

Conference
Digest

28–30 Oct.
2020

The conference was hosted by
Peter the Great St. Petersburg
Polytechnic University,
St. Petersburg University,
and HSE University
in Collaboration with Cumulus
International Association

DESIGN: VERTICAL & HORIZONTAL GROWTH

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Hosted by
HSE University
28.10.2020

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Hosted by
St. Petersburg University
30.10.2020

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With the Cumulus vision to actively promote exchange of knowledge and design experience on a global and interdisciplinary scale, three Russian schools from St. Petersburg and Moscow — HSE Art and Design School (HSE University), St. Petersburg University, and Peter the Great St. Petersburg Polytechnic University have joined their efforts to host an online conference in collaboration with Cumulus.

'Design: Vertical & Horizontal Growth' was a precursor to the official annual Cumulus Conference. Postponed due to COVID-19, this will now take place in Moscow and St. Petersburg in June 2022. Since staying connected is critical in the on-going COVID-reality, three Russian universities decided to make participation free of charge. The conference was held in digital format in October 2020.

'Design: Vertical and Horizontal Growth' aims to encourage the Cumulus community to express their opinions on the role of design as a humanizing practice in the context of multidirectional development complicated by the COVID pandemic.

We decided to invite the participants to explore issues surrounding the design community's involvement in the innovation process. How can design thinking help society overcome its fear of and resistance to the main challenges of our time? In what ways could we bridge the gap between traditional living patterns and the changes rapidly occurring in all areas of society today?

We need a communicative model that would smooth over the differences between the horizontal and the vertical processes.

The perpendicular development vectors — x and y — shape the space of interpretation, aims and objectives of design. The horizontal vector represents cultural values and the conventional lifestyle; this is an area of social comfort. The vertical vector represents innovations that destroy the familiar way of life. Our discussion focuses on design as a practice of searching for areas of growth, support and balance, which make it possible to reconcile the traditional way of life and cultural values with the innovative approach to solving problems arising in society.

The three-day conference was held from 28 to 30 October 2020. Each day has covered one of the conference's tracks: —

Future Human, Creative Industry, Inter-action. Each host (SpbU, SpbSTU, HSE) was responsible for one track. This approach has presented a diverse Russian art and design academic community eager to exchange ideas with colleagues worldwide.

Secretary General
Cumulus International Association of Universities
and Colleges in Art, Design and Media
<https://www.cumulusassociation.org/>

Elja Salmi: “Unleash. Future Human. Creative Industry. Inter-Action”

Where are we? Innovation, fear, resistance, gap, change. Cultural values, conventional lifestyle, comfort, discomfort. Destruction, change, growth, balance, support, challenge. A never-ending row of codes with massive, deep semantics. Soft, technology, human. Negative. Positive.

These words, picked from the well-designed introduction to the days we spent together online with ‘Design: Vertical & Horizontal Growth’ Conference, match so perfectly this quality time with three Cumulus member universities in Russia, 28–30 October 2020. The event was vastly important for advancing education and research.

Business, industry, non-profit institutions, government. Planet, Profit. We, as the humans at the heart of our disciplines, are in the same carriage now, driving the world forward with the tools provided by art, design and media. With massive responsibility, unquestioned. This time, we landed together in a country of great creativity and innovation, to share knowledge as we make steps forward. For many conference participants, the event opened the door to a new and very interesting environment. ‘Fluline’ revealed to us this setting as a truly wonderful one to experience.

DVHG has gone down in design history as a unique beginning of three Russian universities jointly organizing an event of this calibre. Participation was impressive, with close to 900 people from Russia and abroad.

“Design: Vertical & Horizontal Growth” was a prelude to the first Cumulus conference which will take place in 2022, hosted by these three universities. Can we expect anything different then? Yes. You will be able to touch, hug and sense the humans, and the environment. Vertical & Horizontal created for us a ‘centre of gravity’ to meet again in Russia. Thanks to all our organizers, speakers, and participants, we also live forever online with DVHG. We can’t wait to return.

FUTURE HUMAN TEAM

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FUTURE HUMAN

Hosted by HSE University



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The concept of the human body and its capacities is today under review due to the development of technologies changing the body structure by means of surgery, genetics and technological correction. As a result, the body becomes a platform of transformation. Today it is an object of design: ‘extended body’ and ‘morphological freedom’ come to the foreground. What new ways of considering one’s body does this imply? How does one adapt to an extended self? What is the new subjectivity of an augmented human?

Furthermore, the ‘online shock’ we have witnessed during the pandemic has given rise to a media extension. As the global lockdown forced both business and personal communication to go totally online, the concepts of one’s presence and face-to-face encounters have taken on a new aspect. How could we describe the effect of this ‘extended communication’ which, henceforward, will involve us all? What are the effects of the 'mediated' body? How are science, art and design reacting to this online extension we are forced to undertake?

28th of October HSE Day: “FUTURE HUMAN”	11:45–12:00	Opening remarks: EIJA SALMI (Cumulus Association), TATIANA RIVCHUN and LIUDMILA ALIABIEVA (HSE University, Russia)
	12:00–12:40	LEV MANOVICH (City University of New York, USA): “ Aesthetic Society ”
	12:40–13:00	HELENA NIKONOLE (Artist, independent curator, Russia): “ Art & Science Practices: Beyond Human ”
	13:00–13:20	IRINA SIROTKINA (Institute for the History of Science and Technology, of the Russian Academy of Sciences, Moscow): “ Cyborgs or Wearable Technologies? Commentaries on the future ”
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14:20–14:40	ALEXANDER ZHURAVLEV (HSE University, Russia): “ The Return of Avatar as Ever-changing Postdigital Identity ”
14:40–15:20	DMITRY BULATOV (National Center for Contemporary Arts (The Baltic Branch), Russia): “ Posthuman Curating ”
15:20–15:40	AMMER HARB (Politecnico di Milano, Italy): “ Humans, Technology and Speculative Design Futures: Can We See the Invisible? ”
15:40–16:00	KELLIE WALTERS (Garmin International, USA): “ Nance: Satirical Jewelry Design for Feminist Perspectives in Augmentation ”
16:00–17:00	ROUND TABLE WITH ARS ELECTRONICA CURATORS (CHRISTL BAUR, OLGA VAD, HELENA NIKONOLE, ANDRIESH GANDRABUR) : “ Art and Technology Trends in Pandemic Realty ”
17:00–18:00	AI X SOUND PERFORMANCE “ Non-player Piano ”



Full video documentation of the “Future Human” day is available on the conference’s website

City University
of New York, USA



Lev Manovich: “Aesthetic Society”

Keynote
paper
transcript

Dr. Lev Manovich is one of the leading theorists of digital culture worldwide and a pioneer in the application of data science for analysis of contemporary culture. Manovich is the author and editor of 15 books including ‘Cultural Analytics’, ‘AI Aesthetics’, ‘Theories of Software Culture’, ‘Instagram and Contemporary Image’, ‘Software Takes Command’, ‘Soft Cinema: Navigating the Database’ and ‘The Language of New Media’, which was described as ‘the most suggestive and broad-ranging media history since Marshall McLuhan.’ He was included in the list of ‘25 People Shaping the Future of Design’ in 2013 and the list of ‘50 Most Interesting People Building the Future’ in 2014. Manovich is a Presidential Professor at The Graduate Center, CUNY, and a Director of the Cultural Analytics Lab. The lab has created projects for the Museum of Modern Art (NYC), New York Public Library, Google, and other clients. Manovich’s latest book ‘Cultural Analytics’ was published by The MIT Press in Fall 2020.

We live in aesthetic society where the production of beautiful images, interfaces, objects and experiences are central to its economic and social functioning, as well as the identities of hundreds of millions of people. While aesthetic refinement has been central to all human cultures for thousands of years, after the rise of mass production of all consumer goods in the 19th century, the highest levels of such refinement were often only available to the rich and upper middle class. But after 1990, the growth of global middle class, the emergence of experience economy, the commercialization of “cool,” “hip,” “avant-garde,” and “experimental”, new manufacturing methods and new materials, and the adoption of digital technologies changed this situation. Together, these forces lead to the development of what I call “aesthetic society.”

The aesthetic society is a society where aesthetics, design, and artistic creativity, originality, and innovation play the key roles — both symbolically and economically. They become core values of the whole society as opposed to being available to only selected social groups (such as upper classes or professional artists.)

