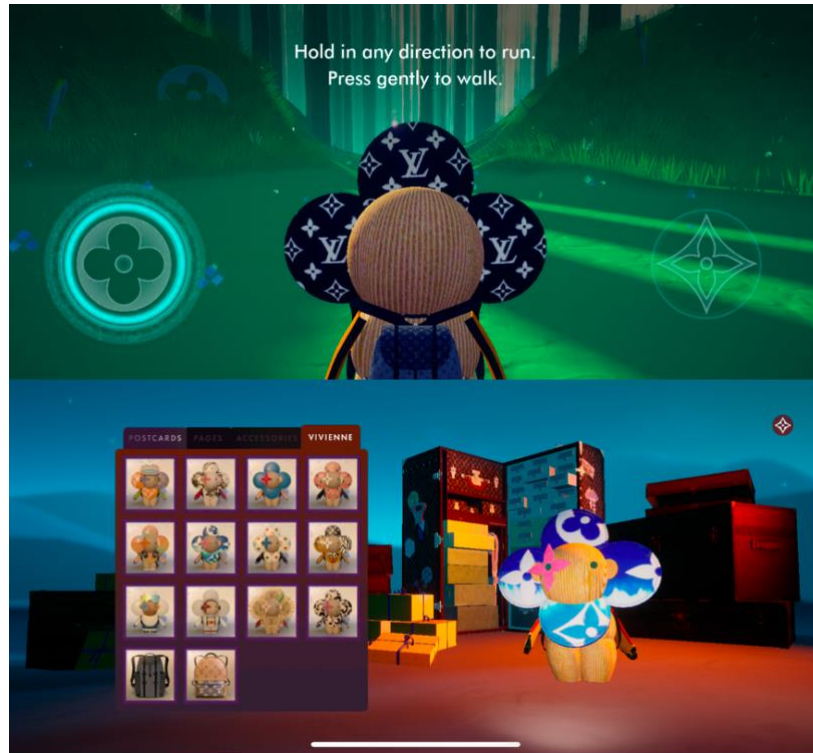


Figure 11: Louis The Game. Source – (Louis Vuitton Malletier, 2021).

Videogames can allow some type of way to perform identity by controlling the character (Makryniotis, 2018), with some authors believing the player to temporarily adopt a specific lifestyle by doing so (Klevjer, 2006). These characters are often time a reflecting of the player itself, also called, an avatar.

## **2.6. Avatars and Digital Identity**

The term avatar is originated from Hinduism to describe a deity (divine or sacred entity) that descended to Earth, incarnated onto a form or some manifest shape (Ahn, Fox, & Bailenson, 2012). Nevertheless, nowadays it is broadly adopted as something to mark its user's identity, as a name, photo, or email address. However, the most common way that is used is to refer to a digital representation of someone, that could be the creator or not (Bailenson, Yee, Blascovich, & Guadagno, 2008).

In some way, an avatar is the embodiment of its creator in a virtual setting. Biocca (1997) presented the theory that there are three bodies involved: 1) the objective body – the physical, 'real' body of the user/player; 2) the virtual body – the representation of the first in the virtual world (the avatar); and 3) the body schema – the self/mental representation of the user's body. The author also points out that the latter can be mutable and altered, especially by the further navigation in virtual worlds.

Some authors found that people prefer to have avatars that allows them to have a wide variety of customization, allowing them to have a good amount of control of their designs, and therefore they spend a considerable amount of time crafting the characteristics they want for their avatars (Bailey, Wise, & Bolls, 2009; Ducheneaut, Wen, Yee, & Wadley, 2009; Lin & Wang, 2014). In an Institution of Digital fashion report (Instute of Digital Fashion, 2021), interviewees were asked how they presented themselves in virtual worlds, and the answers were somewhat disparate. While some wanted to be able to recustomize their avatars every day, by having the most possible freedom of choice as possible, others felt the uneasy about making decisions and felt the default avatars to be the best.

As self-identity is a concept that can change over time due to experiences, avatars can be a way to explore those "possible selves". This concept was firstly introduced by Markus and Nurius (1986) to describe the self as a malleable construct, different responses to different situation, influenced by social roles and cues and that they need self-representation. This way, just as "people's identities are increasingly hybrid, simultaneously performed in physical and digital spaces with physical and digital material" (Schultze, 2017), it becomes necessary to understand how people choose their 'selves' in the virtual world.

Many studies have been performed to gather the main reasons behind these choices:

- Ducheneaut, Wen, Yee and Wadly (2009) found three main reasons: i) to have an idealized self, where the avatar may appear similar to its creator but with idealized features; ii) to stand out, and have a unconventional look; iii) to follow a trend, or make their avatar resemble something they like, like a celebrity or a certain trend.
- Kafai, Fields and Cook (2009) also did their research on a teen's game (13-16 years), and the results were the following: i) pursuing an aesthetic, with an artistic motivation; ii) depicting their real self, by constructing a very similar avatar as themselves; iii) affiliating with someone or something, that the user identified or liked; iv) having something unrealistic, that could not be attained in the physical world; v) making a position about a trend, and either follow it or go against it; vi) focusing on functionality rather than looks, for example, disguising as something else.
- Ling and Wang (2014), obtained information to conclude that the users purposed these avatars as a way to: i) explore something difficult or impossible, otherwise; ii) socially navigate, making friends and "build a reputation"; iii) approach a contextual adaptation; iv) have some sort of representation, either by an actual or an idealized one.

Even though there are different findings amongst these research projects, their conclusions reach the same main points. Messinger (2008) also found motives of self-verification and self-enhancement, and that people who do have 'enhanced' avatars (that bear more conventionally attractive features) are more confident and extraverted in the virtual world, than in the physical one.

This way, an avatar is a broadening of one's identity, ideal or not. Kostenko and Маньгора (2022) go to say these "e-personalities" can cause emotional self-fulfilment, due to the multiplicity it is possible to have. As an individual has 'multiple selves' in a social context, in the same way, one has many avatars to fulfil a need of expression (Etengoff, 2011). In their study, Lin and Wang (2014) gathered that 73% of their research participants had multiple avatars, that varied from 1 to 16 (being that the mean was 3). The usage of these avatars or social media accounts permits individuals to use social media to experiment with aspects of their identity online and act in ways that are not possible in the physical world (Whitley, Gal, & Kjaergaard, 2014). For Hemp (2006) the anonymity of the virtual worlds allows its users to try on "alternative identities or project some private aspect of themselves", such as Fashion. In fact, a study by Jonathan Cabiria (2008) shows that some users reported an increased sense of belongingness, connectedness, higher self-esteem and optimism after their avatars had engaged on a virtual-world activity. Etengoff (2011) even hypothesizes that these positives outcomes are related to some form of authenticity from the user's part. For the author, the avatar is "a unique method of role play, as the avatar is an extension of the self and yet, engaging in interactions that exist outside of the self".

Similarly, Bourgeois (2020) focused on the untethered aspect between VR spaces and Identity. Personal styles reach more people, aesthetics, although within the games or platform's, are not constrained by the physical world, allowing freedom of style and choice.

## Chapter 3: Digital Fashion

In Makryniotis's (2018) work it is discussed the link in the electronic entertainment and the Fashion world, making it clear the proximity between Fashion and character design, as all the storytelling behind the characters are hugely influenced by what it wears. As a form of expression, Fashion relates to the avatars themselves.

### 3.1. Notions and definition

Digital Fashion is a concept relating to Fashion that is solely generated and created digitally, through computer software (DIGITALAX, 2021). Despite the latter, Särämäkari (2021) found two different meanings for 'digital Fashion':

(...) practice that produces three-dimensional virtual clothing as prototypes or sample simulations for possible physical garments, and/or for datafied virtual, digital-only garment representations. Thus, in professional and media discourse, "digital Fashion" stands for two meanings: 1) a *processual tool* that is used to assist design and sales, (...). 2) "Digital Fashion" also refers to an *end-product* in itself, worn only in virtual spaces

Relating to the first meaning of the term, three years ago, as a way to facilitate design, Tommy Hilfiger's CEO shared that the company would start to use these types of technologies in order to waste less and produce clothes that can be worn digitally and physically (McDowell, Tommy Hilfiger goes all in on digital design, 2019). Since then, 'Stitch 3D' is available to purchase by other brands outside the group's domain (McDowell, 2021). This way, the digitalization of Fashion within the design process might facilitate aspects about the garment itself (Faust, Carrier, Baptiste, & M., 2004).

On the other hand, digital Fashion used to describe a finish product is a rising market (Särämäkari, 2021). Redefining how the 'body' is dressed, in digital Fashion, is changing the "object and subject" of Fashion itself, or at least as it is known now. Makryniotis (2018) claims that there should be some attention to clothing within virtual spaces, due to the relation a player/user has with its avatar. There is a tendency for avatars to have a fantastical and futuristic style, which may not be completely possible in the physical realm. Also, Teunissen and Bertola (2018) presented the importance of the front side of the garment in static photographs, due to the extensive communication it has on online channels, calling it 'Screenwear'. Despite that, they contemplated the potential it had to a new form of self-expression, blended into the experience of innovative technologies embedded in Fashion 4.0 era.

In fact, Sandhu, Posa and Nobbs (2022) found 5 main reasons from consumers to engage in a digital Fashion purchase: 1) financial reasons – either a long-term investment or a short term mean; 2) sense of belonging – either to a trend or a community; 3) access – to a brand or a certain collaboration; 4) utility – to use it in a virtual experience; 5) identity – to create or enhance an identity, to express it or to own something unique. This last one was chosen by 70% of the

participants of the study. Nicola Formichetti, creative director to Lady Gaga, agrees by affirming it can be empowering to dress digitally, by the freedom it provides its wearer (Kemp, 2022).

Furthermore, digital Fashion houses like The Fabricant are focusing on more than just create clothes, but build an accessible and decentralized industry, where everyone can participate and the focus is on the pieces themselves (n.d., . Its creative director, Amber Jae Slooten explain on her TEDx Talk how she made her final graduation project only using a computer (2020). She describes the importance she finds in self-expression, and in what way that transformed into her own Fashion brand “We create clothing that is always digital, and never physical. We believe clothing doesn’t need to be physical to exist”.

Previously stated in 1.1.4. Technology as a Tool for Fashion Democratization, Foster (2021) highlights the lack of body types in Fashion, something that could be helped with Digital Fashion and avatars. In the *Fashion Bodies* website (<https://www.fashionavatars.org/>) a total of 100 of bodies of different shapes and sizes can be downloaded to serve as a base for digital clothing. In alignment, digital clothing is specifically tailored to its user, or in this case, their avatar. This way online dress is no longer tied to the physical bodies, causing for reinvention and “freedom of fabric” (Bourgeois, 2020).

The first Digital Couture dress, *Iridescence*, was sold through blockchain by auction, back in 2019. A piece created by The Fabricant and Johanna Jaskowaska was sold for \$9,500 making it the first ever transaction of its kind. The dress was bought and fitted to the owner later on:

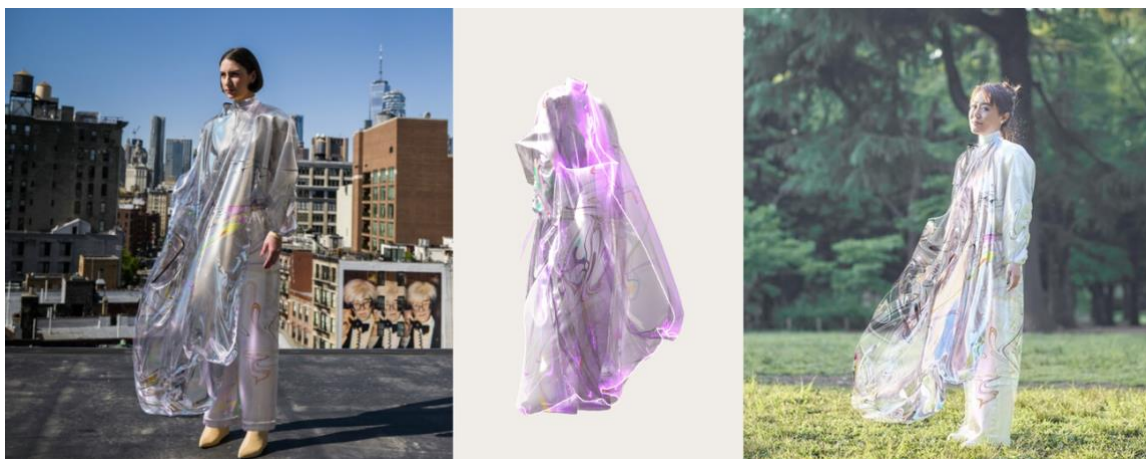


Figure 12: From left to right - Johanna wearing the dress, *Iridescence*, and Maria wearing the dress.  
Source: <https://www.thefabricant.com/>.

Since then, the market has expanded, and other brands and designers have entered the industry. The Dematerialised is a market platform with digital assets ranging from digital clothes, jewellery, shoes and bags to Karl Lagerfeld’s medallions and dolls (<https://thedematerialised.com/>). Similar to this platform there is also RTFKT, focusing more on

the sneaker world, but also having other types of ‘artefacts’, collaborating with Atari, Takashi Murakami and Nike (<https://rtfkt.com/>).

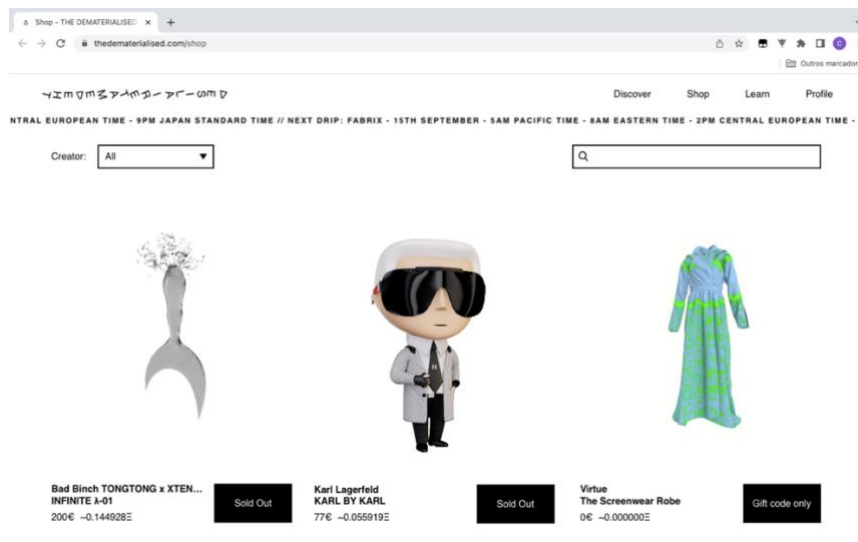


Figure 13: Digital assets from the The Dematerialised website (<https://thedematerialised.com/shop>).

Digital Fashion has already taken various social media platforms and creators are making videos on how digital clothing is made. James Mack is an example (@jamesmackk on Tiktok and Instagram). The designer records his screen while making the clothing pieces and the backgrounds and lets the viewer aware of the entire process. This, once again, advocates for the decentralization and the involvement of the consumer.

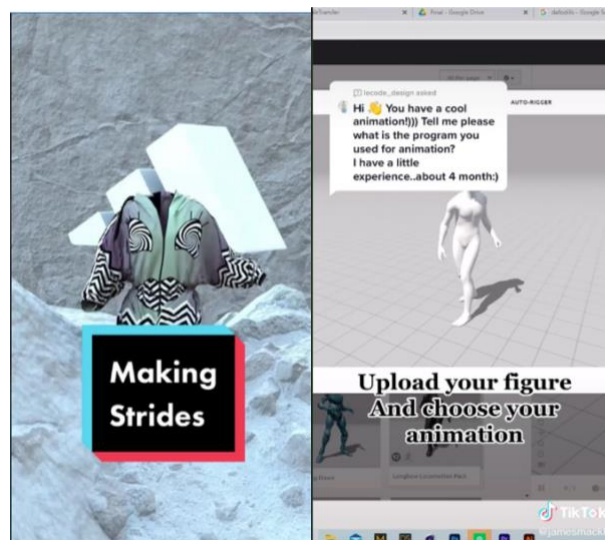


Figure 14: James Mack on TikTok. Source - (James, n.d.)

### 3.2. Types and Utility

Because Fashion began as a need to cover up the body (Todorović, Pavko Čuden, Košak, & Toporišič, 2017), and developed into other forms of needs, as the world shifts to a virtualised one, Avatars absorb those needs. Thus, a big part of digital Fashion maintains on its variety of utility aspects (add if you find).

According to the Virtue’s report (2022) there are 4 main types of Digital Fashion. In a graphic with 2 different axes and 4 quadrants, separating ‘physical’ and ‘digital’, as well as ‘garment’ and ‘environment’.

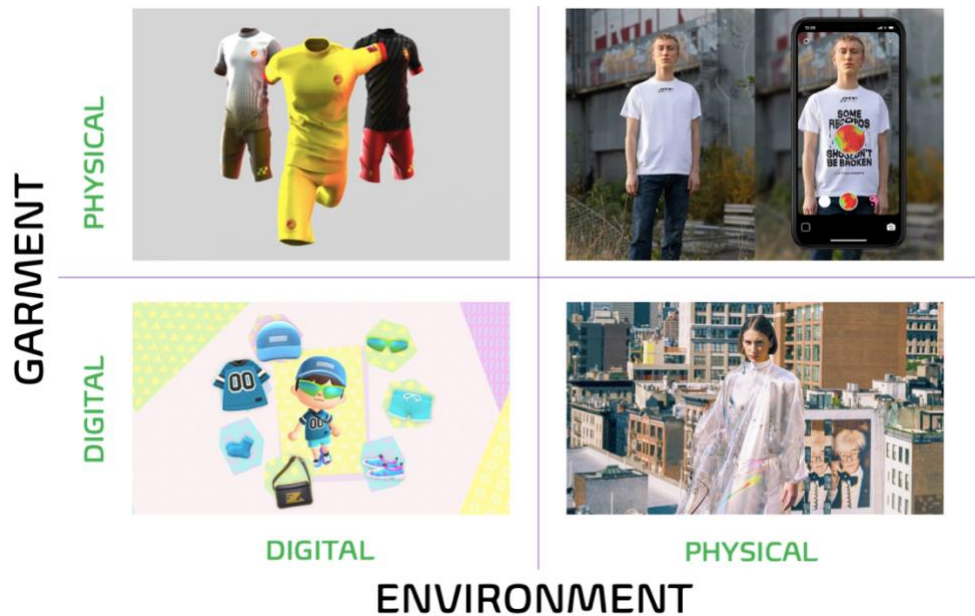


Figure 15: Types of Digital Fashion. Source – Author.

Starting from in the upper left corner, and continuing anti-clockwise, in the first quadrant (physical garment and digital environment) there are real football jerseys, in a digital sense, meaning the garment exists in the physical world, and can be worn, but in this case, its communication was made using a digital technology to appear in a human shape, doing human activities. Below, there is a screenshot of the game ‘Animal Crossing’, a popular Nintendo Switch game where the player may dress its avatar in digital clothing, that does not exist in the physical reality. To its right, the garments continues to not exist in the physical world, but it is possible to use it in photographs, videos or other physical depictions with a camera, capturing it. Above that, in the upper right corner, it is shown a real person, with a real T-shirt but the is a virtual enhancement of it, by using a camera.

Although these are some ways to use Digital Fashion, a single piece of specifically digital asset, can take multiple forms and fit in multiple digital environments. On The Dematerialised website (Dematerialised, n.d) it can be found different ways to use a digital asset:

- Wearing it and seeing how it looks on its owner, pointing the camera, with the help of AR technology, and taking a photo or picture;
- Taking a picture of the garment in a real place;
- Porting it to a videogame or virtual world, and using it on an avatar;
- Trading it as a form of investment or to just give it a second life;
- Starting a collection and showcasing a wallet of digital assets.

