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## **VIRTUAL REALITY - REAL BENEFITS**

**Art research paper**

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## Abstract

Fashion design, as an interdisciplinary field of industrial design, is associated with the use of varied means of expression. Throughout the centuries, it has always been a mirror of its times using the then-available tools to describe them. Contemporary advances in digital technology encompass a whole range of new possibilities available to designers and accompany them throughout the design process, from the recording of the concept to the design of the clothing display space. This is particularly evident nowadays when the pandemic has accelerated certain processes, in fields such as *Virtual Reality* (VR) and *Augmented Reality* (AR) or *Artificial Intelligence* (AI). There is another “other reality” that we need to prepare for - the post-COVID reality, which the types of technology mentioned earlier will “co-create” together with, in a certain sense, us. The scale and scope of the pandemic have set in motion a mechanism of transformation almost simultaneously around the world and in all areas, which is why politicians, scientists and artists are asking questions: “What will this new world be like?”, “What values will survive?”, “What phenomena will disappear and what will rise in their place?”. As we plan for the near future, along with our expectations and hopes for new solutions to old problems, we also become aware of the threats posed by the digital world in particular.

In this article, I will present selected opinions of representatives from various fields, not only fashion design, on the consequences of the ongoing transformations having influence on the future of applied arts. An important aspect will be the significance of creativity in the design process and the protection of any values that may be at risk in the face of the digital revolution. Especially as teachers of design art, in addition to equipping young designers with the necessary up-to-date technical knowledge, we must remember to shape their artistic attitudes in relation to the changes taking place.

## Keywords

trends, new technologies in design, creativity, virtual reality, augmented reality, artificial intelligence, clothing design, artistic creativity

## The new megatrend<sup>1</sup> - Fifth technological revolution

In the academic handbook prepared at the Faculty of Interior Design of the Jan Matejko Academy of Fine Arts in Kraków entitled *Projektowanie Ubioru*, prepared thanks to funding obtained from the National Centre for Research and Development (NCBiR) (the “Designing the Future” project), in one of its chapters entitled *Analiza i prognozowanie trendów w modzie*, the author Marlena Woolford provides different interpretations of the term trend: direction, style, aesthetics, popularity in the media, and novelty, evolution and change<sup>2</sup>. In order to analyse the phenomenon of trend, let us focus on one of the concepts - the notion of change as a paradoxically constant driver of the development of the society, of paramount importance at the present time. For Henrik Veilgaard *The Anatomy of a Trend* argues in his book that: “Whatever the term means to specialists and professionals in different fields, part of its definition always remains the concept of change”<sup>3</sup>. For any change to occur, several factors are required, in succession. These are: observation, analysis, and reaction as an effect. The first impulse is always curiosity or questioning the status quo, which results in a search for non-obvious solutions. This was one of the key aspects covered at the Master & Robots conference, organised by Digital University<sup>4</sup> in September 2020. This time, although only online, the organisers have managed to invite prominent representatives of the humanities and sciences to participate. Names such as Yuval Noah Harari, Scilla Elworthy, David Gram, Daniel Hulme have appeared. An unusual participant, co-presenting with David Hanson, was also The Sofia-Robot<sup>5</sup>, a representative of artificial intelligence.

Predictions and forecasts about our foreseeable or distant future made by participants covered a wide range of areas, but concepts such as changes in thinking, the importance of data, openness to non-obvious solutions, and creativity were mentioned most frequently. This direction of research, focusing on non-obvious thinking, communication in search of innovative solutions was examined by Rohit Bhargava (professor at the University of Illinois at Urbana-Champaign), founder of Non-Obvious Company<sup>6</sup>. He enumerates the following factors concerning the prognosis of upcoming trends: assigning more value to the human aspect when it comes to technology, the need to protect our personality, and abandoning mastery in favour of rapid learning and information acquisition. He