As an example, consider Xiaomi presentation of its new phones (Mi 10T series) in September 2020. The term “creativity” was used to motivate every feature of a phone throughout the presentation. If earlier other values could have been in the center — speed, functionality, convenience, or ease of use — here everything was motivated by “creativity.” This term was used to present both various photo and video functions in the phone, and also more seemingly technical specs such as processor, screen resolution, etc.

Aesthetic societies existed in the past. Sometimes, the production of certain objects was carried out by professionals (i.e., crafts people) but other objects were made by every family for themselves. The industrialization, mass production, urbanization and population growth in the 19th century first in the West (and later in other parts of the world) have fundamentally changed the situation. Now every object people use in their everyday life was created in factories. New professions (e.g., “designer” in the 1920s) emerged and these professionals become exclusive creators of all objects and services which have aesthetic dimension, while everybody else become consumers of these objects and services. People who wanted to create aesthetic objects and experiences themselves were defined as “amateurs” (e.g., an amateur photographer) and given their own tools of production (e.g., 8 mm motion picture film as opposed to professional 35mm film), associations, and spaces to practice their creative hobbies in organized manner (e.g., Houses of Culture in all communist countries in the second part of the 20th century).

In the 21st century, we maybe gradually moving back to the preindustrial culture where larger proportion of people can create aesthetic and professional looking objects and media themselves — but of course, this is not a simple return to the past. Today mass creation is taking place only some cultural areas such as photography and video while other objects continue to

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be mass produced. (The reason for this is that photographs or video you capture, edit and publish don’t have to “work” — but furniture, clothes, buildings and other material structures do.)

The new aesthetic media society has a much larger scale than aesthetic societies in the past; it is in many ways global; and its development is facilitated by global information and media networks (e.g. Instagram, YouTube, etc.). For example, between 2016 and 2020, the number of smart phone users (phones with advanced cameras) grew from 2.5 to 3.5 billions. A large proportion of these users capture photo and video, and they make aesthetic decisions in this process. They try to make their photos beautiful, they think about composition, and many of them may edit their photos to enhance their aesthetics after capture using any of thousands photo apps.

The company behind one of the most popular photo editing app today founded in China talks about its mission in this way: “Founded in October 2008, Meitu has become one of China’s top Internet enterprises owing to its leading AI-driven image-and-video processing technologies and social community. Meitu’s mission is “to let everyone become beautiful easily”, with the concept of “beauty”, or Mei (美) in Chinese, as the company’s core ideal.” Meitu app currently (Fall 2020) has one billion users globally. The app functions allow users to beautify their faces in the captured photos and also do many other edits on the photos, create photo collages, and also edit video.

One important feature of contemporary aesthetic society is its increasing adoption of AI technologies to assists users in their creative activities, such as capture and editing

of media exemplified by apps such as Meitu. Of course, automation of some operations in photo cameras has already been common for many decades. First 35 mm SLR camera offering automatic exposure was released in 1962, and the first SLR camera with autofocus was offered in 1981 (these were Topcon RE Super and Pentax ME F, respectively). However, today AI can also offer other previously unavailable functions. For example, a new version of Google Photos released in Fall 2020 features “suggestions” menu which recommends particular edits for the particular photo a user is looking at inside app. At present such automatic edits and suggestions are tailored to each photo based on its generic subject (a portrait, a landscape, etc.) and not to the user aesthetic preferences. We can expect that in the future such AI will learn particular aesthetics preferred by each user and customize its editing suggestions accordingly, similar to what music recommendation services have already been doing for years. AI can also suggest to user alternative aesthetics for their photos and help to expand their creative options in the future.

The first author who analyzed the growing aesthetization of many aspects of modern society was Los Angeles cultural critic Victoria Postrel who published the book *The Substance of Style* in 2004. In the following fifteen years, the mass aesthetization of society advanced significantly, affecting many other types of products, spaces, and communications. The sophistication of aesthetics also advanced: today many cutting-edge examples from 2004 appear naïve and simplistic.

For an example, consider the design of contemporary mobile phones. As objects, they have precision, nuance and aesthetic richness that before was only possible in very expensive objects such haute couture where each item is created by hand from start to finish with extreme attention to detail. But in contrast to haute couture, today the same phone models are owned by people from most social classes, and the differences between \$500 phone and \$1400 phone are not very large.

The same democratization of refined aesthetics took place in a number of other areas such as hotels design, car design, web design, and presentation of food in restaurants. The interior of many economy cars in 2020 looks more sophisticated than the interior of luxury cars ten years early. Similarly, today endless inexpensive restaurants feature food presentation that ten years ago would only be available in selected expensive restaurants. Twenty years early, such aestheticized presentation was even more rare, only found in nouvelle cuisine and “molecular gastronomy” restaurants.

Democratization of sophisticated aesthetic starts in the 1990s. The first “design hotels” were already created earlier: Blakes in London (1978) and Morgans (1984), Royalton (1987) and Paramount (1989) in New York City. But the movement really takes off in 1993 when Claus Sendlinger founded Design Hotels group in 1993. It started with a list of 10 hotels; today (2020), the majority of new

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hotels build around the world would be called “design hotels” ten years ago.

However, the diffusion of refined aesthetics we saw already does not mean that the rise of aesthetic society has reached its limits. I believe that this process may continue for many decades. It is always possible to use and mix new materials and offer aesthetic effects that were not possible before. It is also possible to offer more individualized or unique products and experiences in many lifestyle areas.

Look around you. While products, spaces, visual media, and experience such as eating out have more interesting and refined aesthetics, they are still not individualized. Today examples of mass individualization are still rare, and are also quite limited. Drogerie Market drugstores in Germany allow customers to customize their own personal care products — for example, selecting an existing shower gel and then choosing from a number of fragrance choices, and also creating their own label. NIKE BY YOU (previously called NIKEiD) and myadidas make possible for customers to customize their sport shoes. (Adidas started to customize shoes already in early 1990s but only for selected successful athletes.)

While mass individualization where each customer can customize a product in many ways is still mostly a promise today, a different individualization process that started in the 1990s is already fully developed. Before that decade, many types of what we call today lifestyle products and experiences were designed by selecting an established style or a “template” (e.g., existing conventions). Most chefs did not try to create dishes that would be unique in taste or presentation —instead they followed the conventions. The hotels were designed in this or that existing style and did not try to stand out by uniqueness of design. (The “International style” in architecture that become popular after the

war is a good example.) In general, between 1870 and 1980, experimentation, explicit departure from traditions and rules and the pursuit of unique style by each creator mostly happened in the art fields and not in mass culture. In other words, it was mostly an exclusive domain of the modernist arts.

But after 1980, mass culture slowly starts to adopt these ideas. In the 1980s, the design of storefronts and boutiques absorbs installation art; music videos absorb experimental film; fashion enters its “modernist” experimental phase. (MTV was started in 1981, the same year as IBM released the first PC. The first “aesthetic computer” was Apple’s Macintosh released in 1984.)

This process of adoption of modernist art methods as design methods for all areas of modern world (as well as later adoption of post-modernist techniques) is complemented by another process. Modernism’s motto “make it new” replaces older logic of modern mass culture based on conventions and templates. Now the world outside of the arts adopts the same goal to creating unique aesthetic experiences. For example, the idea behind “design hotels” taking off in late 1990s is that each was offering an individual design that you will not find anywhere else. Today in Korea, there are tens of thousands of cafes that offer striking and original space designs, and often also unique coffee and tea based drinks. What previously was based on a template and rules becomes an area for experimentation. Some common features remain, of course: every cafe offers coffee drinks and wifi connection; a tea place offers teas and wifi connection; both types also offer some seating objects and some tables or table-like objects. But many other aspects of a place, objects or service become open for “making it new” interventions.

And this is one of the key differences between modern mass culture society of the 20th century and aesthetic society of the 21st century. In the former, your everyday life took place in the world of conventions, templates and rules. To see something unexpected, you went to a modernist art exhibition, or to an experimental film screening. But today, the unexpected often surrounds you everywhere in your everyday life —especially in most aesthetically advanced countries such as Korea, and other Asian countries. (In contrast, modern art is still using new methods defined during the 1960s, and at least to me it is usually very predictable.)