Even though these are the most common forms of utilizing the garments, some assets have unique abilities and specific characteristics that allows their owners to perform some other activities, tailored by the creators.

In virtual realm, designers regain the *artistic independence* with endless possibilities to test in 3D-form, designing for “phygital” experiences where the virtual and the physical dimensions collide, blurring the distinction between the “real” and the “simulated” (Gaggioli, 2017). Atacac is selling the digital versions of their garments as “digital skins” in virtual reality, while simultaneously producing physically innovative designer clothing.

### **3.3. Limitations and Barriers of Digital Fashion**

Although digital Fashion may be on the forefront of Fashion, there are limitations and barriers to its success.

Firstly, the skill set required to navigate through different types of software and knowledge about previous matters discourages employers to do such digital transformations (Särmäkari, 2021). Also, a quote from digital Fashion designer James Mack appears on the *Screenwear Report* (Sandhu, Posa, & Nobbs, 2022) where he states that although technology keeps on evolving it has still yet to catch the reality of fabric’s movement, being that a big part of the Fashion experience. Although these two points of view are completely opposed, as the first indicates that that technology is evolving immensely at a rate humans can’t accompany its velocity, and at the same time, the second urges for newness and more work on that same department, they both pose as technological issues.

Secondly, being the digital Fashion’s market still very recent, it has already proven volatile to its buyers. According to NFT Market Report (NonFungible Corporation, 2022), NFTs, cryptocurrencies (that often facilitate the purchases) and the majority of their various performance indicators being down from the last quarterly report falling previous expectations. In a BoF’s article (Nanda, 2021) Emma-Jane MacKinnon-Lee, chief executive and founder of Digitalax, stated “Although [the NFT market] has been great to grow and harvest initial attention, it is not the sustainable route for the industry moving forward and certainly not a path for larger brands, independent designers to effectively bridge into the digital space and

have longevity”, meaning, Digital Fashion is still in an experimental phase, not every investment of brands will work.

Finally, there are themes of controversy within this reality. As the theme on cultural appropriation becomes more relevant (Green & Kaiser, 2018; Sádaba, LaFata, & Torres, 2020), digital Fashion and avatars pose a threat with the freedom and liberation it provides.

“Can you be a body that is not yours? Can you be an ethnicity that is not yours? How far can you take your identity” is a quote from Amber Jae Slooten, the co-founder of The Fabricant has raised awareness to the importance of self-expression by the means of the internet and the metaverse. The problem here, is when does freedom of expression becomes into something else. Should it be alright to pose as someone else entirely different. The controversial topic arose and the most recent one being a A.I. rapper, “perpetuating Black stereotypes” (Gee, 2022). The musician was created by Factory New – a record label for avatars – a black figure, with green hair, created by two white males.



*Figure 16: FN Meka. Source - (Coscarelli, 2022)*

Lastly, Fashion was always considered alongside with the body. Entwistle (2015, p. 78) cites Bryan Turner from his book *The Body and Society* that considers the self inherently connect to its body, making them inseparable. Entwistle, on the other hand, directs the conversation to how dressing the body (not always with clothing) is embodying Fashion, how connected dress is to human flesh nature. In this context, it may rise questions on, being that there is no physical body, how does Digital Fashion is embodied through a body that does not physically belong to its owner/user.

## Chapter 4: Consumer Survey

The main goal of the different methods of investigation is to have the most amount of different information possible in order to come up with conclusion for the research question. Podanov and Freitas (2013) claim it to be “the application of procedures and techniques that should be observed for knowledge development, with the purpose of prove it is valid and useful in various fields of society”.

This investigation was first begun with the recollection of what was studied. The State of Art showed and started the debate on how the terms might be related, showing relevant proven evidence useful for those same reasons. But this investigation led to other emerging questions that needed to be answered by a different method. The central topics that need further investigation revolve around self-expression, especially in the virtual world.

This way, the chosen method was a consumer survey to get an idea of what the public knows about the latter subjects studied and help answer the research question: can Digital Fashion be a passageway into freedom of self-expression through clothing?

Even though the survey was open to the entire public, about 97% of the inquired were residents in Portugal and for that reason the conclusions withdrawn pertain to that public being later related to a more global search (the literature review).

### 4.1. Hypothesis

At this stage, it was conducted a survey to explore and possibly confirm the previous discoveries in the first, second and third Chapters and help to answer this thesis' hypothesis.

After gathering information about certain topics related to Fashion, identity, digital personality and digital Fashion, this questionnaire was presented to the public to further understand the topics through the public eye by getting their opinion on certain aspects here studied. Thus, three hypotheses were generated. They were created in order to help confirm or refuse premises that were taken from earlier studies by authors of varied fields. Therefore, all touch a different part of this research:

*H1: Clothing and how we dress can act as a form of identity and self-expression.*

The first hypothesis tried to understand the relationship the inquired had with Fashion, how they perceive clothing and if they self-express through it. These connections were tested by a series of affirmations for the inquired to evaluate as true or false for them. Although there were some questions that may have felt more connected to the hypotheses than others, they all contributed for a general overview and a way to also confirm other subjects present in the latter chapters, that helped understand and conduct a line of thought.

As the second part of the state of art (chapter 2) tried to take a look into some technological advances and how they influence (past, present and future) other variables, such as Identity and Fashion. This way, the second hypothesis translates a search for the possible changing of format of self-expression due to a digitalized world. As identity becomes and is transformed due to its fluidity, how does virtuality induce those same changes. Navigating a virtual space, might be a personal journey and digital outlets could be an improved way to reconnect with the self and express it differently. Therefore, it was important to understand if the survey could help answer the posing doubt about if people take advantage of the online to create a *persona*, and if so, if that *persona* is true to themselves or not.

*H2: People are the same in a physical context as they are in a virtual one.*

Finally, the overlapping between the last two talked subjects, as Digital Fashion acts as the clothing of the virtual world, the research naturally reaches a point where it unfolds into trying to understand how much Digital Fashion can become a big part of the Fashion's future, due to the freedom and variety it can provide to the consumer.

*H3: Digital Fashion will be a crucial part of the Fashion industry's future.*

These three hypotheses were created in order to deconstruct all the previous research and conduct it in a way that the most amount of information could come from the survey.

The survey was internet based in order to access a wider and more diverse audience. As the survey was open for answers for three days, from the 23<sup>rd</sup> to the 26<sup>th</sup> of September, redacted on the Google Forms platform, it was written both in Portuguese and in English to didact the highest number of answers possible, both from within Portugal, as well as from the outside, if possible. The participation was completely anonymous, having only been gathered some information of sociodemographic nature to better understand the some of the results, and possibly make some conclusions based on some of those information.

Lastly, the survey was shared on some social media platforms, such as Facebook, Instagram and WhatsApp, and sent via direct message to some selected people, since the author was aware the first would only reach a younger audience.

When the survey was closed it had a total of 227 responses, but only 226 were taken into consideration due to some technical error it may had occurred, as the inquired did not have all questions answered.

Also, the age gaps were divided into generational cohorts (term used to describe people born within the same time span) to comprehend if there is change in behaviour when choosing the answers, since "each cohort-group shares a group identity, and has similar attitudes, adaptabilities and traits" (Jones, Jo, & Martin, 2007). Furthermore, Calvo-Porrall and Pesqueira-

Sanchez (2020) found evidence to support the premise that cohort influences its individuals in usage and engagement with technology, creating a possibility in creating a pattern of behaviour among them.

The answers were mostly from females, representing a total of 78,8% of the total, opposing to the 20,8% of the males. The other 0,4% were filled with a non-binary person. The most notorious amount was within the “12-25” age gap, representing 58% or 131 responses of the total, followed by the “41-58” one with 17,7% or 40 absolute, after that, the “26-40” with a total of 38 responses adding to 16,8%, and finally the age gap of “< 12”, or 58 and above, with 7,5% (17 in total).

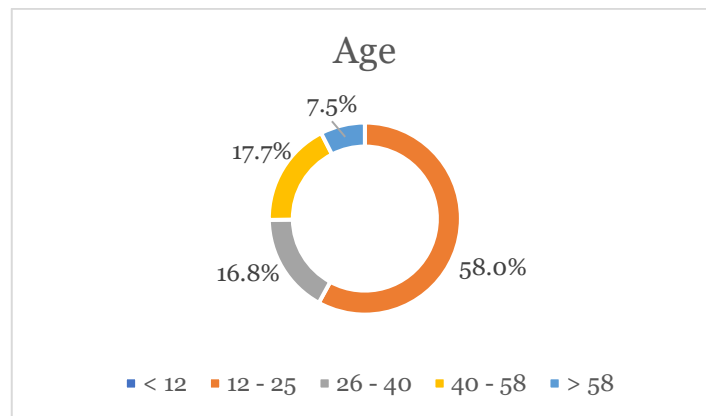


Figure 17: Survey – gender of the inquired. Source – Author.

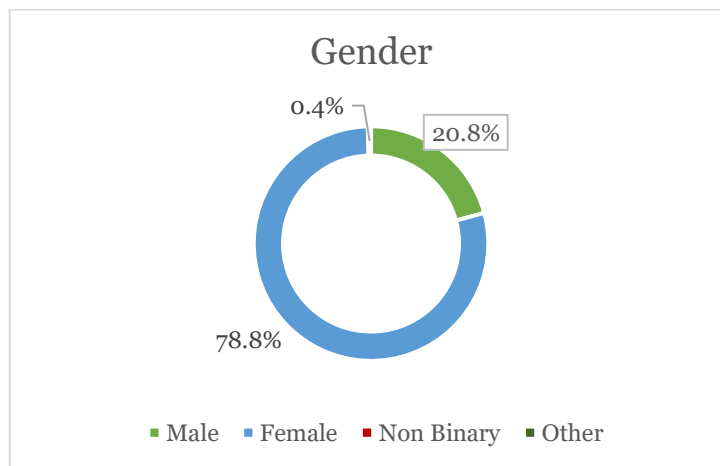


Figure 18: Survey – age of the inquired Source. – Author.

Also, it was deduced that the majority of the surveyees were from the district of “Viseu”, with 46% of the inquired, followed by “Lisboa” with 50 responses and 22,1% of the total. Secondly, there were three other districted that had some responses, being “Coimbra” (12; 5,3%), “Leiria” (15; 6,6%) and “Porto” (16; 7,1%) as the rest was from all over the country, as seen in the graphic bellow, with one or two responses. There is still to mention, that 6 of the inquired were from outside Portugal (2,7%).

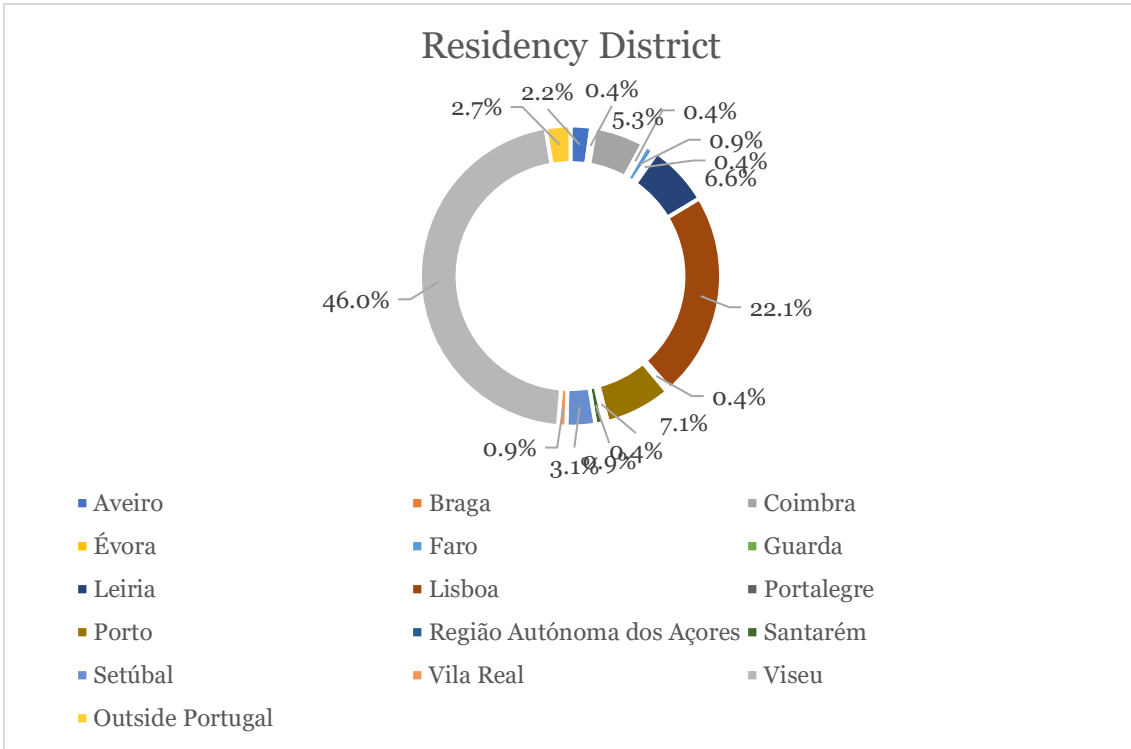


Figure 19: Survey – residency of the inquired. – Author.

It was also asked what school degree the inquired had and 50% of them had finished a bachelor’s degree, 30,1% had a high school diploma, 39% had completed a master and the rest had either none, primary school, or doctoral. The exact numbers can be seen in the graphic bellow.

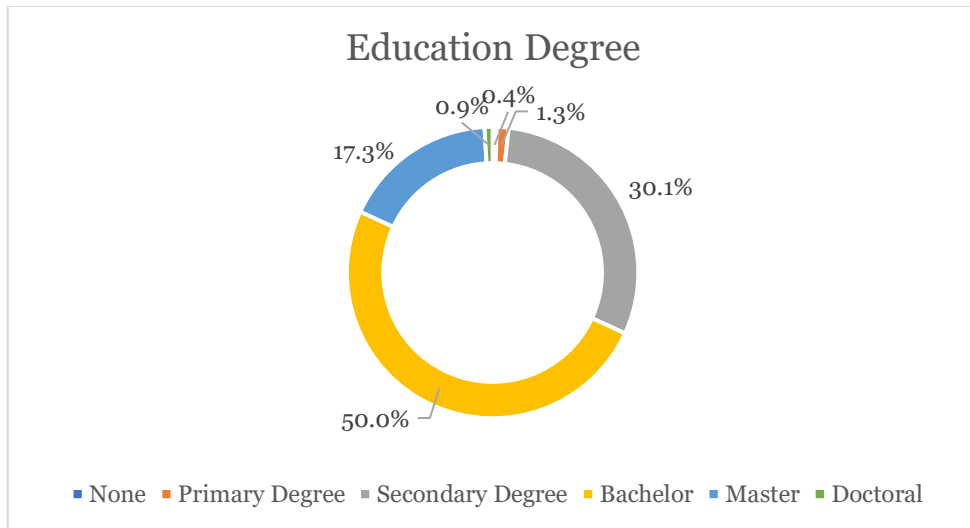


Figure 20: Survey – Education degree of the inquired. – Author.

The last personal information was to understand the monthly income. Since the majority of the inquired was from the 12 to 25 years old age gap, the option that was mostly chosen was the “doesn’t apply” with 34,1% of the total followed by “500 € - 1000 €” with 23,9%, then “1001 € -

1500 €” with 14,2%, and “1501 € - 2000 €” with 12,8%, and the rest was residual, as all results can be seen in the following graph.

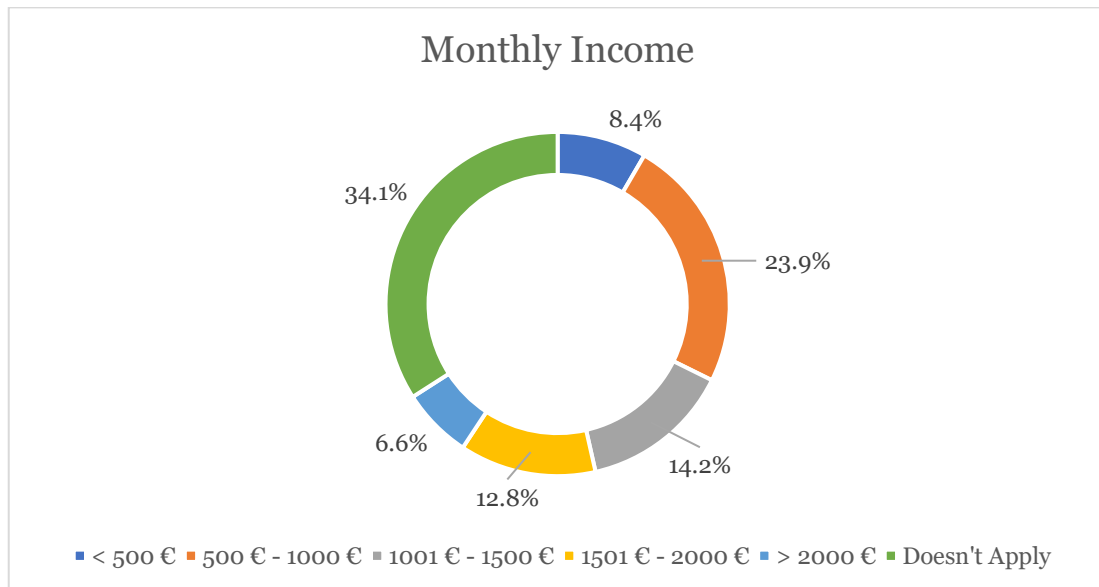


Figure 21: Survey – Monthly income of the inquired. – Author.

### 4.2.1 The questions

The questionnaire was divided into five sections, each one relating to a different topic, with different types of formats depending on the question. The first one was to gather the personal information, as it was previously talked about.

The second section was on ‘Identity’, ‘Self-Expression’ and ‘Fashion’, where the questions posed an affirmation and they had to be answers on how much the inquired agreed with them, from 1 to 5, being 1 – a strong disagree and 5 – a strong agree. With these questions the author tried to obtain the global view on important aspects culminating on views relating directly to the hypothesis stated in the beginning. They were as followed:

- You will be asked to classify the following affirmation from 1 to 5, being that 1 represents you strongly disagree and 5 that you strongly agree.
  - I believe in freedom of expression
  - I have an open mind
  - I see Fashion as a form of Expression
  - I would like to have different experiences with Fashion
  - I feel as if Fashion isn’t capable of innovation anymore

The second section was formed with the goal of briefly understand some of the behaviours the inquired had while on social media. The questions displayed the same format:

- You will be asked to classify the following affirmation from 1 to 5, being that 1 represents you strongly disagree and 5 that you strongly agree
  - I consider I am the same person both online and offline
  - I consider others to be themselves both online and offline
  - I consider like I have more freedom of expression online

The third section introduced the term ‘Metaverse’ to the survey, with a brief definition from (Mystakidis, 2022), already present in Chapter 2, where the questions were places to better understand the relationship between surveyee and the theme. Firstly, it was asked for the inquired to choose from eight different adjectives (where they could make multiple choices), both negative and positive, to describe how they felt towards the Metaverse.

- When I hear the word Metaverse I feel...
  - Confused
  - Curious
  - Intrigued
  - Intrigued
  - Excited
  - Sceptical
  - Disinterest
  - Inspired
  - Worried

Secondly, a closed yes or no question was made to understand if the inquired had had a contact with the Metaverse. The following one, related to the last one, was to know at which extent the inquired had the contact.

- Have you had contact with the Metaverse?
  - Yes
  - No
- If so, in what way do you have or had interacted with the metaverse?
  - Virtual reality
  - Augmented reality
  - Cryptocurrency
  - Game Immersion (avatars)

Thirdly, the following two questions were made to compare who had had an interest in the Metaverse or had already invested money in something of sorts. While the last ones were strictly about contact, this one meant to indicate a more serious commitment to the technology.