- 1 Megatrend - a social, political or technological change affecting all areas of life for a period of time (after: <https://sjp.pwn.pl/slowniki/megatrend.html> [accessed: 10/01/2021]).
- 2 M. Woolford et al., *Projektowanie ubioru. Analiza i prognozowanie trendów w modzie*, Kraków 2021, [https://bg.asp.krakow.pl/bg/images/bib/e-zasoby/podreczniki\\_k\\_projektowania\\_ubioru](https://bg.asp.krakow.pl/bg/images/bib/e-zasoby/podreczniki_k_projektowania_ubioru) [accessed: 10/01/2021].
- 3 H. Veilgaard, *Anatomia trendu*, Wolters Kluwer Sp. z o.o., Warszawa 2012, p. 42
- 4 Digital University is a leading educational organisation in Poland, offering market leaders world-class educational experience and in-depth knowledge in digital transformation and digital mindset building (after: <https://digitaluniversity.pl/about-us/> [accessed: 02/01/2021]).
- 5 Sophia - a humanoid robot manufactured by Hong Kong-based Hanson Robotics. She is endowed with artificial intelligence to learn, adapt to human behaviour and work with people. She has given many interviews around the world. In October 2017, she became a citizen of Saudi Arabia, becoming the first robot to receive citizenship of any country (after: [https://pl.wikipedia.org/wiki/Sophia\\_\(robot\)](https://pl.wikipedia.org/wiki/Sophia_(robot))).
- 6 <https://www.nonovious.com/trends-standard> [accessed: 15/01/2021].

presents observations and analyses on his website, dividing them into categories such as culture and consumer behaviour, economics and entrepreneurship, economics and social media, marketing and social media, media and education, technology and design. We note that each category listed is linked to the previous one. But always, as he emphasised in his speech at the conference, the basis for a proper reading of upcoming trends is a proper understanding of other people's attitudes, i.e. acquiring data of potential customers.

David Gram is another conference attendee, an innovative thought leader and co-founder of Diplomatic Rebels<sup>7</sup> and former Head of Ventures, EMEA at LEGO Ventures. Although the basic element, the brick, was created in 1958 and has been a symbol of creative play for many generations, LEGO designers are still looking for new solutions to suit the modern audience. They rise the following questions: "How can physical tangible creativity compete with the digital world?". In his presentation, David Gram emphasises that new conditions, tools, and needs are always associated with a different way of thinking. It is difficult not to mention at this point the historian, philosopher Yuval Noah Harari. In his bestselling book entitled *Homo Deus. A Short History of Tomorrow*, when referring to the future, writes that: "If we think in terms of decades, then global warming, growing inequality and the disruption of the job market loom large. Yet if we take the really grand view of life, all other problems and developments are overshadowed by three interlinked processes:

1. Science is converging on an all-encompassing dogma, which says that organisms are algorithms, and life is data processing.
2. Intelligence is decoupling from consciousness.
3. Non-conscious but highly intelligent algorithms may soon know us better than we know ourselves."<sup>8</sup>

Yuval Noah Harari, as a participant of the Master & Robots conference, draws attention to the loss of values on which our civilisation is built and the devaluation of authorities. He also touches on topics such as increasing confidence in science, the need to develop a community between countries, moving away from politics in a local sense and, of course, the climate crisis as a major threat to the system. When asked about the importance of the technology, he replied that he assumed that artificial intelligence would change the economic and political system, disrupting the equilibrium, deepening the differences between countries. He compared advances in digital technology to the industrial revolution of the 19th century, which contributed to the disappearance of many professions, but also to the emergence of new professions. It draws attention to the ethical dimension of technology and the need to ask the question: "What is of greatest value to us?". In his view, the essence of business is not

7 <http://www.diplomaticrebels.com/#story> (accessed: 20/01/2021).

8 Y.N. Harari, *Homo Deus. Krótka historia jutra*. Wydawnictwo Literackie, Kraków 2018, p. 504.

business itself, but the shaping of reality, and our problems will not be solved by any technological gadgets, and the antidote will be an ethical social system.