Since aesthetic redesign of the world is carried by designers — in web design, interaction design, user experience design, food design, fashion design, product design, space design, and many other types. Therefore, we are justified to refer to aesthetic society as “design society.” In the second part of the 1990s and early 2000s, people spoke of “design wave” to describe growing aesthetization of the lifestyle world. Besides design hotels, the important signs of this process were the magazine *Wallpaper* (1996) and the first “design store” Collette in Paris (1997). As the aesthetization / design wave kept growing, it moved from professionally created spaces and products (such as first all-white iPod in 2001) to the lives of hundreds of millions of people. In 2010s they become designers responsible for

their individual worlds. An important catalyst for this new stage of anesthetization is a magazine *Kinfolk* published since 2010.

Does the current aesthetics in lifestyle products and spaces simply follow the modern design principles and aesthetics first developed in the 1920s in Bauhaus and Vkhutemas, and later expanded in Swiss Typography of the 1960s, Italian product design of the 1960s and other 20th century design movements? Certainly contemporary focus on “clean,” and “simple” look, the generous use of “negative space” and white backgrounds, “less is more” and “minimalism” ideals can be traced to the 1920s and 1960s. But there are also important newer aesthetic strategies present, such as use of natural materials such as wood and stone, and the incorporation of deliberately “non-designed” elements such as raw concrete walls.

Similarly, is it possible to reduce the recent phenomenon of anesthetization of “everyday life” in both developed and many developing countries to a single concept — traditional Asian “the art of living”? Starting in the middle of 2000s, some researchers working in philosophical aesthetics have started to discuss the

Therefore, we are justified to refer to aesthetic society as “design society.”

concept “aesthetization of everyday life”, with some connecting it to traditional Asian concept “aesthetics of living.” The Introduction to 2014 collection *Aesthetics of Everyday Life: East and West* notes: “..Chinese, Japanese and Korean traditional aesthetics offer a “prototype” of living aesthetics... Chinese aesthetics is, at the outset, oriented towards everyday life, a most profound difference from European classical aesthetics... “Whereas aesthetics in the West tends to focus on the extraordinary, Eastern aesthetics already understands that the aesthetic may populate both the extraordinary and the ordinary forms of experience.”

Although it is tempting to see the rise of anesthetization and design wave starting in middle of the 1990s as the expansion of traditional Asian aesthetics, in my view the real story is more complex. Consider this selected timeline. In the 1910s–2020s, European geometric abstract paintings and sculpture establishes first modern “minimalist” aesthetics. In the 1920s, this aesthetics is expanded to design of objects, graphic design, typography and photography by people teaching in Bauhaus in Germany and Vkhutemas in Russia. In the 1960s, a new minimalist movement

develops in US in visual arts, experimental film and music. In the 1990s, first design hotels and minimalist boutiques are build in New York, Los Angeles and London. But in Japan, many private buildings and also interiors of other building types already follow minimalist aesthetics. In 2000s, minimalist aesthetization appears in products such as Apple computers and consumer electronics (iPod, and later mobile phones) and web design. In 2010, Instagram and Kinfolk magazine are launched, and they become both important instruments and signs in the new stage of anesthetization of life. If before aesthetization was seen in products and spaces designed by companies, now millions of young people become “designers” of their “everyday” life and also public identities (created in Instagram, blogs and YouTube channels.) In part, they design their “everydays” from existing products offered by Zara, Uniqlo, COS, Apple, Samsung, LG and other global and local companies. They also craft these everyday using aesthetics spaces of cafes, co-working spaces, hotels and guest houses, shopping centers, as well as cafe, tea and juice drinks and food served aesthetically in these spaces. And their media “content” created for Instagram, YouTube, and their websites and blogs is automatically anesthetized because of the interfaces and templates build into these platforms. But in many cases, they have to systematically learn the principles and techniques of aesthetic minimalism — for example, to craft a gallery of photos on Instagram you still need to choose subjects of photos, compose photos and apply some editing — to increase contrast and sharpness, add white backgrounds, remove unwanted details, and so on. Similarly, while a person have access to millions of well made YouTube “haul” video where bloggers model many outfits for all occasions (“summer,” “work week”, “school,” “date”, etc), choosing and coordinating your outfit every day still requires skills and knowledge — unless you always exactly copy looks and use items from these videos, without any edits, additions or changes. (The great majority of these videos are created by woman and aimed at other young women, so man are at a disadvantage.) Other video blogs genres on YouTube such as “day in the life,” “morning routine,” and so on give you templates on what to do when you wake up and go to sleep, how to “chill” and “relax” and other aspects of the everyday life.

In my view, the three stages of anesthetization in 1990–2020 — first in professional space design and architecture, then in professionally produced objects, interfaces, communication design, and media (cinema, TV, photography), and then in “everyday life” of normal people — were happening in both West and East more or less in parallel. But because traditional Asian cultures indeed had a different understanding of the roles of the aesthetics, the recent processes of aesthetization developed further in Asia and at the same time are practiced by much larger proportions than in the West. For example, some of the cafes in Daejeon I see in 2020 (5th largest Korean city, population 1.5 million,

1r by train from Seoul) have aesthetic refinement and coordination and generous use of empty space that in the West are reserved for museums, top design hotels, boutiques of most expensive clothing brands, and very expensive private houses and apartments with interiors created by top designers. But here in Korea these cafe are used by students to study. Their everyday is what would be considered exceptional in the West. When I visited Seoul in 2000, I only saw the minimalist highly refined aesthetics in selected places in the most prestigious and rich part of the city. In 2010, the contemporary aesthetics was already diffused more widely and I found in more city areas. And in 2020, I found it to be present everywhere in Korea, including nature areas. The older Korea of 1960s–1990s — uninspiring buildings covered with competing business signs — is still here. Depending on the age of each city area and its function, such as residential, business or leisure it can dominate or be less present. (Remember that modern Korea is very young — it begins in 195X after the end of Korean War.) But regardless of the city and areas I visit in 2020, the ultra-modern cafes are present every few hundred meters, while inexpensive (\$70-80 per night) and very well designed hotels such as Shilla Stay are also frequent. It is hard for me to say if there were particular year or a few years during this 20 year period when aesthetization growth suddenly accelerated. Based on my visits to Seoul in 2000, 2006, 2010 and then every year, I feel that the process was gradual. (However, this can be analyzed quantitatively by using data such as dates and places of new design hotels openings, or looking at the emergence and growth of certain tags in users post on social media platforms, analysis of clothes and styles in people photos shared on Instagram, and in many other ways.)

Aesthetization trajectory also affects media and design of software and interfaces. In the 20th century, design precision and aesthetization in different areas of media and communication varied a lot. But starting in the 1990s, gradually very high level become the norm in most areas including all commercial photography, video, and television, and later personal video blogs, websites, and personal photography shared online on Instagram and other platforms. In the end of 2010s for example, the media being produced for a wedding (video, a photo book,

In my view, the three stages of anesthetization <...> were happening in both West and East more or less in parallel.

etc.) has the same aesthetic and design level as feature films or best TV series.

In 2010, design and refinement came to the world of software applications, web applications and mobile operating systems. In the early 1980s, Apple Computer was the first company to focus on design. Steve Jobs hired industrial Hartmut Esslinger who developed in the "Snow White" design language. Designer and artist Susan Kare was responsible for the design of typefaces and fonts for the original 1984 Macintosh and later models. In 1992, designer Jonathan Ive joined Apple and led the next stage of design innovation with products such as iMac G3 (1998) and iPod (2001). And only in the end of 2000s and 2010s all other major companies such as Microsoft, IBM, Lenovo, HP LG and Samsung adopted more aesthetisized and refined design languages. In the second part of the 2010s, a new generation of apps for writing (Bear, Typora, etc.) offered a more “minimal”, “light” and “clean” design from the market leader Microsoft Office, while new image editing apps (Phase One) similarly offered more contemporary UI then market leader Adobe.

As design society becomes more mature, the value of aesthetic changes. Paradoxically, in this society aesthetics is both more and less important than in the mass consumer society of the 20th century.