Also the second question separated the inquired that were not interested at all in the Metaverse and don't think they will ever buy any digital assets:

- Have you ever bought a digital asset (gaming skins, virtual clothing, cryptocurrencies, NFTs)?
  - Yes
  - No
  - I don't know
- If you answered no to the last question, would you say you might in the future?
  - Yes
  - No
  - I don't know

Finally, the last two questions served to connect the Metaverse to expression and identity. By asking if they inquired believed that self-expression would alter due to the Metaverse, positively or negatively, the author could gather some more information about what the inquired thought of what the Metaverse meant for themselves and others in a more personal level, and also some changes to a close future:

- Do you feel as if the Metaverse could alter the way people express themselves online?
  - Yes
  - No
  - Maybe
- If your answer was yes, do you believe it will be positively or negatively?
  - Positively
  - Negatively

The fourth and last section was in relation to Digital Fashion. Similarly, to the last section, a brief definition was also given to ensure the inquired what Digital Fashion meant in general. The definition used was from Särämäkari's work (2021). The four questions were made to quickly understand what kind of knowledge the inquired had of the subject. Also similar to the last section, the first and second questioned were to see if there had been some contact with the technology, as the third question was made to understand the lengths of the interest of inquired had on the products (if they had bought), and the last one if they thought Digital Fashion could pose a big part of Fashion for a forceable future. These were the questions:

- Do you know what Digital Fashion is?
  - Yes
  - No
- If so, how did you come across it?
  - Social Media
  - Videogames
  - Friends and Family

- News
- Websites
- Doesn't Apply
- Have you ever bought a Digital Fashion product or know a person who has?
  - Yes
  - No
- Do believe Digital Fashion could be a big part of Fashion's future?
  - Yes
  - No
  - Maybe

### 4.2.1 Descriptive analyses

In this chapter, the answers to the survey will be compared to the hypotheses redacted after the literature review, in order to better understand the themes in question and have a general view from a public eye. As previously stated, on a first instance, all questions will be reviewed and analysed with all 226 responses, compared to the literary review and the hypothesis previously redacted. After that, some relevant questions to the hypotheses and to the variables will be analysed by age group, in order to possibly conclude a generational gap in knowledge and interest to certain subjects and themes.

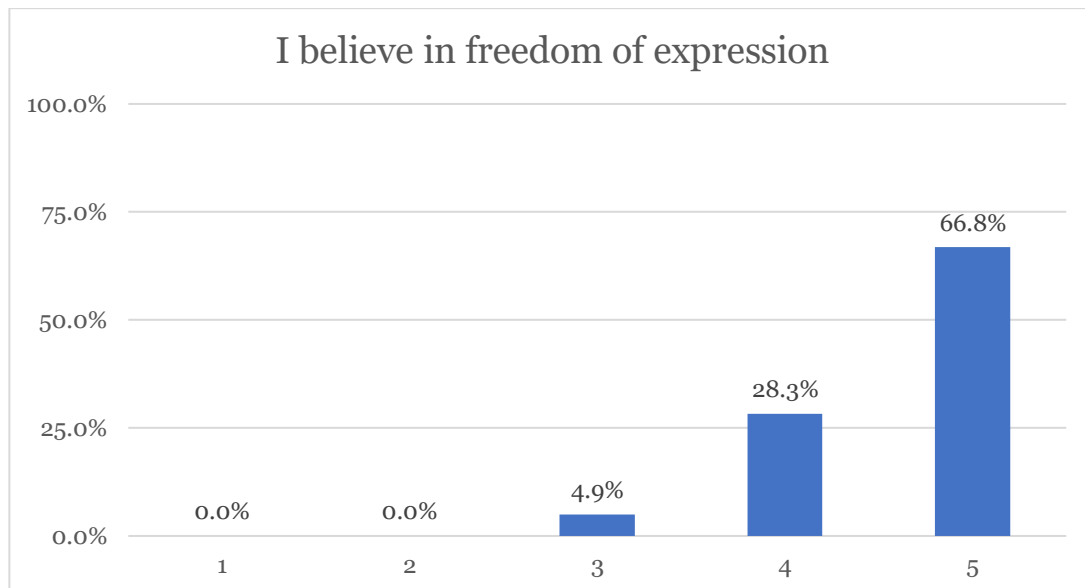


Figure 22: Survey – I believe in freedom of expression. Source – Author.

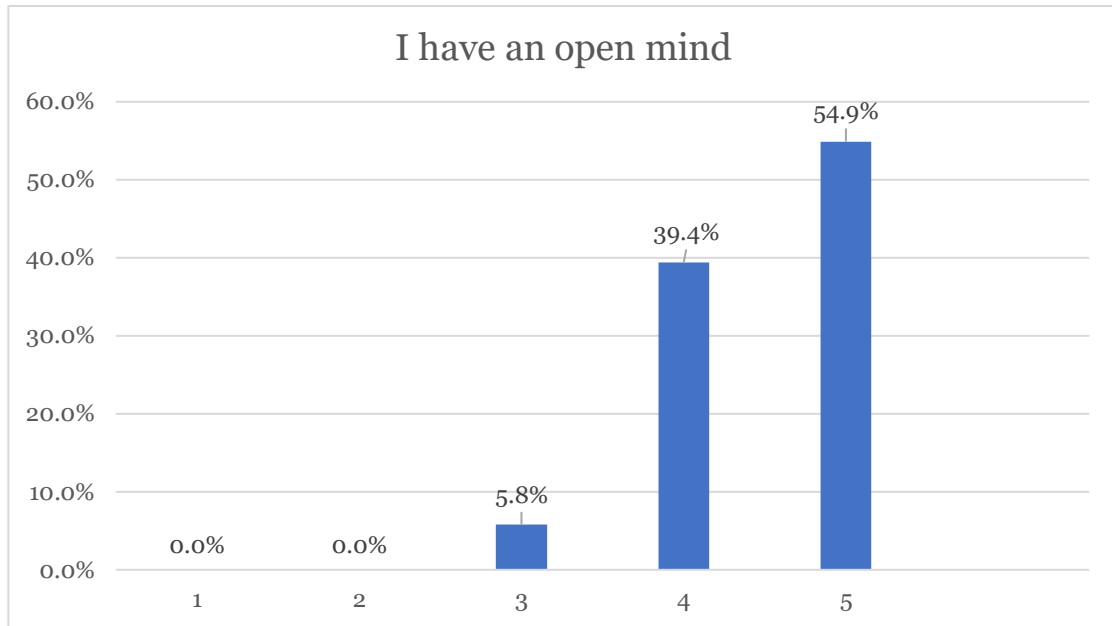


Figure 23: Survey – I have an open mind. Source – Author.

The first two questions (Figura 22) and (Figura 23) provide some insight to the surveyees' openness to general forms of expression and new ideas, to understand the receptibility to new technologies and innovations such as virtual self-expression and Digital Fashion. As seen the two graphs above, more than 90% of the responses are located within the two highest levels of agreement, and none whatsoever in the disagreement side.

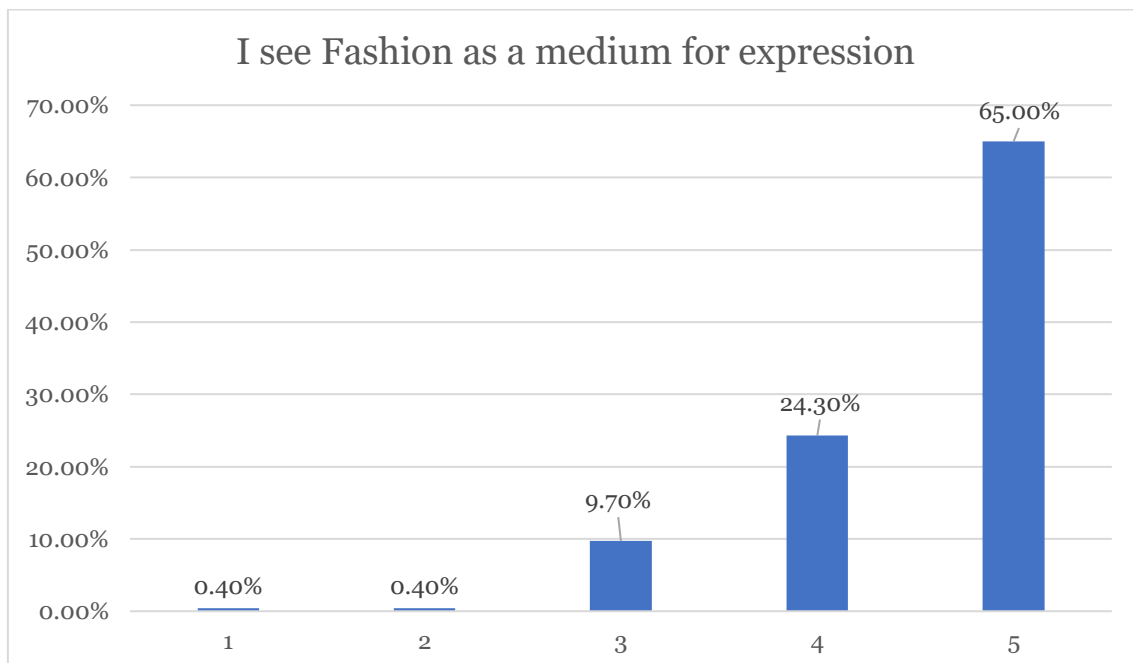


Figure 24: Survey – I see fashion as a medium of expression. Source – Author.

On this question (Figura 24) it was asked if they agreed with the affirmation “I see Fashion as a medium of expression”, where 9,7% claimed they ‘neither disagreed nor agreed’, 24,3% ‘Agreed’, and 65% ‘Strongly agreed’, while on both ‘Strong Disagree’ and ‘Agree’ got one vote (0,4%), showing a strong dominance of a non-disagreement with the claim. This information is crucial to study *Hypothesis 1*, and possibly make a statement of veracity on it.

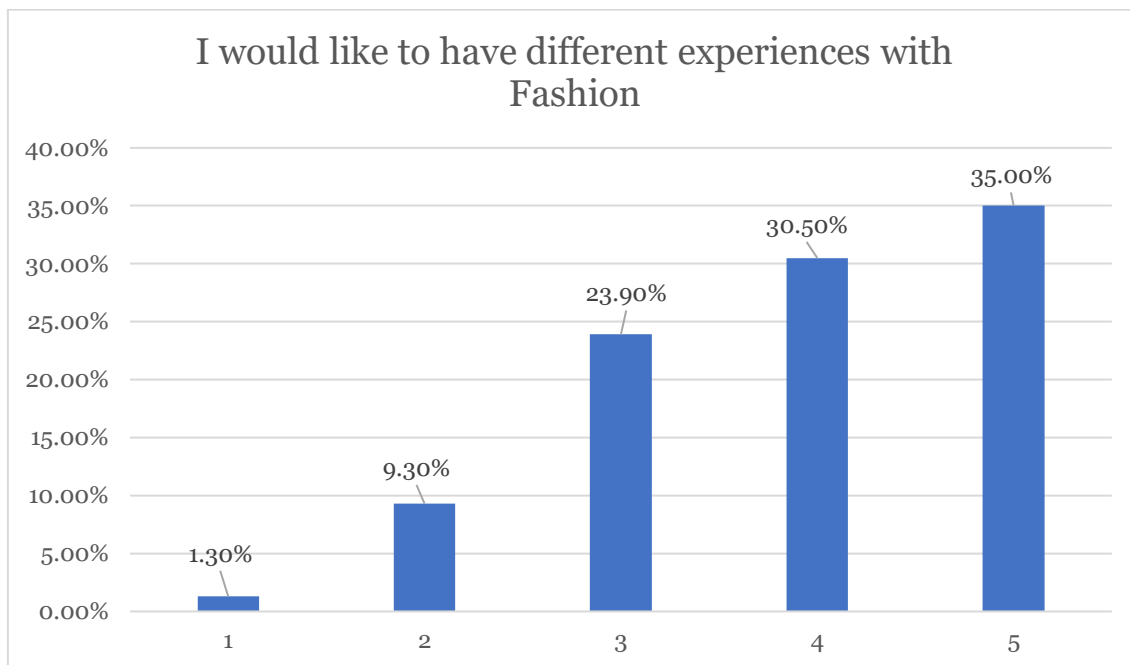


Figure 25: Survey – I would like to have different experiences with Fashion. Source – Author.

Additionally, it was asked to the inquired if they agreed with the affirmation “I would like to have different experiences with Fashion” where the responses were more balance throughout the five options (Figure 25). As 35% of the total ‘Strongly Agree’, 30,5% ‘Agree’, 23,9% ‘Neither Disagreed nor Agree’, 9,3% ‘Disagree’ and 1,3% ‘Strongly Agree’. In Figure 26 it can be seen the choices made by ages, and although some conclusion can be made, the difference in age isn’t very clear. While the youngest age gap ‘12 – 25’ has the lowest rate in the ‘Strongly Disagree’ and it follows the trend of the aggregated (with the highest percentage in ‘Strongly Agree’), the other three age groups didn’t seem to follow a pattern, with age group ‘26-40’ peaking at ‘Strongly Agree’ with 39,47%, lowering for 15,79% in ‘Agree’ and back up to 31,58% in ‘Neither Agree nor Disagree’. Similar happens in the ‘< 58’ age gap. On the other hand, the age group of ‘41 – 58’ had the highest value at 42,5% in the ‘Neither Agree nor Disagree’ and regressing on both ‘ide- (‘Agree’ and ‘Disagree’ with lower rates, and even lower on ‘Strongly agree’, with no votes on ‘Strongly disagree’). Only the age gaps ‘12-25’ and ‘26-40’ had responses in the ‘Strongly Disagree’ answer.

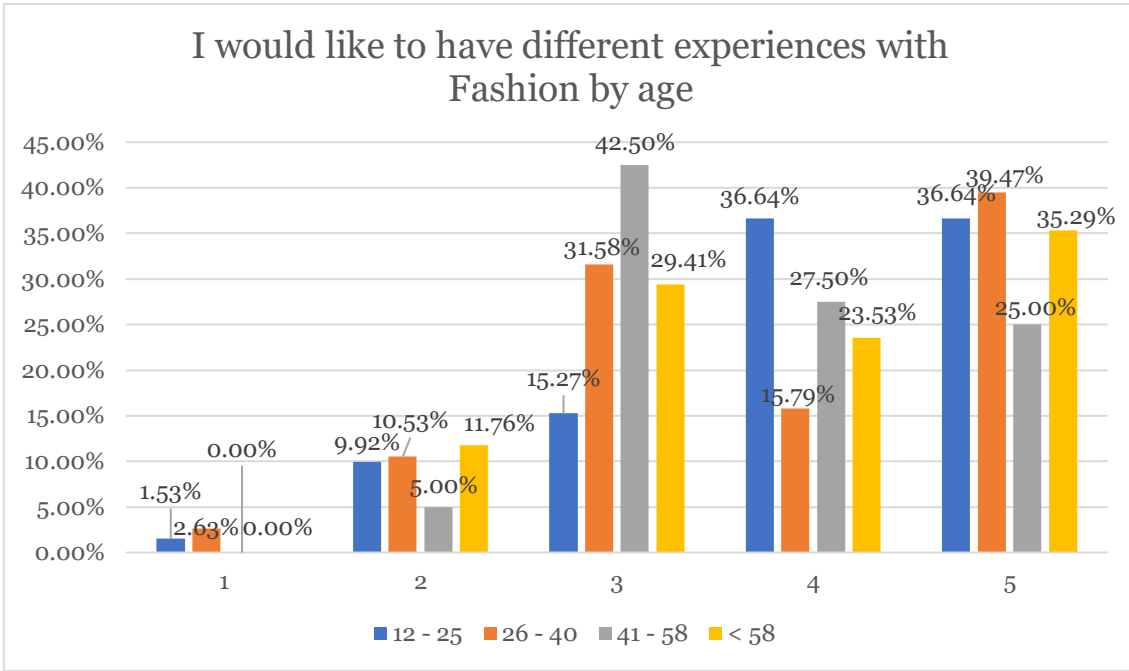


Figure 26: Survey – I would like to have different experiences with Fashion by age. Source – Author

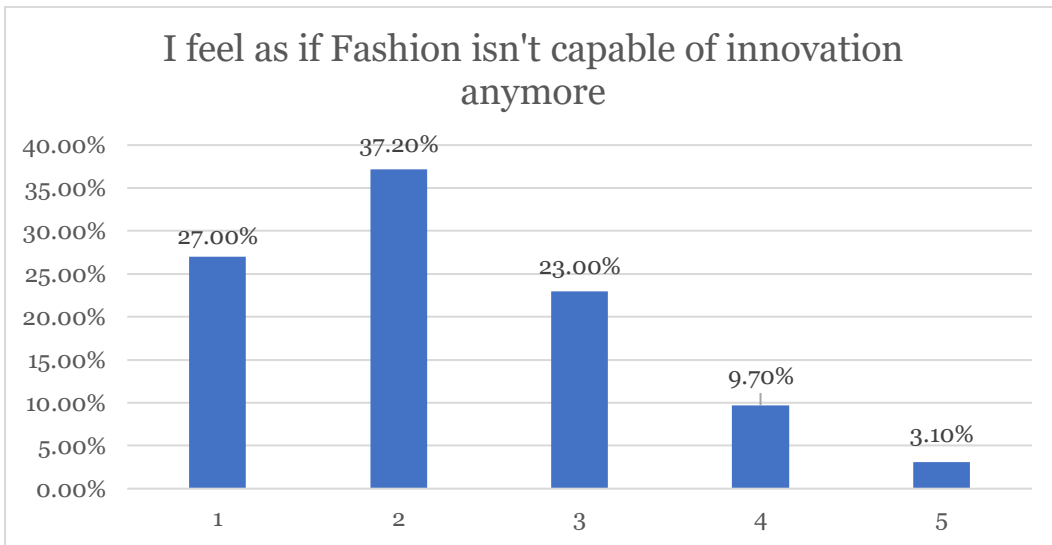


Figure 27: Survey – I feel as if Fashion isn't capable of innovation anymore. Source – Author.

As of the previous affirmation (Figure 27), the disagreement side had more votes with 72,2% (27% on the 'Strongly Disagree' plus the 37,2 % on 'Disagree') against the 23% of the middle ground and 11% of the agreement side. These two questions (Figure 25 and Figure 27) were made to, again, understand how receptive would these consumers be to new experiences in the Fashion field, building behaviours to later take into consideration when confirming or refuse the hypothesis.

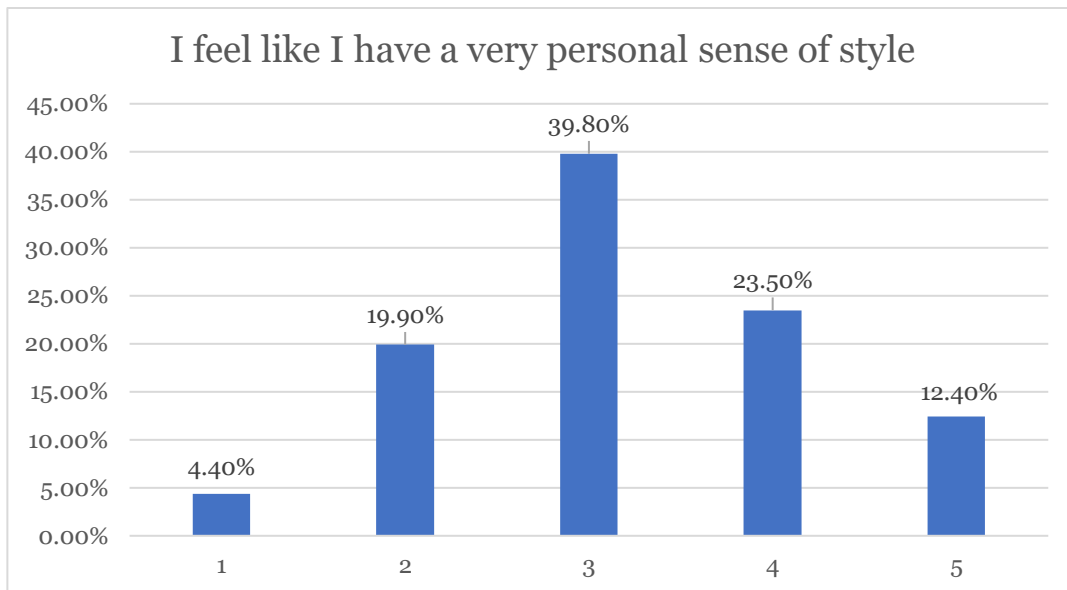


Figure 28: Survey – I have a very personal sense of style. Source – Author.