Peter H. Diamandis<sup>9</sup>, founder and chairman of the XPRIZE Foundation<sup>10</sup> and Singularity University (a higher education institution in Silicon Valley), gives a very comprehensive account of his predictions for the coming changes in technology and science over the next decade. He outlines 20 metatrends in technology and science for the next decade, claiming that “thanks to developments in artificial intelligence and science, human health will be extended by as much as 10 years, there will be the possibility of a complete cure for many diseases, including congenital defects and genetic disorders, or people recovering from spinal cord injuries. Ubiquitous and low-cost communications and gigabit connectivity will enable widespread space flight, and autonomous vehicles and flying cars will redefine our travel. In the years ahead, global prosperity will improve and the proportion of people living in extreme poverty will decrease. There will be a greater emphasis on sustainability and the environment, and, therefore, on renewable energies. Stem cell agriculture will be strongly developed. Collaboration between artificial intelligence and humans in the workspace will increase exponentially, with the creation of a platform using artificial intelligence technology as a service: AIaaS - *AI as a Service*. Devices will become smart and the combination of AR and 5G networks will change the way we live, affecting all industries. 100 billion sensors (the Internet of Everything) will monitor every aspect of our environment. As the functionality of Alexa, Google Home and Apple Homepod, among others, expands, these services will eventually move beyond the home and become a kind of 24/7 cognitive prosthesis.”<sup>11</sup>. The thoroughness and comprehensiveness of the study by Peter Diamandis, the portrayal of the interdependencies between the various areas and the attention paid to the importance and impact of technology on the purely human aspect give us a very real picture of a not-so-distant reality.

This is where another term comes into play, which is used in all cases by technologists, IT specialists and designers alike, namely creativity. This extremely valuable human ability, which is involved in all creative processes, regardless of their nature, takes on particular significance today. The confrontation of the physical world with the digital world raises questions for observers about the dangers of surrendering many aspects of our lives to the realm of digital functioning. The benefits of speed in processing data in the context of its proper use are among the more frequently discussed topics at the aforementioned conference.

9 P.H. Diamandis, recently named one of the “World’s 50 Greatest Leaders” by Fortune, is the founder and chairman of the XPRIZE Foundation, which is a global leader in designing and running large-scale incentive competitions. He is also the executive founder of Singularity University, a Silicon Valley university that advises world leaders on exponentially growing technologies (after: <https://diamandis.com/about> [accessed: 10/01/2021]).

10 XPRIZE Foundation - a world leader in designing and running large-scale incentive competitions.

11 *20 metatrends in technology and science for the next decade by Peter Diamandis*, [https:// digitaluniversity.co.uk/](https://digitaluniversity.co.uk/) 20 metatrends in technology and science for the next decade by Peter Diamandis - Digital University [accessed: 15/01/2021].

Another conference participant, Daniel Hulme, a leading expert on artificial intelligence and its applications and social, commercial, economic and ethical implications, says that whoever learns to use it well will rule the world. Referring to threats, he said he saw danger in the possibility of AI recognising us as a threat. At the same time, he points out that although AI performs computational operations faster than we do, it is not the one making the decisions (for now). Hulme gives two definitions of AI. The first one goes as follows: “when computers do things for us (e.g. calculating)”, and the second one is: “these are the systems that adapt to reality”. Daniel Hulme strongly emphasises the importance of creativity as a factor that continues to give us an edge over technology. It is creativity, he stresses, that drives innovation. Hulme cites Steve Jobs’ definition of innovation as “creativity that produces results”. His thoughts on creativity raise issues such as digital creativity versus human creativity, where he defines the former as the best, effective use of data and the latter as the ability to combine data in innovative ways. There is also the aspect of consciousness, the reception of emotions and widely understood ethical dilemmas. Certainly, all the examples of forecasts cited, their consistency and high probability and scope give grounds for describing the coming changes in the field of technology as a megatrend. “Metatrends last longer and affect many different aspects of human community life: we are dealing with a complex process often embedded in political, economic and technological contexts. Metatrends often have lasting effects on communities and are difficult to predict”<sup>12</sup>.

## Uneven competition

A subject that is becoming present in many areas of our lives is artificial intelligence and the emerging dilemmas regarding the positive sides of its use as well as the potential risks. An example is the aforementioned robot named The Sophia. As the first AI presenter to co-host programmes, she forces us to ask questions: “Won’t the ever-better animation of her face lull us to sleep and lose the advantage we have precisely because of our ability to think creatively?” Will a machine that achieves a level of human feeling, equipped with unlimited data processing capabilities, as an artificial but still intelligence, change our world for the better? We can create systems that complete tasks faster than humans, we can construct brains with greater potential than those of all of us, but we must bear in mind the need to transform the structures of our organisations, and most importantly: we must not forget the philosophical issues and ethical dilemmas.