It is more important because it matters to more people. As described in Pierre Bourdieu’s book Photography: A Middle Brow Art (1965) for most people involved in popular photography at that time, aesthetics was seen as something foreign — reserved for professionals and upper classes. Comparing this to photography on Instagram in the second part of 2010s, we see a big difference. In my Cultural Analytics Lab, we used computational tools to analyze 17 million Instagram photos shared between 2012 and 2016 in 16 world cities. We found that at least in big cities significant proportion of users were quite aware about the aesthetic possibilities of the medium, as opposed to only following photo conventions that dictate what subjects and occasions should be photographed.

In another example, today one can look stylish, contemporary, and fashionable without knowing much about fashion trends. You simply visit Zara or a department store selling equally priced or cheaper clothes produced by big local brands that share similar principles — clothes that are fashionable, often made from good fabrics, suitable for many occasions, and most importantly easily combinable with many other items. (Here minimalism and monochrome black and white aesthetics are particularly useful, since you can combine such clothes easily.) Any combination of the items offered at any time in such stores or their websites is guaranteed to make you look aesthetically advanced. Most of the clothing items cost about the same as a lunch or dinner at a good restaurant, so young people can afford to buy new items often. Although these clothes and brands producing them are often called negatively “fast fashion,” in reality today they are not designed

to be quickly disposed. They are well made and durable. And in the case of COS, the clothes offered capture the general aesthetic and style of our times without following closely particular looks and trends that are in fashion each season. And therefore, these clothes can be used for many years.

Note that “fast fashion” model started to also grow in later 1990s, at the same time as the already mentioned “design waves.” Fast fashion companies demoralized high fashion by bringing to mass market clothes with very similar designs as shown in each season fashion weeks by top designers. But today, I find that many of these clothes look more interesting and more “fresh” that many offerings of most expensive brands that feature very standard designs but show visibly brand’s logo. Walking through a shopping center in Bangkok or Beijing, often the most boring clothes are the ones from top European brands, while local brands feel more fresh and interesting — and they may cost 20–30 times less.

At the same time, aesthetics matters today less than in the 1960s and 1970s — as reflected in a number of surveys of French public conducted by Bourdieu for his books.

He correctly theorized in this period that aesthetic taste functions to legitimize class distinctions. The ability to enjoy high culture was associated with more refined sensibility — the privilege of certain classes defined by a combination of education, social capital and financial capital. However, today the correlations between class and taste are either much weaker or non-existent. If Zara can within days translate new looks of most expensive designers into its inexpensive versions, without any (or small) loss in aesthetic refinement, it becomes more challenging for anybody to distinguish themselves through clothing. In another example, the same photo filters and photo editing tools are accessible to everybody — in contrast to earlier decades when more expensive media equipment allowed for more aesthetic control.

Once the sophisticated aesthetic options become available to all classes, they matter less as tools of distinction. This is what I mean when say that in aesthetic society, aesthetics matters less than in previous periods.

Queensland College of Art,
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Laini Burton: “Filters and Fakery — The 21st Century Mask”

Interview
conducted
by Elena
Milanovskaya

PhD student, HSE University

Dr Laini Burton is Senior Lecturer at the Queensland College of Art, Griffith University where she is the Convenor of Higher Degree Research Programs. Her research interests centre on body politics, bio-art and design, contemporary art practise and criticism, fashion theory, performance and body/spatial relations. In particular, her focus lies in the historical dimension and contemporary applications of new technologies in art and design, including areas such as embodiment and technology, and the shaping of identities and everyday life by through creative practices.

E.M.: What role did assemblage play in the formation of virtual masks — with ‘stuck on’ details, including faces? Could we see this as a past phase used for new effects, which due to new technologies has developed into a separate field of experiment with facial image?

L.B.: Humanity's long history of experimentation with the face and body means that new technologies are just another manifestation of our fascination with our image. Technology is in a constant state of innovation, be it surgically invasive such as cosmetic surgery, or virtual alterations using apps, through to ‘borrowed’ faces seen in deep fake technology. I see all these applications as examples of how we struggle with the philosophical mind/body dilemma. Although, philosophy has wrangled with this binary to reveal it is far more complicated. It is what keeps us guessing, writing, studying and creating. Rue the day that the human brain is ‘decoded’. I like mystery, and I think what makes us interesting is the mystery of the unknowable human mind.

E.M.: What is the place of identity in the modern virtual world of self-presentation? May we say that sincerity prevails in verbal expression (in confessions, etc), while the world and politics of images have entirely captured social networks and other online areas?

L.B.: This is a huge question, and difficult to answer in brief. Identity politics are becoming increasingly complex as the world shifts and changes. These changes are dependent upon so many socio-cultural, political, historical and economic conditions that it is impossible to arrive at a singular position. Identity and representation will always be at the core of human interest. It is how we define ourselves. We are essentially an anthropocentric species which, unfortunately, has dire consequences for our environment and our fellow non-human companions on Earth. Humans will always be captivated by their own image. The question remains, is there any room for other species in our imagination for the world to be shared in a way that does not place the planet in environmental crisis? The Anthropocene is a real threat, and yet, we do not hear its call. When we are gasping for air, no image, social network, or web presence will save us.

E.M.: In your speech, you cited the words of one of the creators of the film Chechnya. He said that the mask ‘...allows the hero, speaking with his voice with someone else's appearance, to express his identity’. Do you agree with this? What feelings did you have as a spectator when you saw the real face of one of the main characters, when he decided to give a press conference? Did the other heroes at this moment become a little ‘different’, a little less real for you? I mean those characters, whose identity we can't fully perceive?

L.B.: The use of ‘masks’ in this documentary movie represents the latest technology of the ‘deep fake’. It is my under-

standing that the digital mask is employed here to protect the identity of people who were being persecuted because of their sexuality. Knowing that the director used digital masks for this purpose helps a viewer to accept that they do not see the true identity of the subject. What then takes precedence is the purpose of the documentary. If the subjects of this film felt they were in danger, and that masking their identity was a way to circumvent retribution for what is effectively their right to choose — their sexuality — then my feeling is that the use of masking is warranted. It must be noted that the ‘borrowed’ (or deep fake) faces used were those of volunteers, and therefore their consent makes the use of the technology ethical. It has been revealed as deep fakes become more prevalent that faces (or identities) are often used without consent (stolen), which creates new territory for identity theft. I am certain that disciplines such as Law, the Digital Humanities will become occupied by this in the future, if they aren't already.

E.M.: Can we talk about ‘anti-masking’ trends today? I mean an honest self-demonstration as a response to the countless possible and available transformations. Or is unsightliness inevitably rejected?

L.B.: First, it is useful to distinguish ‘anti-maskers’ in the coronavirus epidemic as being a different form of anti-masking. These people are foolish in my opinion. It is not difficult to wear a piece of cloth on your face to protect yourself and others from deadly viruses. I am astonished by the anti-masking sentiments of some people. These attitudes herald the lack of education about viruses and transmission. The least we can do for our fellow humans is wear a mask to ensure the health of the collective and return — if possible — to pre-coronavirus freedoms.

Second, I hope I understand your question correctly to assume that you refer to people who choose not to mask their face with digital technologies (filters, apps) or undergo any surgical augmentation? If so, then people who choose not to filter their face/body, or use apps to alter their appearance, or have surgery to change their appearance, are admirable. As I have noted above, the media and beauty industries wield significant power in constructing cultural beauty standards. To reject this pressure is to assert real confidence. However, these tools have also become a way for some users to gain self-confidence. This is contextually dependent. Younger generations will always be the first to take up these opportunities, and they will also be the loudest voices in terms of resistance to them. What is necessary is education around digital literacy in the use of these tools, so people do not come to have unrealistic expectations about themselves or others. I do sometimes wish that messages of self-acceptance were louder than the call of some of these technologies. and proofread material.

E.M.: What does it tell researchers and common users that people have started to experiment so readily with their image, including their body and age, using masking apps?

L.B.: What people do with their appearance, or how they relate to their bodies or aging is dependent upon so many factors — class, culture, colour, economic conditions, education, and sexuality among them. These positionalities have consequences for the way we experience and perceive our bodies, and our lived subjectivity. I can only connect deeply to my own experience in these facts of life. And, I do separate my experience as a scholar and researcher from my experience as a common user of mask applications. As a scholar I am more critical, analytical and reflective, whereas when engaging with these technologies as a common user, I am more playful.