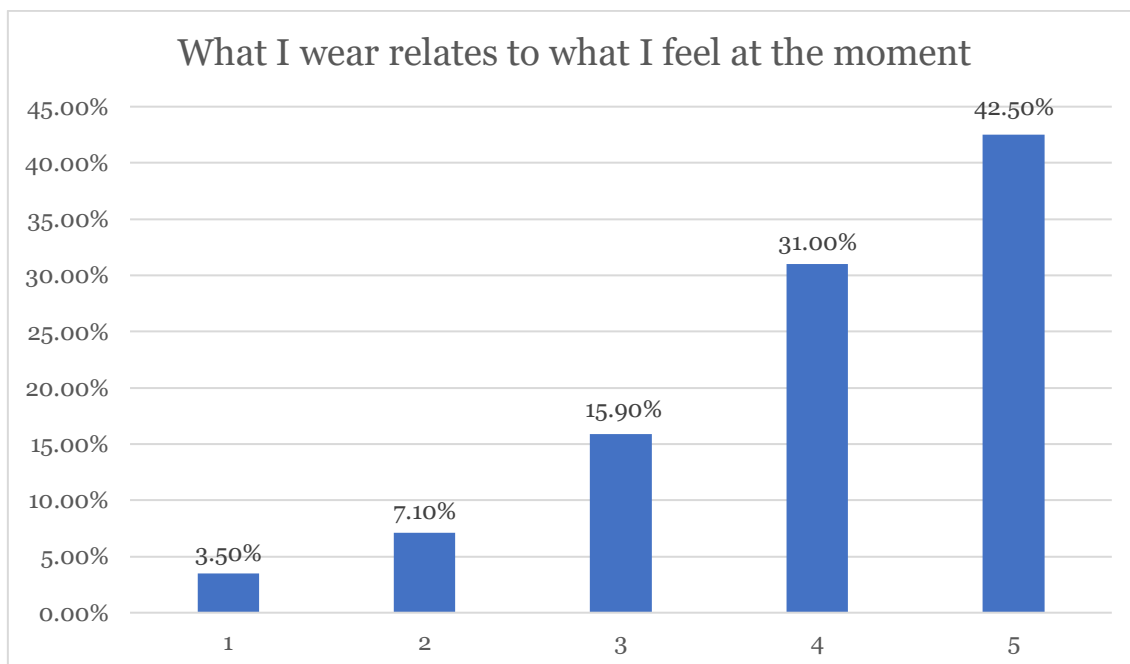


Figure 29: Survey – What I wear relates to what I feel at the moment. Source – Author.

Although the last two affirmations (Figure 28 and Figure 29) are related to one another, they somewhat have opposed ideas and that is confirmed by the results. The importance of presenting these two questions phrased this way is to make a distinction from identity and self-expression, especially when it comes to Fashion and clothing. While the first one asked about style, which presumes identity and a more constant form of dressing, the second focused on the clothing used and chosen on a certain period of time. Thus, the responses were quite different between the two,

with Figure 26 with values better distributed with 'Neither disagree nor agree' being the highest ranked with 39,8%, the agreement side with 35,9% and the disagreement one with 24,3%. Opposed, on Figure 29, the agreement side has 73,5% of all the votes, 15,9% don't disagree or agree and the rest disagree. This underlines the importance on understanding identity fluidity and clothing as an outlet for self-discovery.

The last two questions on the second section are highly related to the perception the inquired had with clothing through the lens of a member of society itself. As seen, the majority believes people have a sense of styles that doesn't necessarily connect to them but to a certain stereotype they're trying to portrait (Figure 30), with more than 50% on the agreeing side. Nonetheless, the inquired themselves don't feel pressure into following any social ques, although the results aren't very clear, due to the dissipation throughout the answers (Figure 31).

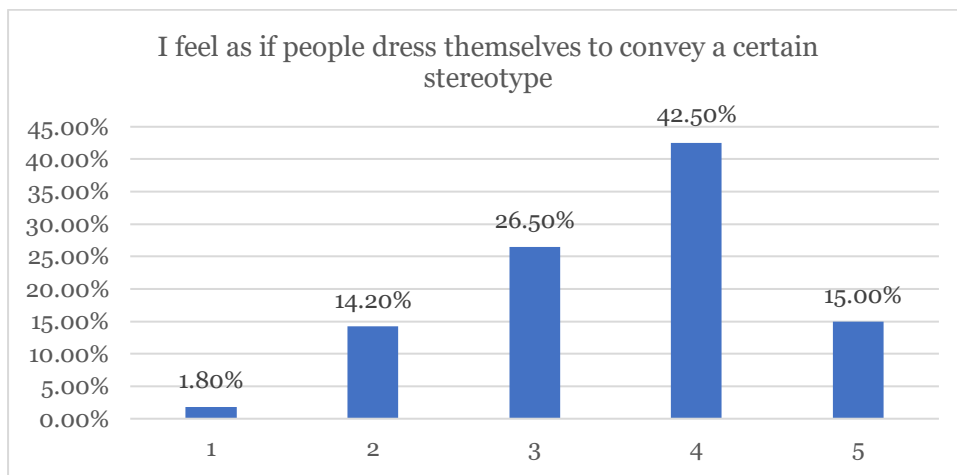


Figure 30: Survey – I feel as if people dress themselves to convey a certain stereotype. Source – Author.

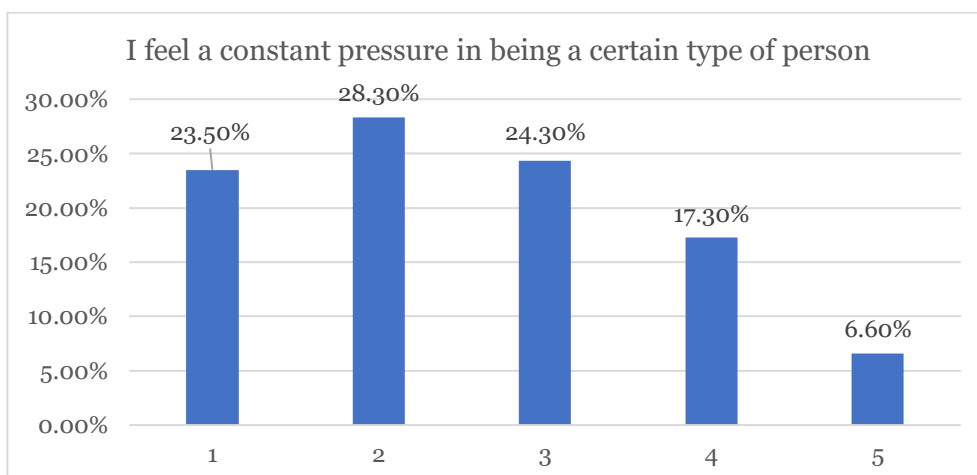


Figure 31: Survey – I feel a constant pressure in being a certain type of person. Source – Author

Entering the second section, entitled 'Social Media', it was marked by the differences between onscreen and offscreen identity. A connection to Hypothesis 2 since its goal was to make a comparison between self-perception and the perception of others within the same context. The encountered was almost the opposite from one another, with the highest scores of self-perception (Figure 32) being on the positive side, meaning people believe they are truthful to themselves online, with more almost a total of 80% on the right side of the graphic (29,2% 'agree' they are truthful and 48,7% 'strongly agree'). Juxtaposed, there is the perception of others (Figure 33), that follow the exact opposite trend than the latter graph. Now 80% of the graphic is gathered in the other three levels – 12,4% 'strongly disagree', 38,1% 'disagree' and 35% 'neither disagree nor agree'.

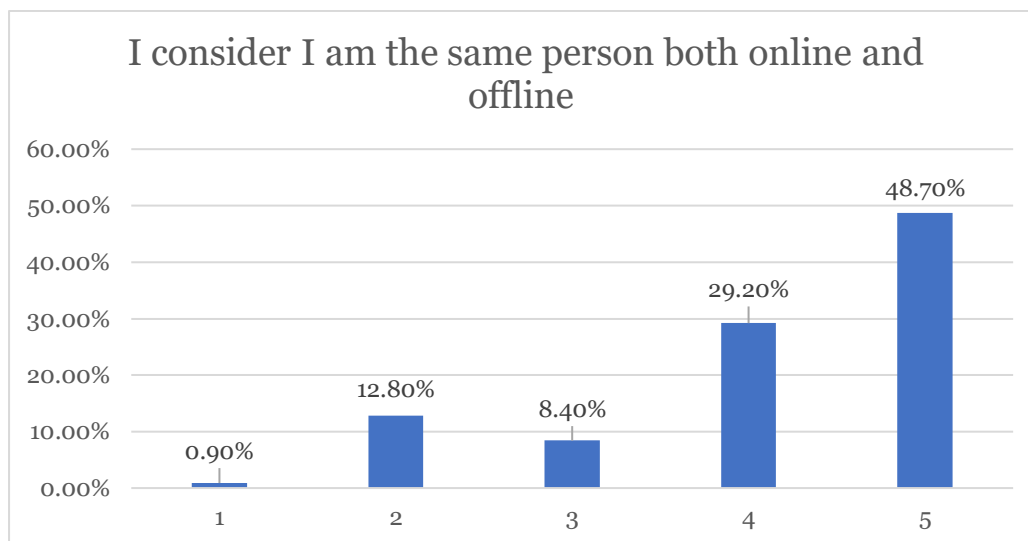


Figure 32: Survey – I consider I am the same person both online and offline. Source – Author

In the last question of the section (Figure 33), it was asked if the inquired felt like they had more freedom to express themselves in an online context, to which the responses were somewhat negative. About 31% of the inquired didn't disagree nor agree, plus 40,3% in the disagree side (both 'Disagree' and 'Strongly Disagree'). But some other conclusions could be taken out by dividing these answers through the age gaps.

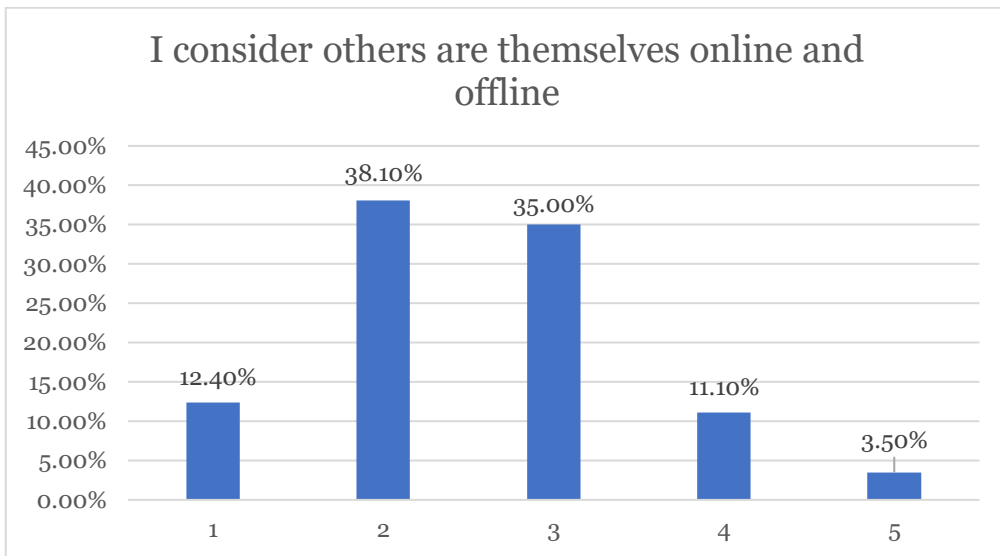


Figure 33: Survey – I consider others are themselves online and offline. Source – Author.

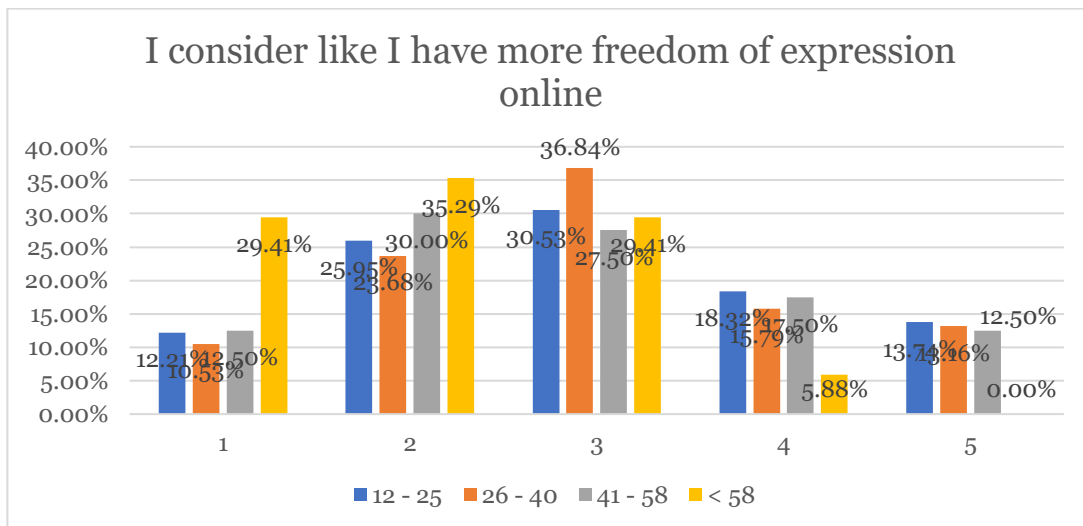


Figure 33: Survey – I consider like I have more freedom of expression online. Source – Author.

Even though the graphic may seem similar to the previous one (Figure 34), there are some big differences to be taken into consideration. First, the '< 58' age group has very high rates in the disagree side, no answers whatsoever in 'strongly agree' and only 5,88% on 'agree'. This may be a big indicator, with it being the oldest group, and therefore, the least connected to the technological world. On the same note, the youngest group '12 – 25' was the highest percentage both in the 'Agree' and the 'Strongly Agree' of the four, with 18,32% and 13,7%, respectively.

Entering the Metaverse section, the first request was to ask the inquired how they felt about the metaverse, by presenting eight adjectives, four of them being positive (first four below presented) and the other four negative (last four).

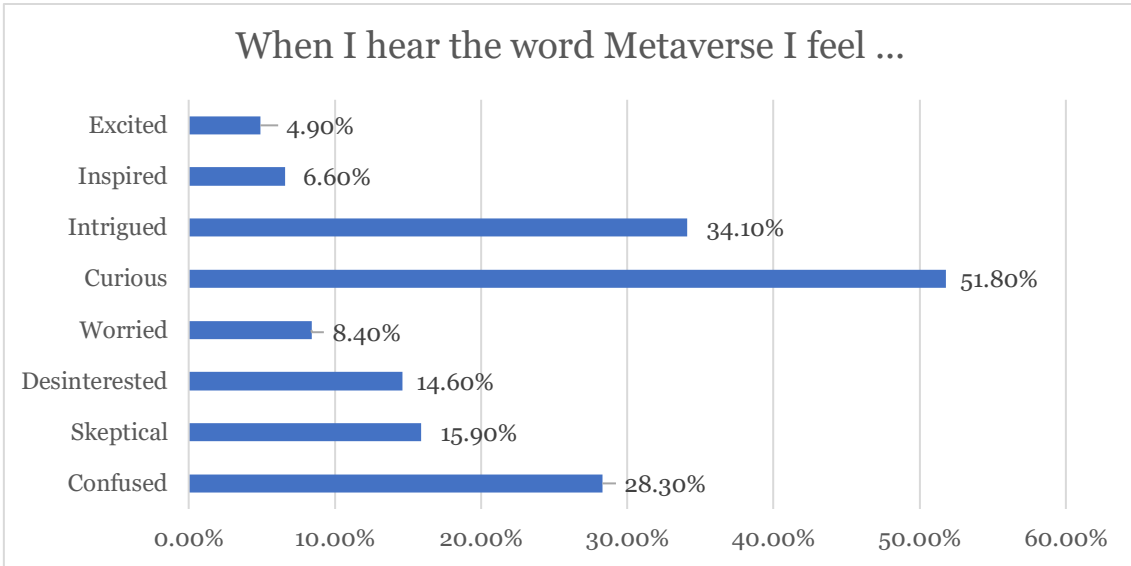


Figure 34: Survey – When I hear the word Metaverse I feel... Source – Author

As seen, the top two adjectives chosen were positive (Figure 35), with ‘Curious’ as number 1 with 51,8% and ‘Intrigued’ in number 2 with 34,1%. On the other hand the third most chosen adjective was ‘Confused’ with 28,3%. Rounding up all numbers, there seems to be a more positive reaction to the word ‘Metaverse’ than negative, but an age analysis was done in the following graphic (Figure 36).

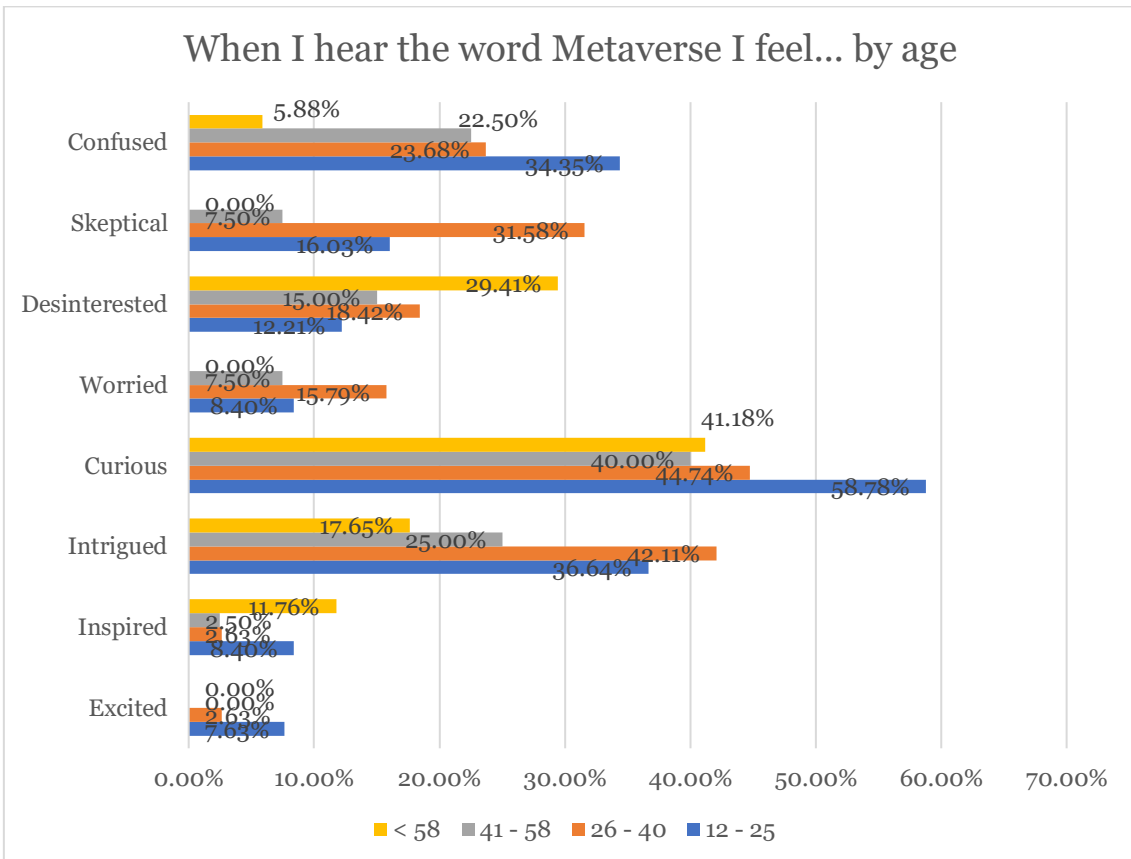


Figure 35: Survey – When I hear the word Metaverse I feel... by age. Source – Author.