A doubt arises: if we can program its gestures, facial expressions (facial architecture), is it possible to create a superintelligence that makes ethical choices? The Sophia is on the make in many fields. It engages with current social issues and its media presence is used, in addition to the AI research promotion, at many prestigious conferences. She has spoken to members of the UN, ITU and NATO. She was also awarded the honour of Champion of Innovation for the United Nations Development

Programme (UNDP) to promote sustainable development using technology and innovation in developing countries. She was recently named as the new ambassador and tutor for iTutorGroup, the brand new online learning platform and the largest English language teaching institution in the world. In 2018, The Sophia was awarded the Gold Edison Award™ in robotics. Another media achievement was her presence on the cover of Cosmopolitan magazine. This robot with a magnetic gaze offers styling for the modern woman. It is so convincing that we are not even glaring at the clearly artificial limbs. Her natural features, facial expressions put us to sleep. We believe in what she presents, looking us straight in the eye. We can identify with it.

Will our canon of beauty now be a black Shudu Gram, the world's first digital model who is the product of James Cameron Winson, or Lil Miquel, a virtual influencer and singer (2.4 million followers)? Lil Miquela was included in Time magazine's 2018 list of the 25 most influential people online. She appeared in a Samsung Galaxy campaign, covered the 2018 Prada fashion show and interviewed artists for YouTube at the 2019 Coachella festival<sup>13</sup>.

Virtual influencers, especially post-pandemic, can be particularly attractive to the fashion industry for a number of reasons. Firstly, because of their complete control over the image, virtual influencers are less risky for brands from a socio-psychological point of view. Secondly, by 2030, Generation Z will be the main consumers of goods. And as the results of a survey conducted by HypeAuditor indicate, it is among Generation Z that virtual influencers are most popular. So brands, in order to satisfy the new consumer, will be obliged to test new, purely technological solutions. Marissa Rosenblum, vice president of New York department store Barneys, emphasised in an interview with CNN that the company did not choose to work with Lil Miquela just because he is CGI [*Computer Generated Imagery* - author's note], but to reach out to Generation Z. Thirdly, CGI creators themselves, such as James Cameron Wilson, are encouraging brands to dare to experiment because the current level of technological advancement makes it possible. This allows designers or developers to work on improving the tools. And fourthly, virtual influencers and thus virtual clothes, in the long run, can contribute to real environmental impact by digitising them and consequently: reducing production<sup>14</sup>.

## Data - new value, new currency

Unlimited access to information on the latest trends through IT channels is the norm today. The fashion industry is undergoing a revolution on many fronts. Every social movement, every global event trigger immediate change in this sector. This area, which has always been nourished by creativity, registers every little current in innovative thinking, especially those that enable us to gather information about our potential audience more quickly, more precisely. The needs and expectations of this potential audience become a set of data. The observation of changes taking place, their analysis and processing have so far been carried out thanks to the collective work of the intellectual elite, philosophers,

13 Coachella Valley Music and Arts Festival - an annual music and arts festival held at the Empire Polo Club, Indio, California, located in the Coachella Valley in the Colorado Desert (after: [https://pl.wikipedia.org/wiki/Coachella\\_Valley\\_Music\\_and\\_Arts\\_Festival](https://pl.wikipedia.org/wiki/Coachella_Valley_Music_and_Arts_Festival) [accessed: 12/01/2021]).

14 N. Tokarz. *Nowa generacja influencerów. Kim są i czy czeka nas rewolucja w wirtualnych mediach?* <https://www.fashionbuisnes.pl/nowa-generacja-influencerow-kim-sa-i-czy-czeka-nas-rewolucja-w-wirtualnych-mediach/> [accessed: 15/02/2021].



sociologists, artists and scientists of many branches. It is now possible for this collection of processed data to propose, predict (perhaps not yet decide) and fundamentally influence upcoming trends. Steve Brown, in his TED Talk platform talk on trends and artificial intelligence, wondered whether if the future of fashion design is dedicated to data, does this mean the death of true creativity. According to him, quite the opposite, as more efficient, faster production cycles will allow designers to focus on what is most important to them, namely creation.