When I analyze how the phenomenon of masking is applied in various platforms and disciplines (Instagram, film, art, fashion), it is clear that representation remains a central concern for humans. Since records began, and since cave paintings were discovered, we can see that humans have always been concerned to record and represent themselves in particular, usually favourable, ways. Ultimately, we are a vain species. Yet representation is so much deeper than this, as discourses on beauty, critical race studies, aesthetics and so many other fields of inquiry reveal.

E.M.: The coronavirus has affected the fashion industry, including work itself with a mask. What is the leading trend: a) a mask as something basic (but a designer one), or b) a mask as a bright accessory with a utilitarian function (like a fan or a bonnet)? How do you see it? And which of these approaches is more likely to take root in the future?

L.B.: It can be both a and b. What I believe scholarship on masks and masking will do is allow a broader interpretation of masks, their uses and function. Although, how an individual adopts the mask will be entirely subjective. They may see it as a base artefact, worn out of necessity, or they may see it as an accessory. Sometimes, they will combine these two. What will be telling is how our attitudes to masking change as global developments on the coronavirus come to light.

E.M.: Every mask is a tool for being in a role, seeing yourself as someone else, interacting with the world differently, in fact, to change it to fit the new mask-image. The VR headset looks like a type of mask, its very aim is to make the world around us, different. Do masks in the twenty first century and VR headsets have any common features? Or are they completely different things?

L.B.: This is an interesting question that invites multiple responses. My first impression is that the VR headset is a mask and yet, it is an inward-facing, or rather, an ‘unconscious’ mask. By this, I mean that when we put on a VR headset/mask, we are immersed in a virtual world. We forget the external world and our actions become ‘unconscious’ as we respond to the stimuli within the game or virtual environment (we may wave our arms around in the air and pay no attention to the fact that we may appear silly, for example).

Typically, when we wear a mask, it is to protect, disguise, or hide our identity, or masks are worn to embolden us to step into a kind of character (as in theatre masks). Again, not all masks are something we physically ‘put on’. By this, I mean that I wear my ‘professional mask’ at work—a persona that is appropriate to the environment. Conversely, at home, I feel no need to mask myself, perform or adopt any persona since I am in my personal space; my safe space. Masks and masking reveal to us that we are conscious of our actions and interactions. Therefore, while the VR headset may fit the criteria for a mask in that it covers the face, even if only partially, it is not worn for the same purposes that masks are traditionally worn. I, therefore, consider it quite different. As we increasingly engage with new forms of technology—including virtual worlds—I believe VR will improve, and we will see it incorporated into an increasing amount of activity (retail, interior design, skills development, etc). Perhaps then it will become more of a form of conscious masking.

E.M.: Could you please tell the story of any mask (or type of mask) that particularly interests you?

L.B.: What a lovely question! You may know that I am obsessed with masks and there are so many that I find particularly fascinating. I may offer a couple of examples as a way to demonstrate how masks have long occupied my imagination.

I have always been intrigued by the seventeenth-century Plague Doctor masks which appear bird-like and were stuffed with herbs and spices, along with a treacle-like substance to ward off ‘miasma’ (bad smells which were believed at the time to carry disease). I can only imagine how horrifying it would have been to see the Plague Doctor walking the streets in the seventeenth century. It would have signaled a sure sign that death lingered not far away.

Second, my interest in fashion masks grows as more and more designers use them in their collections. I have been collecting images of fashion masks for about ten years. There are so many designers creating them now, however, in my forthcoming book *Masks in Fashion and Popular Culture: Anonymity, Empowerment and Identity* (Bloomsbury, 2023), I will be focusing on a few designers or fashion houses in particular—Walter Van Beirendonck, Jun Takashi, Givenchy, Maison Margiela and Gareth Pugh among them. For me, fashion masks amplify the fantasy element of haute couture.

Finally, as we discussed above, I am intrigued by the creative potential of digital masking. So many of us already do this when we choose a filter for our image, however, with new technology such as deep fake, it will be interesting to watch as the possibilities and conflicts arise through its application.

E.M.: Thank you!

Curator, The National
Center for Contemporary
Arts (Baltic Branch, Russia)



Dmitry Bulatov: “Posthuman Curating”

Interview conducted
by Dmitry Davidov

PhD student, HSE University

Dmitry Bulatov is an artist, curator and art theorist. His research focuses on different aspects of interdisciplinary art media, as well as on submediality aesthetics. His artworks have been presented internationally at events such as the 49th and 50th Venice Biennale (2001, 2003), Ars Electronica Festival (ORF, 2002) and many others. He has curated more than twenty major exhibitions in Russia and abroad, including ‘SOFT CONTROL: Art, Science and the Technological Unconscious’ as part of the Maribor — European Capital of Culture 2012 event. He is the author of a number of books and anthologies, including BioMediale. Contemporary Society and Genomic Culture (Kaliningrad, 2004), and Evolution Haute Couture: Art and Science in the Post-Biological Age (Kaliningrad, 1 vol., 2009; 2 vol., 2013). He is a two-time winner of the National Innovation Award for contemporary arts (2008 and 2013), and a Golden Nica nominee from Prix Ars Electronica (Austria, 2014) in the category Visionary Pioneers of Media Art. Since 1998, he has been a curator at the Baltic Branch of the National Center for Contemporary Arts (Russia).

Art&Science is an essentially interdisciplinary phenomenon, and each of the components supplies its own methods of work.

D.D.: Please give your definition of Art and Science.

D.B.: A domain of contemporary art, where artists create their works using various conceptual foundations, methods of scientific research and the latest technologies. Giving such a definition, I usually specify that it is formulated by a representative of contemporary art. But if you ask a scientist, for instance, or DIY-specialist what Art&Science is, the answer might be different. Anyway, I suppose, a project should contain all the components of this definition simultaneously. We know about moments in history when a kind of technology was considered ‘new’, be it charcoal, printing press, photography, or television. However, art itself always remained an area of individual handwork. Now the situation, as well as the system of cultural production in general, has changed. We might call Art&Science an example of post-industrial production of aesthetic expression. Artists turn to the problematics and tools of robotics, IT, biomedicine, intrude into various domains of scientific knowledge. At the same time, Art&Science can see and create different and alternative versions of reality, which is beyond the capability of science.

D.D.: If art declares itself as scientific, should there be any criteria for defining such art? For example, Marta de Menezes draws up preliminary ‘protocols’ for her works, as is customary in the scientific field. There are also artists who simply claim to be scientific artists. What is your attitude towards this?

D.B.: I am sceptical about finding an adequate Russian equivalent for the term ‘Art&Science’. One such equivalent is ‘scientific art’ [Russ. ‘научное искусство’, nauchnoye iskusstvo]. From my point of view, this term is misleading, it gives the wrong idea. Art&Science is an essentially interdisciplinary phenomenon, and each of the components supplies its own methods of work. If we use the term ‘scientific art’, we immediately plunge into conjectures concerning the aestheticization of scientific research, the fetish of tools and many other scientific ‘embellishments’. Art&Science is not about this. As for the strategies and options for work in this field, there are no fixed rules. There might be artists interested in technology, or ones who have a scientific background. Or groups consisting of artists and scientists who have become aware of the non-utilitarian aspects of scientific research. In contemporary art, you also quite often come across works by highly qualified scientists. For instance, Adrian David Cheok from Singapore accompanies each research paper with an art project, and takes part in contemporary art festivals. Ken Goldberg, a famous American scientists, awarded for his research in the field of artificial intelligence, is involved in art projects, writes scripts and books. His works have been exhibited at the Venice Biennale, and are present in the collections of the Centre Pompidou and ZKM Center for Art and Media. Such examples are plenty. What’s more, scientists are good at understanding the specific features of contemporary art, and their works tend to be really interesting.

Such performativity is an excellent metaphor for a flow, which various simultaneously interacting agents are immersed in. If we see the focus on the interaction between living and not living, artificial and natural subjects as the main feature of trans-humanist topology, then yes, we can call Stelarc’s project trans-humanist.

D.D.: You mentioned Stelarc in your lecture, don't you think he is more of a trans- than a post-humanist?