As it appears, the numbers seem similar to the last graphic (Figure 35), there are some values to be taken into consideration. As seen, in all group ages the feeling that mostly appears is 'Curious' with all close to 50%, and the '12 – 25' age group surpasses it with 58,78%. On another note, the numbers fall short on other positive adjectives, especially 'Excited' and 'Inspired', especially in the oldest age group.

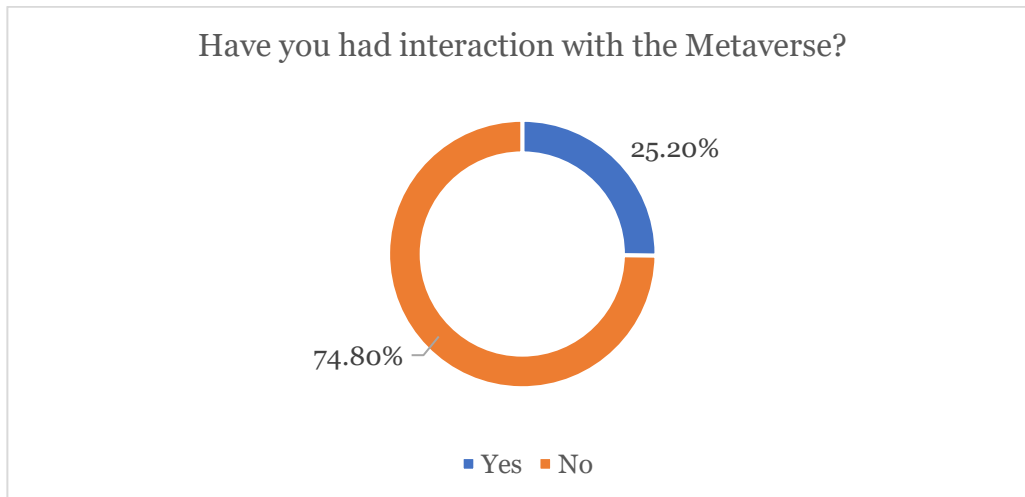


Figure 36: Survey – Have you had interaction with the Metaverse? Source – Author.

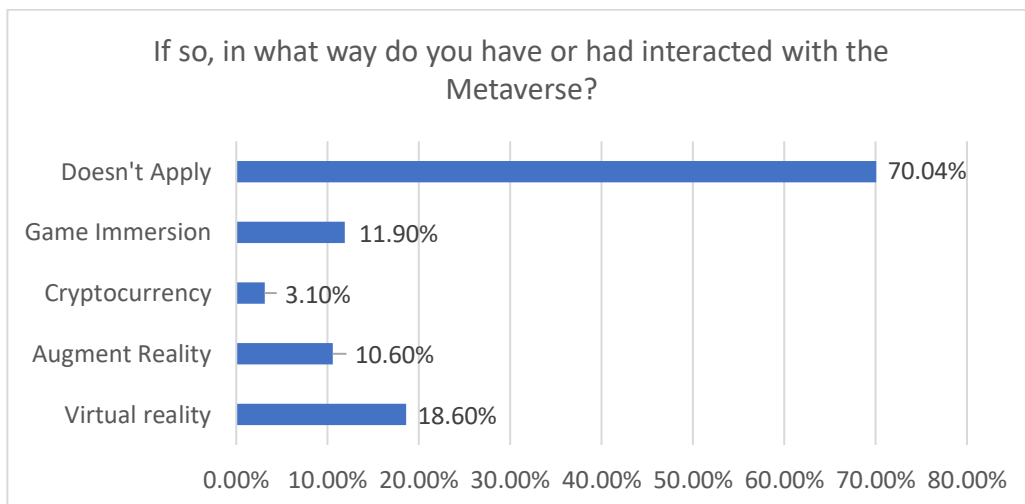


Figure 37: Survey – If so, in what way do you have or had interacted with the Metaverse? Source – Author

Most of the inquired claimed they have not had any interaction with the Metaverse, with about only 25% of the inquired with any previous connection to the Metaverse (Figure 36). The few answers that are affirmative, transpired to the second graphic (Figure 38) as forms of relation to this world. The most common answers were 'Virtual Reality' with 18,6% and 'Game Immersion' with 11,9%, followed by 'Augmented Reality' with 10,6% and finally, 'Cryptocurrency' with 3,1%.

As the goal was trying to understand if the Metaverse was still a niche subject only engaging in some circles, especially when talking of purchases, as seen in the following graphic

(Figure 39). Even though the values are similar there is a slight discrepancy between the numbers who have interacted with the technology with those who have made an investment or purchase related to the matter: while more than 25% if the inquired have experienced Metaverse, only about 21% have made a purchase.

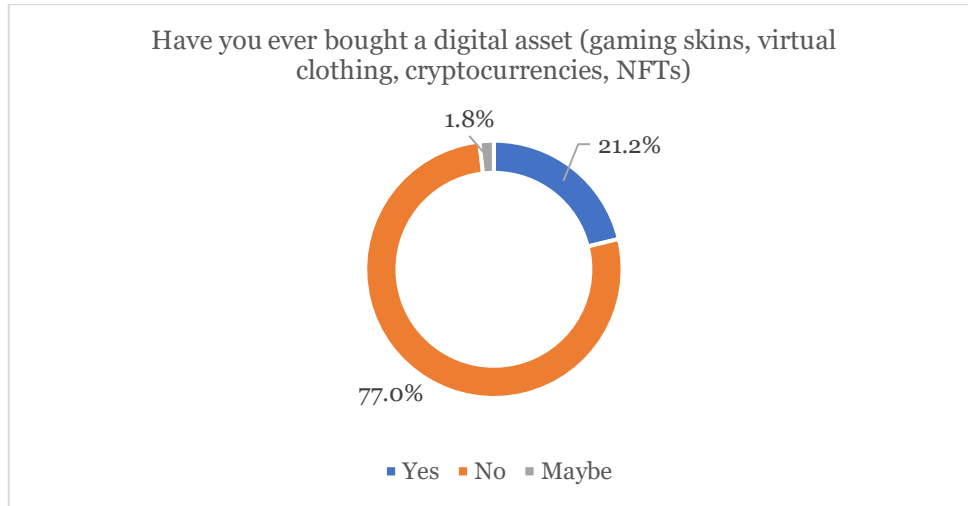


Figure 38: Survey – Have you ever buy a digital asset (gaming skins, virtual clothing, cryptocurrencies, NFTs). Source – Author

On the other hand, the number of inquired who haven't bought any digital products nor tend to purchase any in the future, drops to 20,8%, while the rest are either positive, they will make a purchase in the future, or are not sure they will or not (Figure 40).

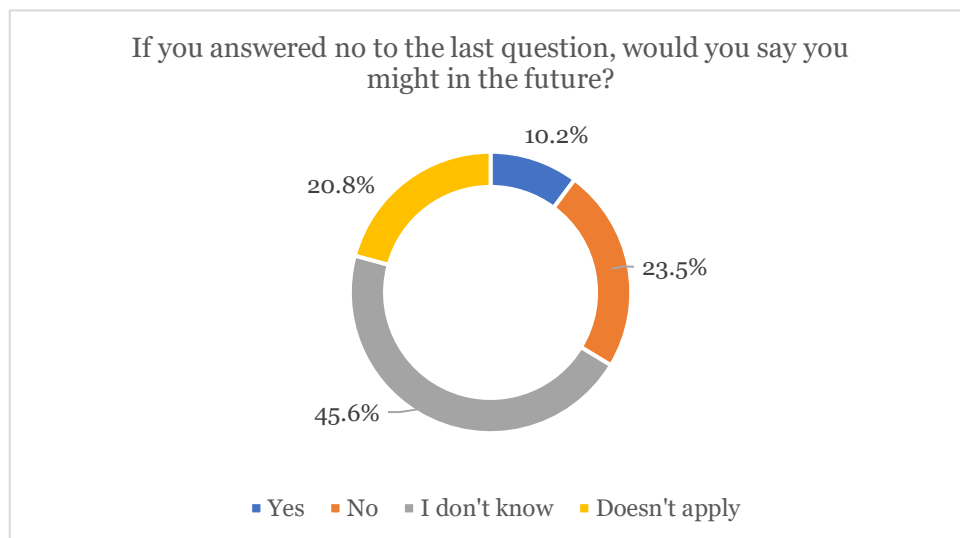


Figure 39: Survey – If you answered no to the last question, would you say you might in the future? Source – Author

On the next two questions asked in the survey (Figure 41 and Figure 42), identity and its relation to the metaverse was put to the test, by directly asking the inquired if they thought that the metaverse would alter online self-expression, and if in a positive or negative way. The main purpose of these questions was to further understand and either confirm or reject *Hypothesis 2*, connecting these two previous questions such as Figure 31 and Figure 32, and correlate the discrepancy on how the general public sees the Metaverse as a tool for self-expression.

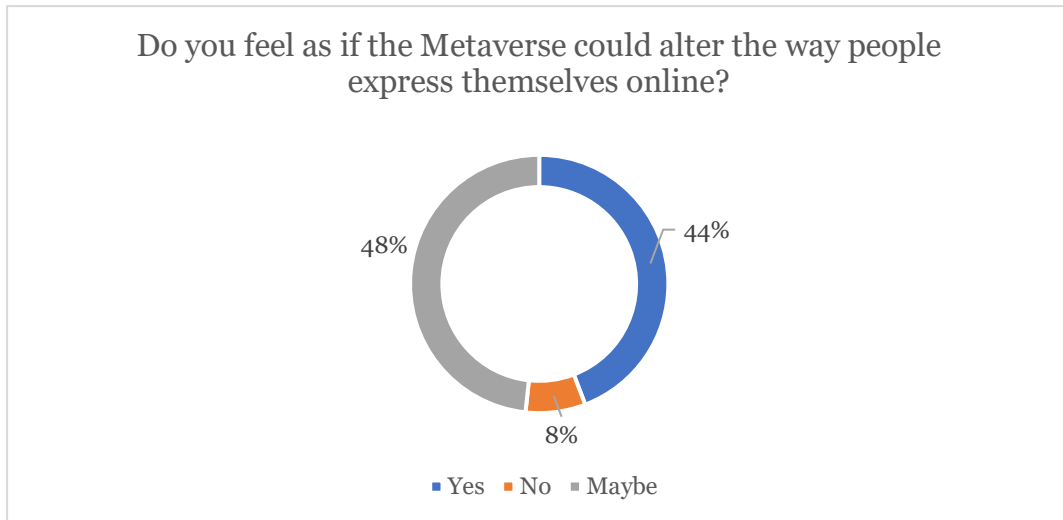


Figure 40: Survey – Do you feel as if the Metaverse could alter the way people express themselves online? Source: Author

It can be seen (Figure 41) that only 8% believe the Metaverse will not shape online self-expression in any way, while the rest are split evenly between those who think so and those who don't know (44% and 48% respectively). Also, of those who replied yes, half think it will change positively (22% of the total) and the other half negatively (21% of the total).

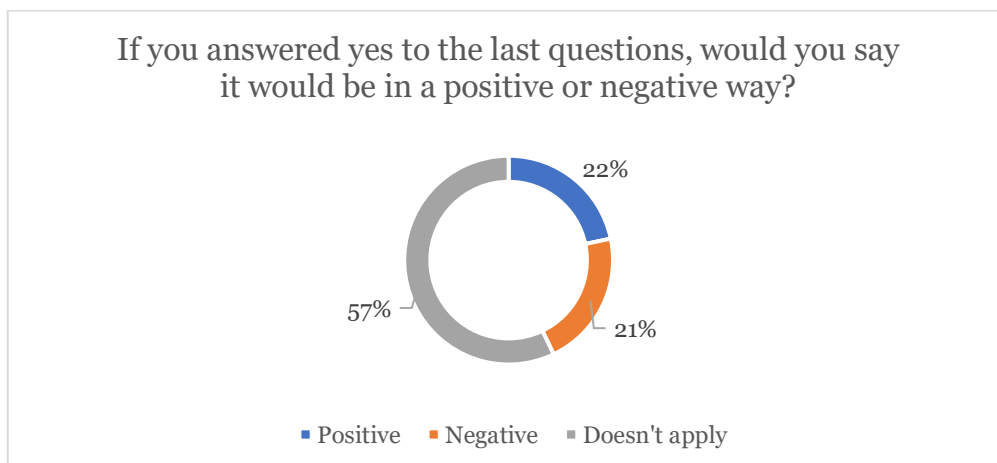


Figure 41: Survey – If you answered yes to the last questions, would you say it would be in a positive or negative way? Source – Author.

Entering the last section, its main purpose is to help confirm the veracity of *Hypothesis 3*. By the next figure (Figure 43) it is understood that the public already has an idea of what Digital Fashion with close to 62% of the responses being affirmative. When looking at the numbers divided by age group (Figure 44), it can be seen that there is still one age group where more people answer negatively to this question than positively: whilst all age groups ('12 – 25'; '26 – 40'; '41 – 58') the answer “Yes” had at least 60% of the votes, meaning the majority of the inquired knew what Digital Fashion was, in the oldest age group '< 58' it was seen the opposite, with a higher number at 'No'.

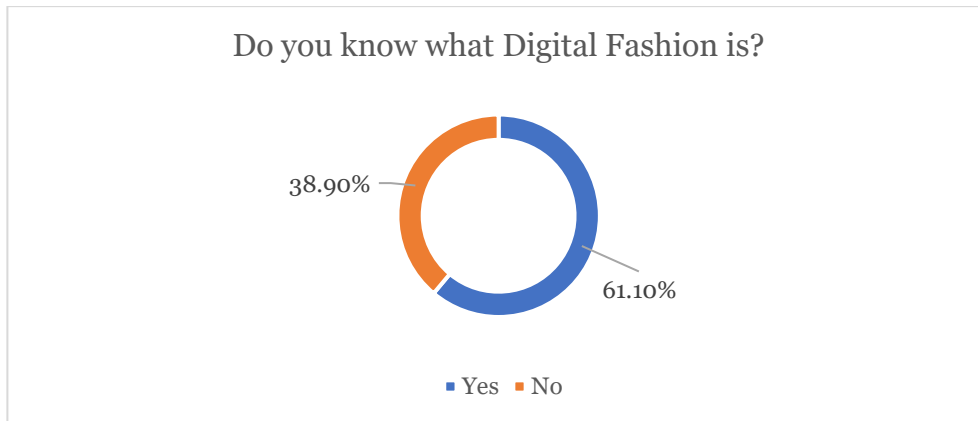


Figure 42: Survey – Do you know what Digital Fashion is? Source – Author.

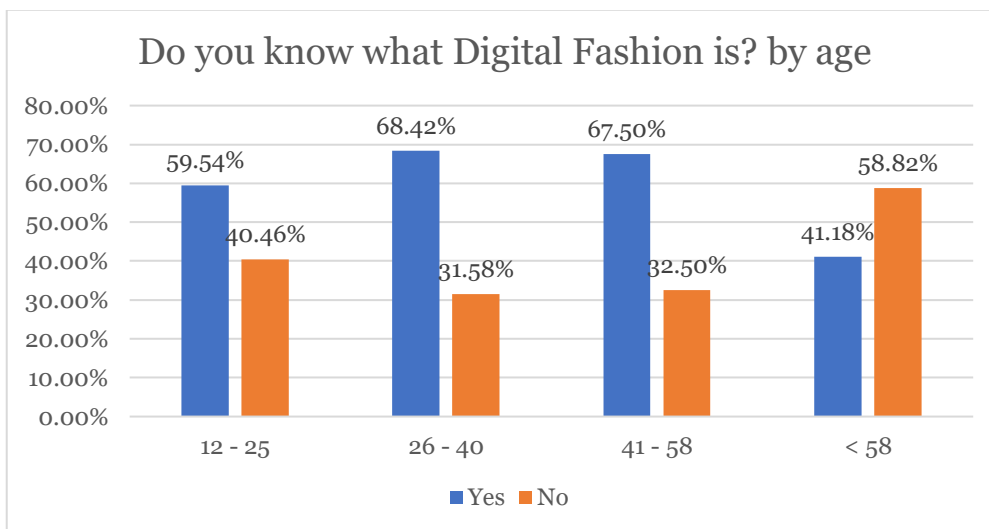


Figure 43: Survey – Do you know what Digital Fashion is? By age. Source – Author.

It was also discovered that the way most people find about Digital Fashion is on ‘Social Media’ (46,9%), followed by ‘Websites’ (17,7%), ‘News’ and ‘Friends and Family’ (15,9%), ‘Video games’ (8%). Some of the inquired also added the options ‘Work’ and ‘School’ (Figure 45).

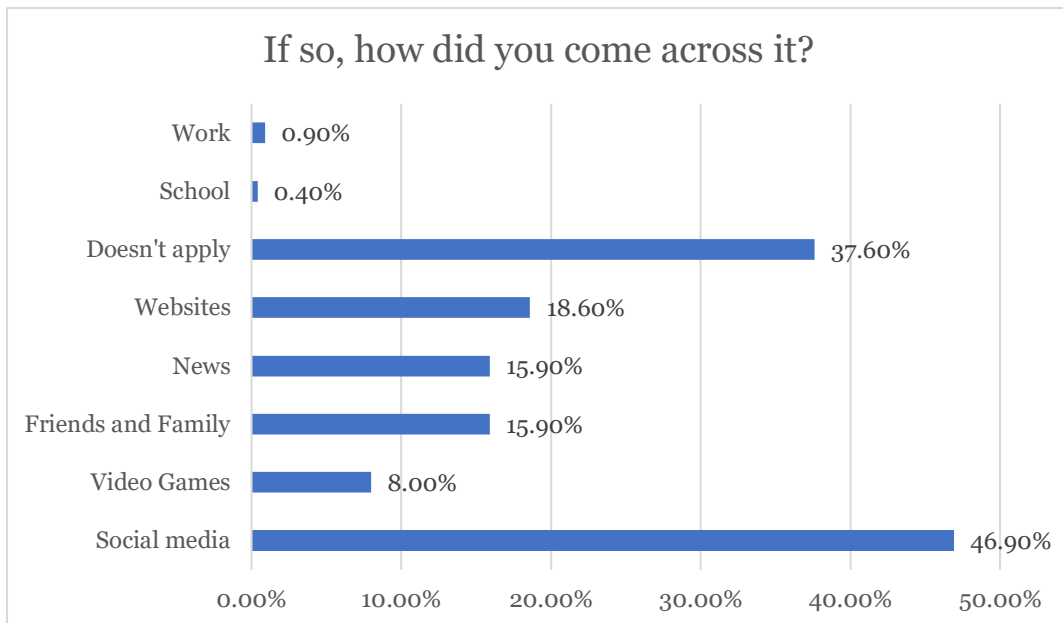


Figure 44: How did you come across Digital Fashion? Source: Author.