Online art, or its creation, and how to sell and use virtual exhibition spaces - these are just some of the topics discussed by Bernadine Bröcker Wieder, CEO and founder of the Vastari Group, an online marketplace safely connecting private art collectors, exhibition producers, venues and museums for exhibition rental and tours. Bernadine Bröcker Wieder sees a threat in the blurring of the boundary between the virtual and the real. Observing the emergence of new forms of communication resulting from the need to translate real meanings into digital language, he compares this phenomenon to the emergence of new languages that we will have to learn. What is still ahead of us is the need for legislation, including on copyright. Activity on the borderline between technology and art generates the need to look for new business models, enabling easy communication between the creator and the recipient.

The possibility of enjoying virtual contact with art is appreciated now more than ever. The mobility constraints associated with the pandemic have turned our attention to the possibility of a wider, more intuitive use of virtual tools. Virtual visits to museums and the organisation of exhibitions are already standard fare, but are now taking on a greater dimension. A virtual tour of the Louvre, the British Museum, the Metropolitan Museum of Art, the National Gallery of Art in Washington, the Uffizi Gallery in Florence or the Salvador Dali Museum will never replace face-to-face contact with works of art, but we increasingly appreciate the on-line form. The virtual world of art is not only about museums, exhibitions and displays. There we can only admire the effects of the artists' work, and this is just the tip of the iceberg. Technological tools accompany creators from the very beginning of the design process to the final stage of reaching the customer.

One of the leading portals dealing with widely understood "fashion" (it is a pity that there is no synonym for the word *Fashion* in the Polish language), Fashion Biznes.pl, has recently published *Witajcie w modzie przyszłości. Jak technologie zmieniają branżę?* report on the latest trends in the fashion sector and reviewed technological trends in fashion - from the virtual dressing room, to doing shopping by voice, to AI algorithms predicting trends and designing clothes. The report was compiled by experts in the field: Katarzyna Gola, Łukasz Rzepecki, Jakub Jasiński and Rafał Reif. Highlighting the importance of technology in fashion, an industry estimated to be worth \$2.4 trillion and employing 75 million people worldwide, the authors point to the tangible benefits of using AR, "which are based on the assumptions of the so-called 3 CS of Camera Market: 1. *Conversation*,



2. *Commerce*, 3. *Customers*. AR in fashion therefore helps optimise operations, reduce fixed costs, speed up processes”<sup>15</sup>.

The report includes examples of companies that are testing virtual forms of interactive activity, these include Charlotte Tilbury, Tommy Hilfiger, Farfetch and American Eagle. Sustainable fashion and environmental protection are terms that already come up obligatorily when the topic of new technologies is raised. It is no longer just about recycling, although the authors report that “at the BFE Summit, Robert van de Kerkhof, CEO of Lenzing, indicated that, by 2024, the vast majority of brands will need to be able to produce things from recycled materials”, but about the use of virtual tools from the beginning of the design process to virtual showrooms. The cited example of a virtual showroom established in 2017 - Brandlab as a fully digitised shopping platform - is proof that new solutions for merchants and department stores are proving themselves in the age of the pandemic.

When discussing the process of trend formation, it is important to highlight the specific role of AI in this field. The question arises: if AI, based on the data entered, makes a forecast, predicts our expectations, does it program our future in some way? This in turn becomes a data set, constituting the basis for subsequent analyses. I find it quite disturbing to replace creative thinking, a conscious choice made by humans, with cold digital analysis at the very beginning of the design process chain. Progress, though accelerated, proceeds chronologically, i.e. one event causes another. Will not the initiation of a certain cause-and-effect process right now take us in a completely unpredictable direction? Will we be following a self-fulfilling prophecy scenario? Unfortunately, increasingly, as Marlena Jankowska noted, “the fashion sector (Textiles, Clothes, Leather and Footwear; TCLF) operates amidst so many technical, legal, organisational and consumer conditions that it has little in common with the vision of a small atelier where a sophisticated creative process takes place”<sup>16</sup>. And it is no longer just about supporting the artist’s intuition with the analyses carried out by AI, but about making the whole design process dependent on a database, which gives them a special value, creating, in my opinion, a kind of new currency.

### Progress is an innovative use of creativity

What does “progress” mean? Faster, simpler, more accessible - that is effective data use in order to meet customer needs. Data, as the most powerful driver of progress, will power the digital world to forecast the future for us. Does this mean that it is the collection of processed information that will generate our most likely expectations and at the same time help us to satisfy them? This blending of

15 K. Gola, J. Jasiński, R. Reif, Ł. Rzepecki, *Witajcie w modzie przyszłości. Jak technologie zmieniają branżę?*, <https://www.Fashionbuisnes.pl> [accessed: 20/01/2021].