D.B.: I talked about Stelarc’s project Prosthetic Head — we showed it at the exhibition Dreaming of Science, which I curated at the Contemporary Art Center Winzavod in Moscow. This work, I would say, clearly illustrates that we perceive ourselves primarily as performative, not cognitive beings. Literally it is a dialogic agent, a five-metre projection of the artist’s head engaging in conversation without the least idea of its sense. Such performativity is an excellent metaphor for a flow, which various simultaneously interacting agents are immersed in. If we see the focus on the interaction between living and not living, artificial and natural subjects as the main feature of trans-humanist topology, then yes, we can call Stelarc’s project trans-humanist. But we shouldn’t forget that Stelarc is an outstanding artist, and as such, he works on different levels. For example, in his works Walking Head or Ear on Arm, Stelarc examines how different processes come into being from the level of discrete objects to the level of amorphous, but ‘coordinated’ matter. And this is already a marker of the post-humanist approach.

D.D.: In this regard, do you think there is now a struggle between trans- and post-humanists in Art&Science, and if so, what is this about?

D.B.: For contemporary trans-humanist tendencies, we can trace several paths of development. The first is concerned with artificial intelligence within the framework of the anthropomorphic paradigm. We have already mentioned dialogic systems. The extreme case of an anthropomorphic system is something pseudo-human, from pets (like Aibo dogs) to human-like robots. Another direction is developing anthropocentric or partially anthropocentric systems. This field comprises various forms of interaction between human beings and robots. The next level is opposition to anthropomorphism and anthropocentrism. This approach is usually called misanthropic. Misanthropy views humanity either as an accident — a mistake, or perhaps simply as something insignificant. Here we are already in the domain of deep media studies, which explore the impact of the physical component constituting earth, water, and atmosphere (the magnetic, electric and gravitational fields), as well as substrate elements of technical systems (metals, molecules, crystals etc). Today many post-humanitarian researchers such as Eugene Thacker, Jens Hauser and Chris Salter draw our attention to the fluid properties of matter and insist on its technicality. These ideas greatly affect both technological art and curatorial practices in the field of Art&Science.

D.D.: Could you give some examples of ‘deep media’ art projects?

D.B.: Yes, one of my favourite examples is Gem, a project of Swedish artist Cecilia Jonsson. I showcased it at the exhibition New State of Living Matter in PERMM Museum. You must have heard of haemoglobin, which is responsible for oxygen transport in tissue. Haemoglobin consists of globin



Melissa Dubbin and Aaron S. Davidson (USA). DELAY LINES, 2019. Delay Lines draws from their research and work with silica based mediums such as glass, integrated circuits, and soft robotics.
Supported by: Prof. Shuichi Wakimoto, Okayama University System Integration Laboratory. The work has been acquired by the Ishikawa Foundation, Okayama, Japan.
Photo: Ola Rindal.

I consider the current crisis — the Covid-19 pandemic — as an opportunity to revise our relationship with the world around us. This includes the field of cultural production.

(a protein) and gem, a non-protein pigment containing iron. This work is precisely about iron. Jonsson signed an agreement with maternity hospitals, which allowed her to collect 40 kilos of placenta, which she then dried. Using old equipment for smelting — a furnace, and anvil, etc — Jonsson forged an iron compass needle from placenta. The artist points to the idea of maternal resource and its ability to navigate us in our lives. That’s what the metaphor of the compass stands for. As we can observe, ‘deep media’ offer rather a complicated assemblage of ‘human’ and ‘non-human’. ‘Deep media’ art can take different forms. Sometimes it includes technical objects and devices, like the sound appliance on human neuronics substrate by Australian artist Guy Ben-Ary, or the optical system developed by Ralf Becker, a German artist. The functioning of this system is attuned to the Earth’s magnetic field. It is impossible to imagine such projects without high technology. There might be transitional forms, such as re-enactment of the well-known experiments aimed at the reconstruction of prehistoric Earth’s atmosphere by Adam Brown (USA), or online storytelling by Dutch artist Floris Kaayk. All these works question anthropocentric optics, which shows matter as a passive and dumb force.

D.D.: Now for a broad question on the role of the human in the post-human era, and a more specific one, which is about you personally: how do you perceive your role as a (human) curator in the post-humanistic era?

D.B.: I consider the current crisis — the Covid-19 pandemic — as an opportunity to revise our relationship with the world around us. This includes the field of cultural production. This relationship is based on a tradition which reproduces all the patterns and templates of the Enlightenment era. This tradition understands ‘living’ as distinct from ‘unliving’, and the human being as the only creature superior to the whole world. This means we are allowed to change the world according to our purposes. Such a ‘patriarchal’ attitude seems very archaic nowadays, however. In practice, it results not only in the degradation of the environment, but also in an inevitable response from this environment, which can include unexpected consequences such as epidemics, environmental and technetronic disasters. It is important to discern new opportunities and chances for change in such conditions. We should find an approach presupposing a different ontology — an ontology, where ‘human’ and ‘non-human’ are symmetrically involved in the flow of connections. Such an approach would produce a reality where autonomy, free choice and creativity are no longer considered specifically human characteristics.

In other words, we’re talking about attempts to overcome anthropocentrism and to perceive multiple entities around us — bacteria, algorithms, crystalline structures, electric fields — as subjects acting within a certain framework of relations. Our strategies should become more complex, and our models of individual and institutional creative activity, more flexible. Art as research, the discovery of new tools, a turning to knowledge formats to interpret reality — such could be the



Charlotte Jarvis (UK). IN POSSE: FEMALE SPERM, 2019. With the assistance of scientists from the Leiden University (NL), the team develops women’s sperm from the artist’s fat tissue.
Produced by: Kapelica Gallery in cooperation with Prof. Susana M. Chuva de Sousa Lopes (Leiden University Medical Center).
Supported by: Ministry of Culture, City of Ljubljana — Department of Culture.
Photo: Miha Godec.

potential results of art overcoming its own boundaries after the crisis. But is art capable of providing us with such an image of equal dialogue between humanity and the world? Will we be able to further move from trans-humanist metaphors of total interconnection between people and objects, to reflections on topological instances of ‘external’, non-human life? And, as opposed to Descartes, who viewed thought as an inner ‘quality’ of consciousness, to talk about extrinsic thought belonging to the category of prima materia? Isn’t this the basic substrate which can be considered the unit of action? These are the questions which we — artists, curators, art theorists — should be trying to answer.

D.D.: Which recent Art&Science projects do you consider the most interesting?

D.B.: As for recent projects, I was quite impressed by the cooperation of British feminist artist Charlotte Jarvis and scientists from Leiden University Medical Center. The project is called In Posse, which in Latin means ‘before we are born’. Jarvis and her colleagues made so-called ‘female sperm’ for this research project — spermatozoa grown from Pluripotent Stem Cells (HiPSCs) derived from the artist’s own skin. The authors use two types of technologies — iPSC-technologies and CRISPR-Cas9. iPSC-technologies allow one to re-programme any type of cells in the organism, turning them into any other type of cells of the same organism. The second technology is CRISPR gene editing. This method allows scientists to modify DNA inside cells. Research work in these domains has been awarded the Nobel Prize — in Biomedicine in 2012, and in Chemistry in 2020 respectively. Analysing the potential of new technologies which make it possible to transform and create anything from anything, on the basis of this example, we face a situation when the distinction between elements of living matter becomes redundant. This disappearance of distinction, whether on the level of physical body or cultural sign, tells us that our bodies are open in the frame of their contour, and that their outward stability is but a temporarily restrained movement.

Head of the Ars
Electronica Festival

Christl Baur: “2020 as a Turning Point”



Interview
conducted
by Petr
Skovorodnikov

PhD student, HSE University

Christl Baur is the head of the Ars Electronica Festival, researcher with an interdisciplinary background in art history, cultural management, and natural science. She is particularly interested in the conjunction of aesthetic and social practices that center on collaboration and experimentation and challenge dominant social, political, and economic protocols. Her research field encompasses topics such as video art, new media technologies, computer, biotechnology and interactive art, and she works at the nexus of art & science. Christl Baur participated in the ‘Art and Technology Trends in a Pandemic Reality’ round table which took place at the ‘Future Human’ Track of the DVHG Conference.



CINEMATIC RENDERING — DISSECTING
THEATRE OF THE FUTURE. Prim. Univ.-Prof.
Dr. Franz Fellner (DE), Dr. Klaus Engel (DE)

P.S.: How do you see the role of digitalized interactivity in Ars Electronica festival?