Besides knowing what digital fashion is, it was also gathered information about who Digital Fashion purchases (Figure 46). The inquired were asked if themselves or someone they knew, had already made a purchase of digital clothing. Almost 80% of the inquired responded 'Yes' while 22,6% reveal they haven't and/or don't.

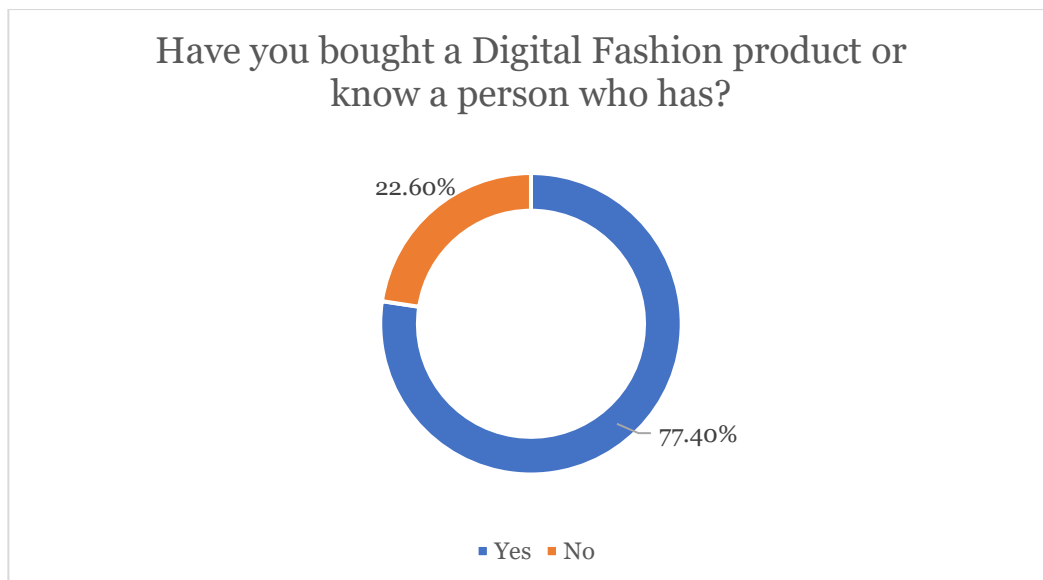


Figure 45: Survey – Have you bought a Digital Fashion product or know someone who has? Source – Author.

The last question of the survey had the goal to perceive what the consumer thought that Digital Fashion had instore as a part of the Fashion industry's future. The negative answers were very few, with only 10,6% while the rest was somewhat divided to 'Yes' with 41,2% and 'Maybe' with 48,2% (Figure 47).

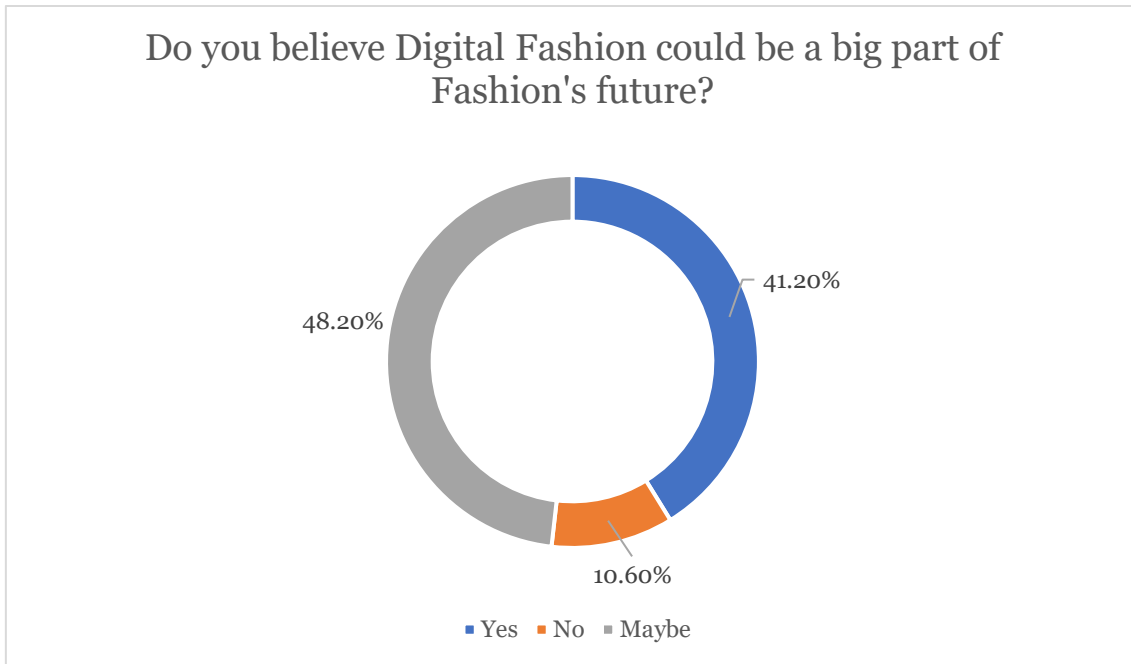


Figure 46: Survey – Do you believe Digital Fashion could be a big part of fashion's future? Source – Author.

## 4.2.2 Results and Survey conclusions

As the last chapter served to describe the information gathered, this one will provide some conclusion based solely on the previous data, comparing it to the hypotheses. After analysing all questions and graphs, some of the answers stood out for some overlaps and by comparing multiple ones it allows to deduce some information. Due to the very few responses portraying non-Portuguese residents the conclusions given will mirror a reality seen in Portugal.

*H1: Clothing and how we dress can act as a form of identity and self-expression.*

*H2: People are the same in a physical context as they are on a virtual one.*

*H3: Digital Fashion will be a crucial part of the Fashion industry's future.*

First and foremost, hypothesis 1 was confirmed by the survey, on the third question of section two: "I see fashion as a medium of expression" (Figure 24). The consumer does portrait Fashion as a communication outlet and perceives it in a way to navigate through Identity. Also, on Figure 28 and Figure 29, when asked about their personal sense of style, the inquired didn't seem quite sure of their own, not claiming they have a particular one, but on the contrary they dress themselves accordingly to their present emotions, providing information on how Fashion could be a path to self-discovery too.

Between the questions “I would like to have different experiences with Fashion” and “I feel as if Fashion isn’t capable of innovation anymore” with their respective answers on Figure 25 and Figure 27, the results mirror a consumer that is aware of change and innovation in the industry and stimulated to want and try new ideas or movements. As this could mean experiences with different styles (also related to Figure 25), it could also be important for the subject on Digital Fashion, since the technology is recent, and the public has yet a lot to discover, just as much as the industry must develop.

The last two questions of the first section (Figure 30 and Figure 31), start to dive into the possibility of a relation between portraying the self through clothing to translate a message (wrongfully or not) to the societal eye. That said the results showed that the consumer doesn’t trust others and finds them to convey stereotypical styles, whilst not giving in to pressures of society themselves. This idea is continued when analysed the results to the questions “I consider I am the same person online and offline” (Figure 32) and “I consider others to be themselves online and offline” (Figure 33), with opposing answers from one another. While many of the users found themselves to be truthful online, they didn’t find others to do the same. Again, most of the inquired appear to not trust what they see online but chose to show something real to themselves to the public anyway.

This is crucial to confirm, or in this case deny hypothesis 2. As stated in the last paragraph, the inquired do not believe people are the same in a physical context and on a virtual one, but they believe to portray themselves truthfully. Connected to this matter there is also the question “I consider like I have more freedom of expression online” (Figure 33) where the surveyees found, in their majority, to be somewhat true. With the answers distributed between all five possible responses, it was also studied the answers per age group (Figure 34), where it was found that there is a slight difference by age group with the youngest to tend to agree with the statement and the older one to disagree.

Entering the fourth section entitled ‘Metaverse’, when consumers were asked to describe the feelings when hearing the word (Figure 35), the answers that popped up the most were ‘Curious’ ‘Intrigued’ and ‘Confused’. Even though the first two are positive, and the third was considered negative, it can mean that there is only few information on the subject, and the public simply hasn’t got the information. Also, when looking at the results by age group (Figure 36) the older generation feel more negative feelings, like ‘Disinterested’ but don’t seem to feel ‘Sceptical’ or ‘Worried’, words found with votes in the others age groups.

Within the same subject some conclusion were taken out from it: the Metaverse is still a very unknown territory for the inquired (with only 25% having contact – Figure 37) the actual investment made on it is low (with 20% - Figure 39), but very few are adamant on not purchasing in the future (Figure 40). Also, on the next questions it was attempted to establish a relation between digital self-expression and the Metaverse (Figure 41), where the very few (7%) were sure no alterations would be made to what it is in the present day. This contributes to the premise on

hypothesis 2 and that digital identity may shift to either causing more discrepancy or a further alignment between it and identity present in a physical matter.

The last section dealt with Digital Fashion as the main subject, trying to get confirmation on the third hypothesis. While less than 40% of the inquired didn't know what Digital Fashion was in general (Figure 43), just over 20% had engaged in a purchase or knew someone that had (Figure 46). On the last question of the survey, it was asked if the consumer thought that Digital Fashion could become a big part of fashion's future to which the replies were mostly non-negative (Figure 47).

When balancing several of the information about Identity, the Metaverse and Digital Fashion, it is found that the consumer is divided on thinking if Digital Fashion could be on the frontier of Fashion, as well as its ability to take freedom of wear further. Comparing Figure 33, Figure 41, Figure 42, and Figure 47 it comes down to a very subjective and diverse spectrum of responses. While consumers don't find themselves more comfortable expressing themselves online than in a physical matter, they believe the development of the Metaverse could change how self-expression is done online nowadays. Also, the latter didn't get clarified if it would be a positive or a negative change. Lastly, all this culminates to the last question that is again, not very clear on conclusions, due to the big choice on the ambiguous answer. Nonetheless, very few votes were made to a denial of the question, providing for some positive insight on the matter.

After analysing the data and comparing to each other, it was possible to conclude:

- *H1* was confirmed and the consumer believes that clothes do mirror identity, moods, and are a vehicle for self-expression.
- *H2* was partially confirmed as well as partially denied, due to the inquired believing they are themselves online, but not seeing others as truthful online.
- *H3* wasn't confirmed neither denied due to the affirmative answers not posing as a majority.

## Chapter 5: Discussion

This researched was carried by two main stages. The first, by a qualitative method, to better understand the various fields important to Identity, Fashion and Digital Self-Expression, and the second, a quantitative survey to possibly confirm the first.

As Chapter 1, 2 and 3, gathered information on the relevant subjects, terms and their relation by analysing previous studies by different authors, as of to gather the most amount of information relevant to the theme, chapter 4 took all into consideration to build three different hypothesis and possibly confirm them through a survey shared with the public. They both will be conjunctly analysed in order to share an overview with the final conclusions.

As of the confirmation of the hypothesis, as seen at the end of the last chapter, not all were affirmative. But new conclusions can be further explored by having into consideration the literature review. At the end it is possible to conclude that Fashion does have a deep connection to Identity, but not exactly in a way that is normally portrayed. Some of the studies found that what the general public defines as clothing of a certain style is not directly connected to how they would describe themselves as. In the survey it was also seen that the inquired didn't believe to have a specific sense of style when clothing themselves, but rather be influenced by what they were feeling at the moment. This translate a desire to experiment with Fashion, through trying on different styles and clothing that could be connected to a certain type of person or a certain kind of group/culture. This can also be connected to interchangeability of the industry, more precisely, of Fashion trends. The constant change of what is hype and the infinite collections release by fast fashion brands can be a way to explain the lack of having only one style included in one's wardrobe.

As studied, Fashion is a sociological phenomenon, meaning it is inserted in society and partially ruled by it. In chapter 1.2.3. **Self-Expression and Society's Role** it is explored at what extent self-expression is moulded and restricted due to society's laws, revealing a layer that concludes that individuals are identified and judged by what they wear, creating a ripple effect of constraints that mine the freedom of wear. This was tested in the survey when it was asked about stereotypes and the pressure that the inquired felt coming towards society (Figure 30 and Figure 31). The answers were contrary to the expected since the answers were mostly of disagreement, even though, they do think people wear clothing to convey a message that might not be true to themselves. Similarly, the answers to the questions about the online self (Figure 32 and Figure 32) from both a self-perspective and a commentary on others, carry the same tone, with people believing others not to be themselves online, but believing they (the inquired) are. Similarly, in the literature review it is shown the idea of people exploring their Identities online, by portraying different aspects of themselves, or just to shed light into smaller parts that haven't been shown – this can transpire in people knowing what they share is true to themselves but appearing to be the opposite. Also, the freedom of self-expressing online that many of the authors seem to touch on,

was not confirmed by the survey (Figure 33), with the answers following more to the centre of the agreement spectrum. In spite of this, there is a slight difference within the age groups (Figure 34), with the youngest group to feel more freedom in expressing online than the older ones, proving that the younger generations are digitally inclined (although the differences were not very noticeable). Although the survey didn't deny hypothesis 2 to its fullest, with all resources found it can be inferred that people can be different in a physical and digital setting, not meaning they are not themselves.

On the Digital Fashion subjects, it can be concluded that it is still a niche industry with little players, both on supply and demand. Even though it is growing, and more brands come to have their personal view on it, people are still not familiarized to what it means and stands for. Nonetheless, the survey shows that the inquired are aware what it could mean for the future of Fashion, broadening ways to experiment, express and showcase one's Identity and ultimately change the way clothes are worn and seen (Figure 34). As billions of US dollars are spent every year on virtual goods (Moy, 2022), the idea that Digital Fashion can grow to be a big part the whole Fashion industry isn't that farfetched.

# Conclusion

Although some conclusions can be drawn out of this dissertation, no definitive confirmation can be made for the initial research question: can Digital Fashion be a passageway into freedom of self-expression through clothing? The deconstruction of the concepts related to the last questions was carried in order to create a clear line of thought to try and understand what could possibly be behind it. It was started by defining Identity and its relationship with Fashion, as a self-expression outlet, cutting to the immergence on understanding the importance on online self-expression in a digitized world, and finally connecting it all through Digital Fashion.

Identity is a hard to define concept due to the subjectivity around it. In the course of this dissertation a lot of facets were connected to it, but the ones that resonated the most were its aspects of fluidity, mutability throughout time and how it can be influence by other external experiences. Later on, self-expression through Fashion was studied as a form to showcase that same Identity. But by the end of this dissertation another question rises asking if Identity is a means to Fashion or is it the opposite (does Fashion carry Identity of the wearer or does Fashion help the wearer in the search for said Identity). Nonetheless, in both scenarios Fashion is a self-expression outlet both for those who seek it and for those who don't. However, Fashion has become a way to experiment and more and more becomes redundant with non-lasting Fashion trends. Although fast Fashion brands are the big contributors to mass production, it's the current mentality of the public to overconsume that generates the vicious cycle of the short and quick Fashion trends. On the positive side this allows for a more democratized industry and the consumer can be more involved.

Some conclusions were also made that the public doesn't resonate with a particular sense of style due to wanting to cloth themselves accordingly to what they feel at the moment. As this could also be connected to the last statements on the interchangeability aspects of Fashion, the '*mood style*' has appealing characteristic that could be the routs to its popularity (Figure 29). The dysconnectivity of labels and the multiplicity of expressing the self, add up to a freedom of wear, translating into a thought of "what I'm feeling" rather than to "what I am".

Furthermore, the Internet and the web came in a way to connect more people from further places, globalizing the world, and express ideas and points of view focusing them on people that share those same thoughts, creating safe spaces for those activities. These communities rely on the freedom and protection they get for not being beneath the eyes of a highly critical society and often times portrait a different image in these online settings than they do in the physical ones. This doesn't necessarily mean (although it can) that they are not themselves in both settings, they are just adjusted to their audience.

As the younger generations grew in the digital era, they are more inclined to pursue a steady routine in these environments and explore virtual realities and the Metaverse along with other subjects associated. The growth of time spent doing online activities, the increase of money spent on the newest technologies and the appearance of new industries, like Digital Fashion, are all resulted from a society that continues towards a path to digital discovery. Digital Fashion, although recent, has catalysed change with its new intakes on what the Fashion industry should be. The infinite possibilities it can bring to all parties for the lack of restriction when creating allows the designers to fulfil the vision they had in the first place, while placing a final product that fits all people.

To summarise, Identity is self-expression, but it is also self-experimenting. Identity isn't something fixed or constant, but either fluid and mutable, and so Fashion can become a vehicle to connect to the inner self. Being an industry that operates on tradition and heritage its digitalization has been overdue for quite a while but is recently beginning to uphold some changes. As the Metaverse keeps on attracting more and more consumers for its infinite possibilities, Digital Fashion has the ability to do the same for the Fashion industry and take self-expression to a further stage of freedom of wear.

## Study Limitations

Because Digital Fashion is a very recent theme, at least to the extent that it is discussed here, there isn't a whole lot of scientific articles that can be successfully used in order to present a variety of different ideas. For example, whilst there was a lot to go over regarding Fashion brands addressing the Virtual Era with digital products, partnerships with certain platforms or gaming experiences connected to Fashion, they were all mainly news articles with journalistic points of view, contrasting to very few revised scientific article or books. Nonetheless, Digital Fashion was not the only theme discussed. While there wasn't a wide variety of points of view, ideas, authors and papers relating to digitalized Fashion, in contrast there were quite a few that are directly connected to the relationship between 'regular' Fashion with Identity.

This way, being this dissertation built around the technological growth, it had its problems due to the fast-changing operability of platforms, trending themes and the constant mutation of what is considered new and what has been overcome. Due to the latter, it constituted a difficulty to consider the state of the art a closed chapter, since there was always a new, and perhaps better, example to showcase. While in the beginning of this dissertation, and even before then, picking a theme, Digital Fashion and the NFTs' industries was a very little and niche industry, with very few players, a couple months later, and with the COVID-19 pandemic, brands had to adjust and mould to a new sociological perspective. Since its exponential growth the industry has already seen a regression, lifting the question on how successful it may become.

Regarding the survey chapter, there were some difficulties found mainly relating to the lack of knowledge of subjects and names that were introduced. Since some of the subjects are recent and not very explored by a lot of the population, and the fact that this theme deals with very technical definitions and technologies, it felt as if the inquired didn't really understand some of the questions, and most likely, didn't understand the concept of what was being asked. Additionally, the sample of the inquired was big enough to build complete confidence in concluding certain opinions, and even further when the age and gender weren't as disperse as the population, since there was a much bigger number of responses from a younger generation and by females. Also, in the state of art it was revised very few literatures from Portuguese authors and relating to the Portuguese market. Even though the survey was opened to anyone who wanted to answer, the sample of non-portuguese residents was overwhelmingly little, resulting in a possible paradox between the literary review and the survey results.

## Further Studies

As Digital Fashion is still a very recent topic, there are different angles to consider it in, and further investigate. As previously stated, Digital Fashion can even have different meanings, being one of them the help in developing prototypes or samples for, later, physical garments (Särmäkari, 2021). Researching the possible role of these digital technologies to improve core elements of a clothing piece could be a great asset for retailing efficiency. Enabling the customer to see themselves in that garment, understanding the fit of the garment (and helping choose a size or colour for example), or perceiving it in a virtual environment to their choice other than a dressing room, could potentially create positive experiences for both parts. Also there is potential for a stronger communication force by the customer if they use this kind of technology and share a video on a social platform to showcase it with friends and family.

Related to the last one, Digital Fashion could be a great asset on themes of sustainability. As previously stated, fast fashion brands and the rapid fashion trends cause the industry to fall into an overproduction mode to keep up with consumer demands. With that said, Digital Fashion could help brands in two ways: 1) similar to the Tommy Hilfiger case, help retailers to produce clothing with less waste, by digital prototyping; 2) create clothing that are exclusively online for Fashion content creators to show their followers without it even existing physically.