16 M. Jankowska et al., *Moda i design w świecie COVID-19*, Instytut Prawa Gospodarczego Sp. z o.o., 2020, <https://forbes.pl/raport-forbes> [accessed: 12/01/2021].

two worlds can also be seen when comparing e-commerce and traditional trade. Will the pandemic change our consumer behaviour forever and will on-line shopping become more popular than before? The analyses and reports carried out show very clearly the multifaceted processes occurring in the fashion market as a result of the pandemic. They concern both changes in consumer attitudes and the reaction of clothing companies to the situation. According to a report published in Forbes, it is the clothing and luxury goods market that will be most affected by the pandemic. "This is the conclusion of a study by the Boston Consulting Group, which looks at how consumer behaviour is changing as a result of the epidemiological crisis. Apparel and luxury goods market due to COVID-19 pandemic could shrink by \$ 370 billion"<sup>17</sup>. Also on Forbes, we can find *Raport o stanie biznesu w czasie kryzysu epidemiologicznego* report, where one can read that: "Retail and service chains after the 'pogrom' of malls. The closure of shopping centres has meant that revenues of major clothing companies have fallen by three quarters and sales at retail chains will not return to former levels this year. So business is moving on-line, some sales will stay there for good."

Are we to resign ourselves to the idea that interactive stationary shops will be the future of commerce? Jakub Jasiński from CCC company claims that: "There is no product display on the sales floor, but there are tablets. The offer is not just a few, but tens of thousands of products located in large warehouses 'behind' a shop, which are also mini logistics centres for a given region. Modivo is also an interactive dressing room. And we see that customers react very positively to this type of novelty"<sup>18</sup>. Accustomed to using technological advances on a daily basis, we increasingly overlook the contribution of our creative potential to the entire design process. Is it not the tool that sets the limits of our possibilities? What is our position as an initiator and creator? In which fields can we assist with technology and which fields must we guard against technological interference? Can we already talk about use, application or, rather, cooperation? If we engage artificial intelligence to identify trends, algorithms to determine the likelihood of our colour or fabric preferences based on data, where is the dangerous line beyond which sensitivity to beauty will be determined by an algorithm? Forecasts show that around 40% of occupations will disappear in 10 years' time. As designers, can we fear that we will also find ourselves in this group? Do we need to decide which alternative is closer to us: Creativity-Innovation-Access or Creativity-Awareness-Development?

## Programmed for the future

Generations Y and Z are another young people to enter life, just like their parents and grandparents wanting to take advantage of their time and make their mark. Recently, the concept of COVID-19

17 F. Kowalik, *A Raport o stanie biznesu w czasie kryzysu epidemiologicznego: Sieci handlowe po pogromie w centrach handlowych*, <https://forbes.pl/raport-forbes> [accessed: 12/01/2021].

18 N. Tokarz, *RAPORT: Witajcie w modzie przyszłości. Jak technologie zmieniają branżę?* <https://forbes.pl/biznes/sieci-handlowe-i-uslugowe--skuti-i-koszty-epidemii/qevlik> [accessed: 15/01/2021].

generation has emerged. For them, functioning in new conditions becomes imperceptibly normal. Should the ease with which they cross the boundaries set by the outline of screens, entering the virtual world, feeling safe there, make us worry? Will the real world eventually lose out to the digital world? Will we be able to protect the feelings, the emotions, the lack of which we experience so acutely during a pandemic? The post COVID-19 world will not be the same. We are as humanity in a time of global transformation. Change is happening simultaneously on many levels, but it starts at the level of our consciousness. COVID-19 has not yet said its last word, it continues to expose our weaknesses, proving its superiority on all fronts. It accelerated certain processes and, like a catalyst, made them possible. Will the incoming generation be prepared for any similar event in the future?