C.B.: It is undeniable that technology has become an indispensable part of the artistic canon today, especially in the world of media art. The number of artists that work in this field is ever growing, and with it, the diversity of topics and works produced. We are excited that the new developments are different from the classical approaches of human-machine interaction. In 2020, our ideas about interactivity are no longer linked to specific mediums. As a result of the global pandemic, the meaning of interactivity has been challenged, and our understanding of the relationship between humanity, nature and the machine has deepened, facilitating more profound discussions about humanity in an age of uncertainty. Within the festival as well as the artistic practices of Ars Electronica, digitalized interactivity has been an important tool for many years, and the Ars Electronica Futurelab has been developing projects like ‘Tug of War’ that allows interaction beyond the physical boundaries. Now that we have started to think what interactivity can mean for hybrid events such as the festival, digital tools are of absolute necessity.

P.S.: 2020 has become a turning point for organizing events. Do you think that in the future, most events will have an interactive part on the web?

C.B.: Indeed, 2020 was a turning point not just for festivals and events, but for everyone and every profession. For Ars Electronica and our festival it was essential to not dive into the network and disappear there, but to emerge from the network and manifest our programs in many places around the world, distributed and networked.

As the first ever distributed Ars Electronica Festival since its inception in 1979, it was fantastic to see how many of our partners followed our idea and realized in their local spaces diverse programmes dedicated to their community. This showed the interest and need for events happening not despite, but because of, the pandemic. The festival turned even more into a platform, allowing our partners to showcase their programmes. Online interactivity thereby became an essential part of the festival, as it allows visitors and participants from around the world to interact with individuals and communities distributed through all continents and the 160 partnering cities. The urge to rethink travelling in times of climate crisis, this certainly can turn into a more sustainable approach when thinking about a new concept for events. At the same time, as mentioned before, it is important to not only create events online, but to turn them into a hybrid programme, that allows online as well as physical interaction as the challenge stays the same, how can we create meaningful true interaction that reflects our nature and need for exchange.

P.S.: What was difficult or impossible to create in the virtual space of the festival?

C.B.: In April 2020, as we started to think about the form this year’s festival could take, it was immediately clear that we would like to allow a spontaneous exchange between our audiences, something that would allow us to reimagine chats

with people we haven't yet met, such as could happen when you sit in a coffee shop, or at the counter of a bar. After trying to create our own platform, we went with several existing ones, such as Mozilla Hubs, that would allow us to recreate this wonderful feeling of exchange beyond scheduled meetings. It turned out pretty quickly that there are still many limitations to such platforms, like the number of people within one space, the hardware and knowledge barriers when using such technologies as well as the large amount of people you need in order to facilitate an exchange amongst the visitors. We successfully built a wonderful creative festival space with in Mozilla Hubs together with our partners, but underestimated how much support the platform would require during the festival. However, hearing stories from spontaneous dance parties, fantastic guided tours through virtual exhibitions and late night meet-ups of the Prix Ars Electronica winners, I would say we've managed to create a tool that has been used as a meeting space this year, but still has room for improvement for the next event.

P.S.: Do you see the online part of the festival as a part for those who cannot attend offline?

C.B.: The Ars Electronica Festival became a journey, a journey through 'Kepler's Gardens'. A journey through the networked biotopes and ecosystems, in which people all over the world are working to develop and shape our future, and in these days that means above all working to save our future. A journey to, and with, many committed communities that have already begun not only to think about the current problems, but to work on concrete ideas, actions and solutions. Places, initiatives and institutions where artists and scientists work together, challenge society and try out new alliances and forms of cooperation. The necessary step to move into the virtual space turned into an opportunity for the Ars Electronica Festival to reinvent itself once again. Rethinking every step that we took so far and considering aspects of hybridity are key to our projects and programmes to come. This naturally allows global audiences to participate in all our events, and inspires us to target audiences that we couldn't reach until now, as well as offering opportunities for the ones that couldn't yet visit in person.

P.S.: Have you felt that any tools for organizing an online festival were lacking?

C.B.: With this simultaneity and duality of local-physical and globally networked events, the Ars Electronica Festival became once again an exciting experimental laboratory and prototype for next-level networking that focused primarily on new forms and possibilities of fusion and coexistence of analog and digital, real and virtual, physical and telematic proximity. Last but not least, 'Kepler's Gardens' are a clear commitment to science and a fact-based and responsible way of dealing with each other, a statement for science and art, not only as a fuel for the economy, but as the basis for culture and civilization. With this target in mind, we tried to implement several tools that would help us to interact in many different ways, such as watching contents via the four channels, participating in workshops or online guided tours, meeting fellow partic-



HIERONYMUS GARDEN OF DIGITAL DE-LIGHT. Lukas Kochendörfer (AT)



DIGITAL GOVERNMENT IN A BOX / LIT LAW LAB. Johannes Kepler University (AT)

ipants in the virtual space of Mozilla Hubs, or interacting with others in chats on our social media channels. The more diverse the ways, the more difficult it gets to initiate active exchange, and the challenge remains of how can we create those festival moments that inspire people to plan their visits to festivals? How can we create even more engagement and connection between our visitors and participants, and allow them to exchange without the barriers that technical tools often come with? This of course also leads to the question of a more qualitative exchange, meaning how can we allow the activation of our other senses, such as touch, smell and taste to be integrated into the hybrid festival experience? Here, we certainly still lack the technology to do so.

P.S.: Do you think online technologies will lead to more intense globalization?

C.B.: As we've experienced it in the last decades, online technologies certainly helped the advancement of globalization through quick and easy ways to connect, inform and exchange. Now that we are living amidst the pandemic, I think it is more a question of how online technologies can help us to support the regional and foster an exchange globally. It is especially about questioning the tools and habits that we've come to adopt so easily and thinking about both sides of the coin, the advantages but also the consequences that follow along. Now it is time to think about our role in the digital world, focusing on us and our desires, not on technology and its capabilities. It is about our needs, our values and our self-image as digital citizens, and how technology can assist us in reaching those goals. Art is a catalyst for shaping a better future society, and I believe that art and artistic thinking is the best way to understand complex issues and systems created by humankind — be they societal, economic, political, or technological. Art holds the power to scrutinize existing beliefs, cast doubts as creative questions on common perceptions, and find ways to think outside the box. This is why I believe that artists hold the keys in their hands to help us to humanize technology and to show us ways into our futures.

P.S.: Don't you think that massive use of network technologies and interactivity will make us consider such works as part of network art (Internet art)?

C.B.: With galleries and museums closed and most social interactions and cultural experiences moved online, it seems that this could be the revival of network art. Online spaces suddenly seemed valuable again to not only showcase works, but also to interact with potential audiences. Although moving online seems to be a possible solution, I believe that we have enough reason to not disappear in the net, but much more think about hybrid models that allow us to connect to physical places and people via digital technologies. It is exciting to think about how new formats can be invented and new artistic projects developed that have this hybridity as part of their characteristic, where the digital is not a mere copy/documentation, but an extension of the actual work that challenges a new perception of art itself and fosters new experiences and



MIRAGE — AN INTERACTIVE EXPERIENCE. Carolina Bischof (AT), Andreas Dörner (AT), Lena Kalleitner (AT), Adam Lamine (AT), Thomas Tippold, Matthias Husinsky (AT), Clemens Scharfen (AT)

ways of seeing what the role of art can be for the benefit of society. I’m curious to see where this takes us in the coming months, and what wonderful creative ideas and actions artists will coin to critically ask questions and work on solutions for our current problems.



SHARKY SHARKY. Laura Lassus-Pigat, Hyunah Jung (FR)



Head of "Sound art and sound design" department, HSE Art and Design School (HSE University)

Andriesh Gandrabor: “Non-Player Piano” Sound Performance

Interview
conducted
by Petr
Skovorodnikov^{PhD student, HSE University}

The ‘Design: Vertical & Horizontal Growth’ ended with screening of the ‘Non-Player Piano’ sound performance that was created specifically for Ars Electronica Festival 2020. Andriesh Gandrabor, the curator of the project, head of the “Sound art and sound design” department at HSE University, spoke to us about the project, music, Ai, and the prospects for online technologies in the future.



“NON-PLAYER PIANO” PERFORMANCE
SCREENSHOTS

P.S.: One of the major festival research topics was artificial intelligence and its connection with music. How did you manage to build a connection between music and AI in your project? What difficulties did you face?