Since this dissertation focused mainly on the potential Digital Fashion had for Identity on a consumer lens, other investigations could research the technical side of the technology, and better understand the design work behind the garment, the programs in which they are formed, and the skills set needed to work it.

Lastly, it would be interesting to pursue this line of research but having into consideration the two facets, previously discussed, of the relationship between Identity and Fashion. Could Fashion be an outlet and a self-expression method to communicate an already established Identity or is a Fashion a way to navigate Identity, helping the self to better understand itself. In better words, is Identity explored through Fashion or is Fashion explored by Identity.

# Bibliography

- Abbasi, M.-A., & Liu, H. (2013). Measuring User Credibility in Social Media. In A. M. Greenberg, N. D. Bos, & W. G. Kennedy (Ed.), *International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction* (pp. 441-448). Springer, Berlin, Heidelberg.
- Abubakar, A. A. (2012, January). Political Participation and Discourse in Social Media during the 2011 Presidential Electioneering. *The Nigerian Journal of Communication*, 10(1), pp. 96-116.
- Ahn, S. J., Fox, J., & Bailenson, J. N. (2012). Avatars. In W. S. Bainbridge, *Leadership in Science and Technology: A Reference Handbook* (pp. 695-702). Beverly Hills, California: SAGE Publications, Inc.
- Allen, C. (2009). Style Surfing changing parameters of fashion communication – where have they gone? *1st Global conference: Fashion exploring critical issues*. Mansfield College, Oxford.
- Amaro, M. (2018). The world and the fashion “al revés” in António Variações. In A. C. Broega, J. Cunha, H. Carvalho, M. Blanco, G. García-Badell, & D. L. Gómez-Chacón (Ed.), *Reverse Design A current scientific vision from the international fashion and design congress* (pp. 45-52). Madrid, Spain: Taylor & Francis Group.
- Amed, I., Berg, A., Balchandani, A., Hedrich, S., Rölkens, F., Young, R., . . . Peng, A. (2020). *The State of Fashion 2021*. BoF; McKinsey & Company.
- Amritharaj, K., & Manikandan, K. (2017). Personality and Fabric Color Preferences of Girls. *Guru Journal of Behavioral and Social Sciences*, 5(2), 684-695.
- Angerosa, O. N. (2014). *Clothing as Communication: How Person Perception and Social Identity Impact First Impressions Made by Clothing*. Rochester Institute of Technology.
- Anguelov, N. (2021). *The Sustainable Fashion Quest: Innovations in Business and Policy*. Florida: Routledge.
- Arribas, V., & Alfaro, J. A. (2018). 3D technology in fashion: from concept to consumer. *Journal of Fashion Marketing and Management*, 22(2), 240-251.

- Bailenson, J. N., Yee, N., Blascovich, J., & Guadagno, R. E. (2008). Transformed social interaction in mediated interpersonal communication. In E. Konijn, M. Tanis, S. Utz, & A. (. Linden, *Mediated Interpersonal Communication* (pp. 77-99). New York, NY: Routledge.
- Bailey, R. L., Wise, K., & Bolls, P. D. (2009, June). How Avatar Customizability Affects Children's Arousal and Subjective Presence During Junk Food-Sponsored Online Video Games. *Cyberpsychology & Behavior*, *12* (3), pp. 277–283.
- Balenciaga. (2020, December 08). *Afterworld: The Age of Tomorrow*. Retrieved from Youtube: [https://www.youtube.com/watch?v=hu\\_o8WchxnU&t=86s](https://www.youtube.com/watch?v=hu_o8WchxnU&t=86s)
- Bedau, M. A., McCaskill, J. S., Packard, N. H., Rasmussen, S., Adami, C., Green, D. G., . . . Ray, T. S. (2001). Open Problems in Artificial Lifw. *Artificial Life*, *6*(4), pp. 363-376.
- Bell, M. (2008, july). Toward a Definition of “Virtual Worlds”. *Journal of Virtual Worlds Research*, *1*.
- Bertola, P., & Teunissen, J. (2018). Fashion 4.0. Innovating fashion industry through digital transformation. *Research Journal of Textile and Apparel*, *22*(4), 352-359.
- Bhardwaj, V., & Fairhurst, A. (2010). Fast fashion: response to changes in the fashion industry. *The International Review of Retail, Distribution and Consumer Research*, *20*(1), 165–173.
- Biocca, F. (1997). The Cyborg’s Dilemma: Embodiment in Virtual Environments. *Cognitive Technology: Humanizing the Information Age Conference*, (pp. 12-26). Japan.
- Bourgeois, E. (2020). Virtual Life: Fashion, Expression and Identity in the Digital World. *Virtually (Un)Dressed: Researching the Body in the Digital Age* (p. 7). Dress & Body Association.
- Bruzzi, S., & Gibson, P. C. (2001). *Fashion Cultures Revisited: Theories, Explorations and Analysis*. London: Routledge.
- Bugg, J. (2010). The shifting focus: culture, fashion and identity. *24th International Costume Congress: Fashion, Culture and Identity*, (pp. 23-30). Yonsei University, Seoul, Korea.

- Burrow, A. L., & Rainone, N. (2017, September 14th). How many likes did I get?: Purpose moderates links between positive social media feedback and self-esteem. *Journal of Experimental Social Psychology*, 69, pp. 232-236.
- Busch, O. v. (2018). Inclusive Fashion—an Oxymoron—or a Possibility for Sustainable Fashion? *Fashion Practice*, 10(3), 311-327.
- Cabiria, J. (2008). *Benefits of Virtual World Engagement: Implications for Marginalized Gay and Lesbian People*. Retrieved September 14, 2022, from Media Psychology Review: <https://mprcenter.org/review/cabiria-virtual-world/>
- Calvo-Porrá, C., & Pesqueira-Sánchez, R. (2020). Generational differences in technology behaviour: comparing millennials and Generation X. *Kybernets*, 49(11), pp. 2755-2772.
- Carmigniani, J., & Furht, B. (2011). Augmented Reality: An Overview. In B. Furht, *Handbook of Augmented Reality* (pp. 3-42). Florida, USA: Springer.
- Carrillo-Muñoz, A. (2015). Collectively Altering Fashion. *Masters thesis*.
- Chalmers, D. (2016). The Virtual and The Real. *Petrus Hispanus Lectures*, (pp. 309-352). Lisbon.
- Cohen-Almagor, R. (2011, april). Internet History. *International Journal of Technoethics*, pp. 45-64.
- Collins, L. (2011). Fashion as Confession: Revelation and Concealment in Personal Identity. In A. d. Witt-Paul, & M. Crouch, *Fashion Forward* (pp. 297-302). Oxford, United Kingdom: Inter-Disciplinary Press.
- Core, C. (2021). *Plyhouse By Smartech*. Retrieved September 10, 2022, from Selfragies&Co.: <https://www.selfridges.com/GB/en/features/articles/corner-shop/playhouse-by-smartech/>
- Costa Netto, Y., & Maçada, A. C. (2019). THE INFLUENCE OF SOCIAL MEDIA FILTER BUBBLES AND ECHO CHAMBERS ON IT IDENTITY CONSTRUCTION. *Twenty-Seventh European Conference on Information Systems (ECIS)*. Stockholm & Uppsala, Sweden.

- Cowan, K., Javornik, A., & Jiang, P. (2021, August 13th). Privacy concerns when using augmented reality face filters? Explaining why and when use avoidance occurs. *Psychology and Marketing*, 38 (10), pp. 1712-1722.
- Curt. [@curt.skelton]. (2022, August 25th). *Will Artificial Intelligence replace the role of visual effect artists?* Retrieved from Tiktok: [https://www.tiktok.com/@curt.skelton/video/7135836562771758382?is\\_copy\\_url=1&is\\_from\\_webapp=v1](https://www.tiktok.com/@curt.skelton/video/7135836562771758382?is_copy_url=1&is_from_webapp=v1)
- Curt. [@curt.skelton]. (n.d.). *D&D, Audrey Hepburn, Fangoria, Harry Houdini and croquet. [TikTok profile]*. Retrieved August 31, 2022, from Tiktok: <https://www.tiktok.com/@curt.skelton>
- DATAREPORTAL, Social, W. A., & Hootsuite. (2022, January 26). *Digital 2022: Global Overview Report*. Retrieved April 2022, from DATAREPORTAL: <https://datareportal.com/reports/digital-2022-global-overview-report>
- Dematerialised, T. (n.d.). *Learn*. Retrieved September 25, 2022, from The Dematerialised: <https://thedematerialised.com/learn>
- DIGITALAX. (2021, January 6). *Protocol Architecture Explained: Digital Fashion Operating System*. Retrieved September 17, 2022, from Youtube: <https://www.youtube.com/watch?v=LNpJDuzArho>
- Dixon, S. (2022, August 1st). *Growth of monthly active users of selected social media platforms worldwide from 2019 to 2021*. Retrieved from Statista: <https://www.statista.com/statistics/1219318/social-media-platforms-growth-of-mau-worldwide/>
- Doiron, C. P. (2018). *Constructing Identity Through the Lens of Fashion: An Honors Thesis*. Honors College.
- Domenico, G. D., Sit, J., Ishizaka, A., & Nunan, D. (2020, December 25th). Fake news, social media and marketing: A systematic review. *Journal of Business Research*, 124, pp. 329-341.
- Ducheneaut, N., Wen, D. M.-H., Yee, N., & Wadley, G. (2009). Body and mind: A study of avatar personalization in three virtual worlds. *Proceedings of the 27th International Conference on Human Factors in Computing Systems*, (pp. 1151–1160). Banta, MA, USA.
- Eco, U. (1982). O hábito fala pelo monge. In Eco, U., Sigurtá, R., Livolsi, M., Alberoni, F., Dorfles, G., omazzi, G., *Psicologia do Vestir* (pp. 7-). Lisboa: Assírio e Alvim.

- Efremov, J., Kertakova, M., & Kuzmanovska, V. D. (2021, January). Expression of Personality Through Dressing. *Tekstilna Industrija*, 69(1), pp. 28-35.
- English, B. (2013). *A Cultural History of Fashion in the 20th and 21st Centuries: From Catwalk to Sidewalk*. London: Bloomsbury Publishing.
- Entwistle, J. (2015). *The Fashioned Body: Fashion, Dress and Social Theory* (Vol. 2nd Edition). Polity.
- Ertz, M., & Boily, É. (2020, January 23). The rise of the digital economy: Thoughts on blockchain technology and cryptocurrencies for the collaborative economy. *International Journal of Innovation Studies*, pp. 84-93.
- Etengoff, C. (2011). The Fashion of Virtual Space & Place. In A. d. Witt-Paul, & M. Crouch, *Fashion Forward* (pp. 177-188). Oxford, United Kingdom: Inter-Disciplinary Press.
- Facebook Libra. (2022, May 21). Retrieved May 2022, from Nomics: <https://nomics.com/assets/libra-facebook-libra>
- Faust, M.-E., Carrier, S., Baptiste, P., & M., T. (2004). Implementing 3D body scanning in retail operations. *Production and Operations Management (POM's)*. Cancun, Mexico.
- Feinberg, R. A., Mataro, L., & Burroughs, W. J. (1992). Clothing and Social Identity. *Clothing and Textiles Research Journal*, 11(1), 18-23.
- Fernie, J. (2014). Relationships in the supply chain. In *Logistics and Retail Management: Emerging Issues and New Challenges in the Retail Supply Chain*. London: Kogan Page Limited.
- Foster, J. (2021). Framing Disability in Fashion. *The Oxford Handbook of the Sociology of Disability*.
- Fraser-Mines, J. (2017). Fast Fashion and Its Consequences.
- Gaggioli, A. (2017). Phygital Spaces: When Atoms Meet Bits. *Cyberpsychology, Behavior, and Social Networking*, 20(12), p. 774.
- Gallinari, E. (2017, August 4th). "Likes" for Self-Love? The Effects of Social Media on Self-Perception. *The Undergraduate Review*, 13, pp. 100-105.
- Gee, E. (2022, August 26). *How FN Meka Exposed the Problem of Digital Blackface for Virtual Artists*. Retrieved September 27, 2022, from

Billboard: <https://www.billboard.com/pro/virtual-rapper-fn-meka-risks-digital-blackface-avatars/>

- Gilbert, N. (2021, February 12). *Number of Gamers Worldwide 2022/2023: Demographics, Statistics, and Predictions*. Retrieved September 10, 2022, from Finances Online: <https://financesonline.com/number-of-gamers-worldwide/>
- Girvan, C. (2018, february 08). What is a virtual world? Definition and classification. *Educational Technology Research and Development* , 66, pp. 1087-1100.
- Glancey, P. (1996). *The Complete History of Computer And Video Games*. Computer and Video Games magazine.
- Gomes, N. P., Cohen, S. A., & Flores, A. M. (2018). Estudos de Tendências: contributo para uma abordagem de análise e gestão da cultura. *Estudos de Tendências e Branding de Moda*, 11(22), 49-81.
- Google. (2020, october). *Augmented Reality*. Retrieved from Google: <https://arvr.google.com/ar/>
- Green, D. N., & Kaiser, S. B. (2018). Fashion and Appropriation. *Fashion, Style & Popular Culture*, 4(2), 145-150.
- Hayes, A. (2022, march 5). *Blockchain Explained*. Retrieved from Investopedia: <https://www.investopedia.com/terms/b/blockchain.asp>
- Hemp, P. (2006, June). *Avatar-Based Marketing*. Retrieved September 14, 2022, from Harvard Business Review: <https://hbr.org/2006/06/avatar-based-marketing>
- Hindle, R. (2022, May 6). *From 'rug pulls' to counterfeits, here are the biggest scams in the NFT space*. Retrieved May 2022, from CBC NEWS: <https://www.cbc.ca/news/business/nft-investing-explainer-1.6435126>
- Hiremath, B. K., & Kenchakkanavar, A. Y. (2016). An alteration of the web 1.0, web 2.0 and web 3.0: a comparative study. *Imperial Journal of Interdisciplinary Research*, 2(4), pp. 705-710.
- Ibáñez-Sánchez, S., Orús, C., & Flavián, C. (2022, January 18th). Augmented reality filters on social media. Analyzing the drivers of playability based on uses and gratifications theory. *Psychology and Marketing*, 29 (3), pp. 559-578.

- Institute of Digital Fashion. (2021). *My Self, My Avatar, My Identity: Diversity and Inclusivity in Virtual Worlds*. Retrieved from Institute of Digital Fashion: <https://docsend.com/view/wem8e7ppe7gr4mrk>
- Isaac, M. (2021, October 28). *Facebook Renames Itself Meta*. Retrieved May 2022, from The New York Times: <https://www.nytimes.com/2021/10/28/technology/facebook-meta-name-change.html#:~:text=The%20social%20network%2C%20under%20fire,digital%20frontier%20called%20the%20metaverse.&text=As%20a%20subscriber%2C%20you%20have,can%20read%20what%20you%20share>.
- Ivan. (2022, May 24). *Gaming Statist*. Retrieved September 10, 2022, from Truelist: <https://truelist.co/blog/gaming-statistics/>
- Johnson, J. (2022, January 25). *Internet usage worldwide - statistics & facts*. Retrieved from Statista: <https://www.statista.com/topics/1145/internet-usage-worldwide/#dossierKeyfigures>
- Jones, V., Jo, J. H., & Martin, P. (2007). Future Schools and How Technology can be used to support Millennial and Generation-Z Students. *1st International Conference of Ubiquitous Information Technology*, (pp. 886-891). Queensland, Australia.
- Kafai, Y. B., Fields, D. A., & Cook, M. S. (2009, December 29). Your Second Selves Player-Designed Avatars. *Games and Culture: A Journal of Interactive Media*, 5 (1), pp. 23-42.
- Kastrenakes, J. (2021, March 11). *Beeple sold an NFT for \$69 million*. Retrieved May 2022, from The Verge: <https://www.theverge.com/2021/3/11/22325054/beeple-christies-nft-sale-cost-everydays-69-million>
- Kawamura, Y. (2005). *Fashion-ology: An Introduction to Fashion Studies*. Oxford: Berg Publishers.
- Kemp, N. (2022, July 22). "Change makes sense when it's not forced" - interviews. Retrieved September 22, 2022, from Bite: <https://www.creativebrief.com/bite/change-makes-sense-when-its-not-forced>
- Klevjer, R. (2006). *What is the Avatar? Fiction and Embodiment in Avatar-Based Singleplayer Computer Games*.

- Kommers, P. (2011, March). *Social Media for learning by Means of ICT*.  
Moscovo: UNESCO Institute for Information Technologies in Education.
- Kostenko, O., & Маньгора, В. (2022). Metaverse: Legal Prospects Of Regulation Application Of Avatars and Artificial Intelligence. *legal scientific electronic journal*, 2, pp. 102-105.
- Król, K. (2020). Evolution of online mapping: from Web 1.0 to Web 6.0. *Geomatics, Landmanagement and Landscape*, 1(33), pp. 33-51.
- Leiner, B. M., Cerf, V. G., Clark, D. D., Kahn, R. E., Kleinrock, L., Lynch, D. C., . . . Wolff, S. S. (2009, october). A Brief History of the Internet. *ACM SIGCOMM Computer Communication Review*, 39 (5), pp. 22-31.
- Levinson, N. S., Cogburn, D., & Vodanovich, S. (2018). Social Media: Culture, Identity & Inclusion Minitrack. *51st Hawaii International Conference on System Sciences*, (p. 2140). Hawaii, USA.
- Lieshout, K. v. (2012). *Fashion, Identity and the Body*. Radboud University Nijmegen.
- Lin, H., & Wang, H. (2014, May). Avatar creation in virtual worlds: Behaviors and motivations. *Computers in Human Behavior*, 34, pp. 213-218.
- Lipovetsky, G. (2009). *O Império do Efêmero*. São Paulo: Companhia de Bolso.
- Louis Vuitton Malletier. *Louis The Game* Retrieved from <https://apps.apple.com/us/app/louis-the-game/id1574401807>
- Maese, V. A., Avery, A. W., Naftalis, B. A., Wink, S. P., & Valdez, Y. D. (2016, september). Cryptocurrency: A primer. *The Banking Law Journal*, 133(8), pp. 468-471.
- Makryniotis, T. (2018). Fashion and Costume Design in Electronic Entertainment –Bridging the Gap between Character and Fashion Design. *Fashion Practice*, 10 (1), 99-118.
- Manning, J. (2014). Social media, definition and classes of. In K. Harvey, *Encyclopedia of social media and politics* (pp. 1158-1162). Thousand Oaks, CA: Sage.
- Markus, H. R., & Nurius, P. (1986). Possible Selves. *American Psychologist*, 41 (9), pp. 954-969.