We educate future designers without knowing with what the tomorrow will surprise them. They will have to solve problems that we do not now suspect exist. With technology advancing at a tremendous pace, how are we likely to win against time? The answer is not simple. We must try to convey curiosity about the world, attentiveness to its needs, and make them aware of their responsibility to shape our future. On the one hand, to preserve their sensitivity to beauty, and on the other hand, to teach them to describe it as well as possible, also using programs and codes, because this is the language with which we increasingly communicate. For design faculties students, space is the most frequently used concept. It defines an area of creative activity. This is where vision meets reality. The realisations confront imagination with reality. The ambiguity of this concept, especially nowadays, is obvious. It is most evident at the interface between space in the traditional real sense and virtual reality. The latter, thanks to the tools it uses, allows us to transport us into a world where everything is possible. For an artist, a designer, the possibility of using them for a faster, more complete rendering of their creative ideas is priceless. It shortens the path of tedious work by offering a whole range of technical possibilities. The latest VR software feeds our creativity, making it easier to picture our thoughts. As if by magic we connect the non-obvious, create a new reality, moving in this space without the constraints of the real world. We transfer our thoughts effortlessly into a coded world. It is only our mind that imposes limitations on us, which quickly disappear if only we can clarify them as challenges, and the willingness to accept challenges is, after all, the basis of any development.

Fashion Start-up - an undertaking implemented within the NCBiR project under the name "Designing the Future", a development programme of the Jan Matejko Academy of Fine Arts in Kraków for 2018-2022 - attempts to provide students of the Textile and Fashion Design Studio with skills that will prepare them to find their place in the labour market after graduation. One of the activities of Fashion Start-up is organising workshops (in cooperation with the KONTEKST Retail Design company) giving students the opportunity to carry out their own projects using VR technology, from concept to recording the effects of the design process. Thanks to the knowledge and experience of KONTEKST Retail Design employees, the Fashion Show Room application was developed together

with an application for the realisation of a virtual fashion show. Young designers move between the two spaces, learning methods for transforming visions into digital images. Virtual space, like our imagination, has no boundaries, but you have to learn its language in order to find your way around it and work in it. Testing the methods used in VR-enabled design on their own and obtaining more or less advanced design work will allow future designers to gain valuable experience.



Figure 1. Fashion Start-up, R Fashion Design Workflow 1.0, Virtual Fashion Showroom, student project: M. Nowak, photo by: K. Tuszcz, Faculty of Interior Design, J. Matejko Academy of Fine Arts in Kraków, 2021.

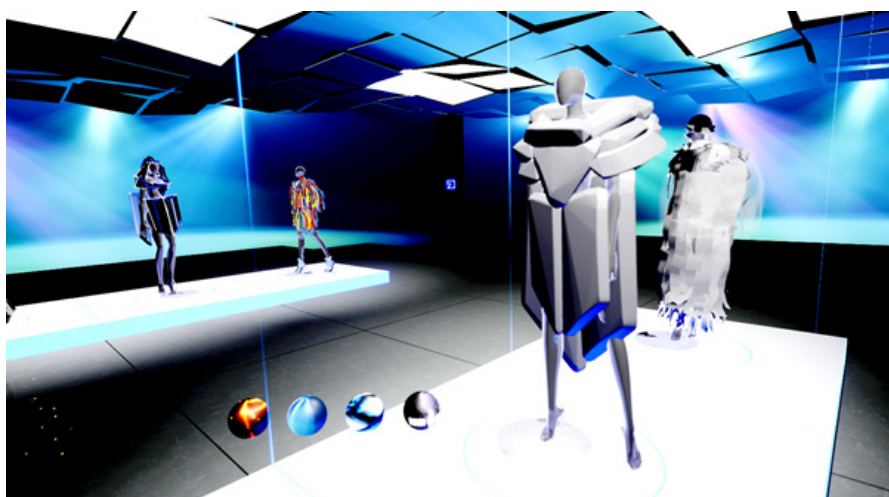


Figure 2. Fashion Start-up, R Fashion Design Workflow 1.0, Virtual Fashion Showroom, student project: A. Bochar, photo by: K. Tuszcz, Faculty of Interior Design, J. Matejko Academy of Fine Arts in Kraków, 2021.

While preparing and equipping their potential for creativity and artistic sensitivity with tangible knowledge and practical skills, we should also make the young generation aware that programmes and applications are only tools. For true creativity happens in the imagination of an artist, which needs to be constantly fuelled by drawing on the real world and our sensitivity to it. Only then will the real world and the virtual world function in one common space and inspire each other.

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