- Mayfield, A. (2008). *What is Social Media?* (iCrossing) Retrieved from [http://crmexchange.com/uploadedFiles/White\\_Papers/PDF/What\\_is\\_Social\\_Media\\_iCrossing\\_ebook.pdf](http://crmexchange.com/uploadedFiles/White_Papers/PDF/What_is_Social_Media_iCrossing_ebook.pdf)
- McDowell, M. (2019, November 07). *Tommy Hilfiger goes all in on digital design*. Retrieved September 18, 2022, from Vogue Business: <https://www.voguebusiness.com/technology/tommy-hilfiger-pvh-corp-3d-design-digital-clothing-innovation-sustainability>
- McDowell, M. (2021, october 01). *Exclusive: Tommy Hilfiger parent opens 3D platform to outside brands*. Retrieved September 18, 2022, from Vogue Business: <https://www.voguebusiness.com/technology/exclusive-tommy-hilfiger-parent-opens-3d-platform-to-outside-brands>
- Menkes, S. (2004, November 16). *Lagerfeld at H&M;: sizzling in Paris, lukewarm in London*. Retrieved 10 5, 2022, from The New York Times: <https://www.nytimes.com/2004/11/16/style/lagerfeld-at-hmsizzling-in-paris-lukewarm-in-london.html>
- Messinger, P. R. (2008, November). On the Relationship between My Avatar and Myself. *Journal Of Virtual Worlds*, 1 (2), pp. 1-17.
- Morris, R. D. (2011, janeiro). Web 3.0: Implications for Online Learning. *TechTrends*, 55(1), pp. 42-46.
- Moy, C. (2022). *Opportunities in the metaverse How businesses can explore the metaverse and navigate the hype vs. reality*. J.P.Morgan.
- Mystakidis, S. (2022, february 10). Metaverse. *Encyclopedia*, 2(1), pp. 486-497.
- n.d. (2021). *Manifesto*. Retrieved from The Fabricant: <https://www.thefabricant.com/manifesto>
- Naik, U., & Shivalingaiah, D. (2009). Comparative Study of Web 1.0, Web 2.0 and Web 3.0. *6th International CALIBER 2008*, (pp. 499-507). Allahabad.
- Nanda, M. C. (2021, April 26). *The Limits of Virtual Fashion*. Retrieved September 27, 2022, from Business of Fashion: <https://www.businessoffashion.com/articles/technology/the-limits-of-virtual-fashion/>
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1(4), 189-200.

- NonFungible Corporation. (2022, July 26). *NonFungible*. Retrieved September 27, 2022, from Quarterly NFT Market Report: <http://nonfungible.com/reports/2022/en/q2-quarterly-nft-market-report>
- Opfer, S. E. (1999). *The history of the Internet according to itself: A synthesis of online Internet histories available at the turn of the century*. Norfolk, England.
- Orlowski, J. (2020). *The Social Dilemma* [Netflix].
- Patel, K. D. (2013, October). Incremental Journey for World Wide Web: Introduced with Web 1.0 to Recent Web 5.0 – A Survey Paper. *International Journal of Advanced Research in Computer Science and Software Engineering*, 3(10), pp. 410-417.
- Podanov, C. C., & Freitas, E. C. (2013). *Metodologia do Trabalho Científico: Métodos e Técnicas da Pesquisa e do Trabalho Acadêmico*. Rio Grande do Sul, Brasil: Feevale.
- Prinsen, E., & Schofield, D. (2021, October 12th). Video Game Escapism During Quarantine. *Computer and Information Science*, 14 (4), pp. 36-46.
- Raskin, A., Harris, T., & Kaiser, B. *Your Undivided Attention*. Center for Humane Technology.
- Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019, March 20th). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, 49, pp. 43-53.
- Ray, T. (1991). Retrieved from Tierra.doc 17-3-98 documentation for the Tierra Simulator: <https://dendrit.tuke.sk/~newalife/kapitola/1263/Doc.htm>
- Rees, K. (2022, May 15). *Are Your NFTs Safe? The Basics of NFT Security*. Retrieved May 23, 2022, from Make Use Of: <https://www.makeuseof.com/are-your-nfts-safe/>
- Rehman, W., Zainab, H. e., Imran, J., & Bawany, N. Z. (2021). NFTs: Applications and Challenges. *22nd International Arab Conference on Information Technology (ACIT) 2021*. Jinnah University for women.
- Reis, B., Miguel, R., Pereira, M., Azevedo, S., & Jerónimo, N. A. (2018). Genderless clothing issues in fashion. *Textiles, Identity and Innovation: Design the Future* (pp. 255-260). Lisbon: CRC Press.

- Rios, J. S., Ketterer, D. J., & Wohn, D. Y. (2018). How Users Choose A Face Lens on Snapchat. *Companion of the 2018 ACM Conference*, (pp. 321-324). New Jersey, USA.
- Rizzo, A. L. (2020). The democratization in fashion and the insertion and acceptance of various styles as a form of influence on major fashion brands and mass consumption. *South Florida Journal of Development*, 1(3), 114-121.
- Robertson, R. (1990). Mapping the Global Condition: Globalization as the Central Concept. *Theory, Culture & Society*, 7(2-3), 15-30.
- Roma, S., (Producers). (2017). *Abstract* [ Retrieved from Netflix: <https://www.netflix.com/search?q=abstract&jbv=80057883>
- Rosa, A. M. (2013). The evolution and democratization of modern fashion: from Frederick Worth to Karl Lagerfeld's fast fashion. *Comunicação e Sociedade*, 24, 79-94.
- Rosenfeld, L. B., & Plax, T. (1997). Clothing as Communication. *Journal of Communication*, pp. 24-31.
- Sádaba, T., LaFata, V., & Torres, A. (2020). Cultural Appropriation in the digital context: A comparative study between two fashion cases. In F. F.-H. Nah, K. Siau, & (ed.), *HCI in Business, Government and Organizations. HCII 2020. Lecture Notes in Computer Science* (Vol. 12204). Springer.
- Särmäkari, N. (2021). "Digital fashion" on Its Way from Niche to the New Norm. In L. A. (Ed.), *The New Normal": Sartorial and Body Practices of the Quarantine Era* (pp. 117-134). Moscow, Russia: The New Literary Observer.
- Sandhu, M., Posa, C., & Nobbs, K. (2022, March 01). *Screenwear Paper*. Retrieved September 22, 2022, from Virtue: <https://www.virtueworldwide.com/screenwear-report-digital-fashion#downloads>
- Saravanan, D., & Venkatasamy, N. (2015). Fashion trends and their impact on the society. *International conference on textiles, Apparels and Fashion 2015*, (pp. 2-9). India.
- Schultze, U. (2017). Using Photo-Diary Interviews to Study Cyborgian Identity Performance in Virtual Worlds. *Working Conference on Shaping the Future of ICT Research*, (pp. 79-88). Tampa, FL, USA.

- Shields, R. (2003). *The Virtual*. London: Routledge.
- Shu, K., Sliva, A., Wang, S., Tang, J., & Liu, H. (2017, September 1st). Fake News Detection on Social Media: A Data Mining Perspective. *ACM SIGKDD Explorations Newsletter*, 19(1), pp. 22-36.
- Shukla. (2022, January 14). *What is Web 1.0 Web 2.0 Web 3.0 Web 4.0 Web 5.0?* Retrieved from Digital Gyan: <https://digitalgyan.org/what-is-web-1-0-web-2-0-web-3-0-web-4-0-web-5-0/>
- Sivan, Y. (2008, July). 3D3C Real Virtual Worlds Defined: The Immense Potential of Merging 3D, Community, Creation, and Commerce. *Journal of Virtual Worlds Research*, 1(1), pp. 1-32.
- Smitheram, M. (2013). The superfluous and the ephemeral: consumerism, globalisation and future fashion systems.
- Spencer, J. (2008, November). Demographics of Virtual Worlds. *Journal of Virtual Worlds Research*, 1(2), pp. 1-45.
- Statista. (n.d.). *Internet*. Retrieved from Statista: <https://www.statista.com/markets/424/internet/>
- Strauss, P. (2008, December 17). *Mini Augmented Reality Ads Hit Newstands*. Retrieved from technabob: <https://technabob.com/blog/2008/12/17/mini-augmented-reality-ads-hit-newstands/>
- Suk, H. (2021). The characteristics of democratization of fashion and fashionocracy in the global fashion industry. *The Research Journal of the Costume Culture*, 488-504.
- Tarde, G. (1903). *The Laws of Imitation*. New York: Henry Holt and Company.
- TEDx Talks. (2020, March 05). *Fashion does not need to be physical to exist | Amber Jea Slooten | TEDxHvAmsterdam*. Retrieved September 11, 2022, from Youtube: <https://www.youtube.com/watch?v=eztX4WylDT8&list=WL&index=43>
- Teunissen, J., & Bertola, P. (2018). Fashion 4.0. Innovating Fashion Industry Through Digital Transformation. *Journal of Textile and Apparel*, 22 (4), 352-369.
- Todorović, T., Pavko Čuden, A., Košak, K., & Toporišič, T. (2017, October). Language of Dressing as Communication System and its Functions –

- Roman Jakobson's Linguistic Method. *Fibres and Textiles in Eastern Europe*, 25(5), pp. 125-133.
- Uzuegbunam, C. E., & Uzochukwu, C. E. (2016). The New (Social) Media: A contemporary introduction. In C. Uzochukwu, T. Oguegbe, & U. Ekwugha, *Perpectives in the Social Sciences*. Nigeria.
- Vejlgaard, H. (2008). *Anatomy of a Trend*. New York: McGraw-Hill.
- VentureBeat. (2011, January 12). *Steve Russell talks about his early video game Spacewar!* Youtube: <https://www.youtube.com/watch?v=PnJvZHegg8I&t=55s>
- Verdegem, P. (2011, January). Social Media for Digital and Social Inclusion: Challenges for Information Society 2.0 Research & Policies. *Triple C*, 9(1), pp. 28-38.
- Vojíř, S., & Kučera, J. (2021, december). Towards Re-Decentralized Future of the Web: Privacy, Security and Technology Development. *Acta Informatica Pragensia*, 10(3), pp. 349-369.
- Walker, M., & Matsa, K. E. (2021, September 20). *News Consumption Across Social Media in 2021*. Retrieved July 16, 2022, from Pew Research Center: <https://www.pewresearch.org/journalism/2021/09/20/news-consumption-across-social-media-in-2021/>
- Watson, L. (2018). Dolce and Gabbana and Louis Vuitton: A study on the effect of gender stereotyping in the 21st century fashion campaigns. In A. C. Broega, J. Cunha, H. Carvalho, M. Blanco, G. García-Badell, & D. L. Gómez-Chacón (Ed.), *Reverse Design A current scientific vision from the international fashion and design congress* (pp. 153-159). Madrid, Spain: Taylor & Francis Group.
- Westerman, D., Spence, P. R., & Heide, B. V. (2013, November 2008). Social Media as Information Source: Recency of Updates and Credibility of Information\*. *Journal of Computed-Mediated Communication*, 19, pp. 171-183.
- Whitley, E. A., Gal, U., & Kjaergaard, A. (2014). Who do you think you are? A review of the complex interplay between information systems, identification and identity. *European Journal of Information System*, 23, 17-35.

Zanatta, M. S. (2011, dezembro). On the Webs of Identity: Contributions to the Discussion of the Concept of Identity in Sociological Theory. *Perspetiva*, 35(132), 41-54.



# Annex

## Annex 1: Consumer Survey

03/10/22, 16:47

MODA DIGITAL

### MODA DIGITAL

Este questionário foi elaborado no âmbito da dissertação do mestrado de Branding e Design de Moda, constituente ao IADE e UBI, com o nome "The Importance on Self-Expression Through Clothing and Fashion: A View on Digital Identity and Digital Fashion". Esta investigação faz parte da metodologia escolhida para a execução deste trabalho, que tem como objetivo perceber a importância da Moda na auto-expressão, focando-se na Identidade Digital. Este estudo está aberto a todas idades, nacionalidades, géneros e posição social.

Para a realização deste formulário serão necessários conhecimentos básicos referentes a temas como Metaverso, Moda Digital, NFTs, *Gaming*, Moedas Digitais.

O questionário tem uma duração de cerca de 5 minutos, é anónimo e os seus resultados serão apenas utilizados para a realização da dissertação e futuros trabalhos académicos que possam partir da mesma temática.

Para qualquer dúvida ou interesse nos resultados contacte:  
carolinadcnunes99@gmail.com

— / --

This survey was developed within the thesis of the Masters on Fashion Branding and Design, a part of IADE and UBI, entitled "The Importance on Self-Expression Through Clothing and Fashion: A view on Digital Identity and Digital Fashion". This investigation is part of the chosen methodology for the execution of this paper, that has the goal to understand the importance of Fashion in self-expression, focusing on Digital Identity. This study is open to all ages, nationalities, genders and social statuses.

To answer this survey basic knowledge on Metaverse, Digital Fashion, NFTs, Gaming and Cryptocurrency will be necessary.

This survey has the average duration of 5 minutes, it is anonymous and its results will only be used for the purpose of this thesis, as well as, the future academic papers relating to this theme.

For any questions or interest in the results please contact :  
carolinadcnunes99@gmail.com

---

\* Required

#### Informação Pessoal / Personal Information

1. Idade / Age \*

*Mark only one oval.*

- < 12
- 12 - 25
- 26 - 40
- 41 - 57
- 58 >

## 2. Género / Gender \*

Mark only one oval.

- Feminino / Feminine
- Masculino / Masculine
- Não-binário / Non-binary
- Outro / Other

## 3. Distrito de residência / Residence district \*

Mark only one oval.

- Aveiro
- Beja
- Braga
- Bragança
- Castelo Branco
- Coimbra
- Évora
- Faro
- Guarda
- Leiria
- Lisboa
- Portalegre
- Porto
- Região Autónoma dos Açores
- Região Autónoma da Madeira
- Santarém
- Setúbal
- Viana do Castelo
- Vila Real
- Viseu
- Outside Portugal

## 4. Grau de escolaridade / Education Degree \*

Mark only one oval.

- Nenhum / None
- Ensino Primário / Primary Degree
- Ensino Secundário / Secondary Degree
- Licenciatura / Bachelor
- Mestrado / Master
- Doutoramento / Doctoral

## 5. Rendimento Mensal / Monthly Income \*

Mark only one oval.

- < 500 €
- 500 € - 1000 €
- 1001 € - 1500 €
- 1501 € - 2000 €
- 2000 €
- Não se aplica / Doesn't apply

IDENTIDADE  
/ IDENTITY

Ser-lhe-á pedido para classificar as afirmações numa escala de 1 a 5, sendo que 1 representa o discordância total, e 5, concordância total.

-- / --

## 6. Acredito na liberdade de expressão / I believe in freedom of expression \*

Mark only one oval.

- |   | 1                     | 2                     | 3                     | 4                     | 5                     |                                      |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------------------|
| Discordo Totalmente / Strongly Disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Concordo Totalmente / Strongly Agree |

## 7. Tenho uma mente aberta / I have an open mind \*

Mark only one oval.

- |   | 1                     | 2                     | 3                     | 4                     | 5                     |                                      |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------------------|
| Discordo Totalmente / Strongly Disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Concordo Totalmente / Strongly Agree |

8. Vejo a Moda como uma forma de expressão / I see Fashion as a medium for expression \*

Mark only one oval.

	1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

9. Gostava de ter experiências diferentes com a Moda / I would like to have different experience with Fashion \*

Mark only one oval.

	1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

10. Sinto que a Moda já não é capaz de inovar / I feel as if Fashion isn't capable of innovation anymore. \*

Mark only one oval.

	1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

11. Sinto que tenho um estilo muito próprio / I feel like I have a very personal sense of style \*

Mark only one oval.

	1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

12. O que visto depende como me sinto no momento / What I wear relates to what I feel at the moment \*

Mark only one oval.

	1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

13. Sinto que as pessoas se vestem de forma a transmitir um certo estereótipo / I feel as if people dress themselves to convey a certain stereotype \*

Mark only one oval.

1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

14. Sinto uma constante pressão em ser um tipo de pessoa / I feel a constant pressure in being a certain type of person \*

Mark only one oval.

1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

**SOCIAL  
MEDIA**

Ser-lhe-á pedido para classificar as afirmações numa escala de 1 a 5, sendo que 1 representa o discordância total, e 5, concordância total.

-- / --

You will be asked to classify the following affirmation from 1 to 5, being that 1 represents you strongly disagree and 5 that you strongly agree.

15. Considero que sou a mesma pessoa online e offline / I consider I am the same person both online and offline \*

Mark only one oval.

1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

16. Considero que os outros são eles mesmos online e offline / I consider others are themselves online and offline \*

Mark only one oval.

1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

17. Considero que tenho mais liberdade para me expressar online / I consider like I \*  
have more freedom of expression online

Mark only one oval.

	1	2	3	4	5	
Discordo Totalmente / Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Concordo Totalmente / Strongly Agree

**METAVERSO**  
/  
**METaverse**

Entenda-se por Metaverso: "Um universo pós-realidade, com um ambiente de multi-utilizadores perpétuo e persistente, que junta realidade física a virtualidade digital" (Mystakidis, 2022)

-- / --

Metaverse is understood as: "The post-reality universe, a perpetual and persistent multiuser environment merging physical reality with digital virtuality" (Mystakidis, 2022)

18. Quando ouço a palavra Metaverso sinto-me ... / When I hear the word Metaverse I feel ... \*

Check all that apply.

- Confuso / Confused  
 Curioso / Curious  
 Intrigado / Intrigued  
 Excitado / Excited  
 Cético / Skeptical  
 Desinteressado / Disinterested  
 Inspirado / Inspired  
 Preocupado / Worried  
 Other: \_\_\_\_\_

19. Já teve contacto com o Metaverso? / Have you had interaction with the Metaverse? \*

Mark only one oval.

- Sim / Yes  
 Não / No

20. Se sim, de que forma tem ou já teve contacto com o Metaverso? / Cc \*

Check all that apply.

- Realidade Virtual / Virtual Reality  
 Realidade Aumentada / Augmented Reality  
 Criptomoeda / Cryptocurrency  
 Imersão de jogo (avatars) / Game Immersion  
 Não se aplica / Doesn't apply  
 Other: \_\_\_\_\_

21. Já alguma vez comprou algum produto digital (skins de jogos, roupas virtuais, cryptomoedas, NFTs) ? / Have you ever buy a digital asset (gaming skins, virtual clothing, cryptocurrencies, NFTs)? \*

Mark only one oval.

- Sim / Yes  
 Não / No  
 Não sei / I don't know

22. Se respondeu "não" na anterior, diria que nunca poderá vir a comprar? If you answered no to the last question, would you say you might in the future? \*

Mark only one oval.

- Sim / Yes  
 Não / No  
 Não sei / I don't know  
 Não se aplica / Doesn't apply

23. Sente que o Metaverso pode alterar a forma como as pessoas se expressam online? / Do you feel as if the Metaverse could alter the way people express themselves online? \*

Mark only one oval.

- Sim / Yes  
 Não / No  
 Talvez / Maybe

24. Se respondeu que sim, sente que será de forma positiva ou negativa? \*

Mark only one oval.

- Positiva  
 Negativa  
 Não se aplica / Doesn't apply

MODA  
DIGITAL /  
DIGITAL  
FASHION

Entenda-se por Moda Digital: "prática que produz roupa virtual a três dimensões como protótipos ou simulações de amostras para possíveis itens físicos, e/ou para representações de itens apenas virtuais" Särämäkari (2021).

Para efeitos deste estudo, foque-se mais na segunda parte da definição, Moda Digital como produto final para utilizar apenas em ambientes virtuais

- / -

Digital Fashion is understood as: "practice that produces three-dimensional virtual clothing as prototypes or sample simulations for possible physical garments, and/or for datafied virtual, digital-only garment representations." Särämäkari (2021)

For purposes of this study, focus on the second part of the definition, Digital Fashion as a final product for virtual environment's purpose only.

25. Sabe o que é a Moda Digital? / Do you know what Digital Fashion is? \*

Mark only one oval.

- Sim / Yes  
 Não / No

26. Se sim, como descobriu? / If so, how did you come across it? \*

Check all that apply.

- Redes Sociais / Social Media  
 Videojogos / Videogames  
 Amigos ou familiares / Friends or family  
 Notícias / News  
 Websites  
 Não aplica / Doesn't apply  
 Other: \_\_\_\_\_

27. Já comprou um produto de Moda Digital ou sabe de alguém que já tenha comprado? / Have you bought a Digital Fashion product or know a person who has? \*

Mark only one oval.

- Sim / Yes  
 Não / No

28. Acredita que a Moda Digital poderá vir a ser uma grande parte do futuro da Moda? / Do you believe Digital Fashion could be a big part of Fashion's future? \*

Mark only one oval.

- Sim / Yes  
 Não / No  
 Talvez / Maybe

---

This content is neither created nor endorsed by Google.

Google Forms