A.G.: The main challenge was to find a way how everything should work together. We wanted to combine two languages — technological and musical. As a starting point, we decided to ask professional musicians to improvise with AI. We approached the developers of the Mubert AI application. Music is loaded into Mubert’s neural network with separate elements, that is, musical phrases, tagged and divided into musical instruments. The app analyzes what the audience likes and dislikes, based on a large amount of data, and creates unique soundscapes. We also used software that synthesized sounds depending on our geodata, air temperature, wind, and so on. We received the weather data from the Internet, and geodata was obtained by sailing on a boat along the Moscow River. However, we didn’t want to focus on technology only but rather aimed to use musical language to bring us back to using technology in the form of musical art to get involved in musical performance.

Speaking of difficulties, we did not plan properly around the daylight hours: first, we waited for the boat, then we spent a long time checking the sound, we could not immediately figure out the new sound system. It was already getting dark when we were ready. We were somewhat upset and began to fall into a mystical state, but then a large house with a huge number of lights appeared on the horizon, and the artificial intelligence and modular system reacted to this. It was the moment when everything changed dramatically from a mystical silence to a feast of electricity. This beautiful moment became a culmination of the performance.

P.S.: How important was artificial intelligence in the performance? Who was the main conductor of the performance: artificial intelligence or the musicians?

A.G.: During the performance, we started from what the neural network offered us, which was stylistically limited by the developers. The program defined harmony, tempo, and rhythm. That is, the musicians could not change the harmony, it was chosen by artificial intelligence. Our music depended on a neural network. We had two vocalists with us, whose vocals were processed and depended on geodata and the weather. We also had a modular system that we came up with specifically for this performance. We put a video camera on the bow of the boat to record the movement of the boat. A computer program converted color and light from a video camera image into analogue signals using an electrical protocol for a modular synthesizer controlled by a human. The result is a generative noise machine controlled by humans, but not completely. Nature, landscape, and humans complemented each other. I like it when there is a balance between technology and humans.

P.S.: Could one designate 2020 as a turning point, so in the future most events and perfor-



“NON-PLAYER PIANO” PERFORMANCE
SCREENSHOTS

mances will have a network component?

A.G.: Yes, of course, social events will have an online part. 2020 became a turning point in the perception of information. Before, people were afraid of online events. Just like recording sound changed all music in its time. This year is a turning point in the perception of information.

P.S.: What are the prospects for growth of the role of interactivity in performances aimed at online audiences?

A.G.: I bet on engaging the viewer, I am more interested in interactive exhibitions and films, in which the viewer can influence the course of events.

I think the future belongs to gamification when games will not be just entertainment but will be a part of everything.

P.S.: Do you think the massive use of network technologies and interactivity will lead us to consider such works part of online art?

A.G.: I don’t think this will be a noticeable transition for people. It is more important for curators and critics to segment art. People come to an exhibition and do not divide art into narrative or technological. True, there are online galleries and exhibitions that can only take place on the Internet. I really liked the Google project, when you could send a picture, and a robot drew it somewhere in the sand. I think there will be more such projects. We need to create such sites.

P.S.: The role of networked art and, in particular, networked music has grown significantly this year, what are the prospects for this trend in the future?

A.G.: Nowadays, the trend is to create comfortable spaces on the Internet. Zoom became popular because it is convenient as a space for organizing online meetings. It is necessary to analyze what spaces artists and spectators will need, it will probably be something related to VR. The one who gets it right will succeed.



Humans, Technology and Speculative Design Futures: Can We See the Invisible?

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[Proceedings of the online conference, page 4](#)

Abstract

Recent technological developments have geared humans with profound opportunities to shape better futures. Although these advancements might seem astounding, they might also have serious ethical implications and societal consequences. The aim of this paper is to situate and connect design with the topical philosophical discussions about the future of humanity. In this paper, I problematize the relationship between humans and technological futures. I give a short account on the ethical implications of emerging technologies. I also discuss how humans are dealing with a post-anthropocentric future of multispecies, other critters and possibly other human species. Furthermore, I highlight the role of design practice as an aiding agent and catalyst in shaping better futures. The paper attempts to position critical, discursive and speculative design practices as fundamental tools in designing technological futures.

Keywords: Design Futures, Speculative design, Anthropocentrism, Technology.



“See You in Zoom”: Digitally Extended Presence as a New Normal

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[Proceedings of the online conference, page 9](#)

Abstract

The 2020 Lockdown has forced grand institutions (from British House of Commons to Venice biennale) as well as business and individuals to transfer their activities almost entirely into the web. Digital presence, which a year before would hardly qualify as a presence at all, in 2020 has become legitimate, officially approved and mutually agreed upon.

Our report focuses on specific traits of contemporary digital embodiment, online dialogue and combined meetings that take part in “real life” and conference apps simultaneously.

We argue that digitally extended communication — which has long ago been described in science fiction — is now taking shape due not to a burst of technology but a change in social conventions established during the period of pandemic and has become the calling up an update in logistics, project management, education process, etiquette Etc.

We aim to examine the change in spheres of art, design and humanitarian education in order to outline features of digitalized presence and Zoom-mediated communication. The challenge is to seize the look of “new normal” and to reflect upon its consequences.

Keywords: Lockdown, Media communications, Museum, Virtual reality, Corporeality, Presence, Digital art, Contemporary art, Cultural industry, Media design, Exposition design.



Satirical Jewelry Design for Feminist Perspectives in Augmentation

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[Proceedings of the online conference, page 12](#)

Abstract

Society is heading through augmentation towards artificial super intelligence. Many advances are focused on reaching the singularity with minimal critical considerations that create short-term deliverable controls that allow AI to develop within constraints. This paper uses the tool of satirical design of an augmented jewelry piece designed with a theoretical base artificial intelligence, economic, and feminist theory in order to expose the gaps our current society has and implications if these gaps present in AI development. This project does not pose a solution to critical considerations in augmentation, but instead stresses the importance of critical satirical industrial design in the sector of augmentation, posing it as a tool to show possible concerning realities if there is limited focus on diverse perspectives in critical considerations.

Keywords: Feminism, Artificial Intelligence, Satirical Design, Augmentation, Design Theory.



The Return of Avatar as Ever-changing Postdigital Identity

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[Proceedings of the online conference, page 16](#)

Abstract

The world of social networks and instant messengers providing round-the-clock communication of users was preceded by a phenomenon of avatar, without which it would be inconceivable. The text covers the evolution of user’s notion of its virtual body. The main quality of the virtual environment — making everything possible — gradually inspired increasing rate of changes of avatars and experiments with users’ appearance using masks and applications. Ever-changing state of virtual body has a lot in common with a concept of body without organs and expresses itself beyond mimeticism. Recent activity of Instagram and Youtube users show the way the non-mimetic virtual world can be constructed deriving from the virtual body.

Keywords: Identity, Technology, Avatar, Post-digital, Instagram, Corporeality, Virtual, Body without organs.

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CREATIVE INDUSTRY

Hosted by Peter the Great St. Petersburg Polytechnic University



Editor
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For over two decades the term ‘creative industry’ has been widely used to designate an ever growing diversity of economic activities. Creativity as such is an essential human feature necessary for inspiring innovative development of every industry and science. Should design be a universal instrument capable of embracing the whole range of human activities, or should it just focus on ‘creative industries’ as they are defined today? How does the project oriented approach of the industry influence design thinking? And what should contemporary art and design schools be teaching?

29th of October
SpbSTU Day:
“**CREATIVE
INDUSTRY**”

11:00–11:15

Opening f the Conference: **EIJA SALMI** (Cumulus Association), **IGORII SVETNIK AND ALEXANDER KOBYSHEV** (Peter’s the Great Saint-Petersburg Polytechnic University, Russia)

Plenary Session

- 11:20–11:40 **MICHAEL KROHN** (Zurich University of the Arts, Switzerland): “**Shifting Design Education Towards Creative Industries?**”
- 11:40–12:00 **KSENIA DIODOROVA** (co-founder and art director of bureau Gonzo Design, Russia): “**Design As a Tool for Humanism**”
- 12:00–12:20 **HENRIQUE PESSOA** (rofessional Landscape Architect, Politecnico di Milano, Italy): “**Creative Landscape?**”

12:20–13:00

PANEL DISCUSSION WITH KEYNOTE SPEAKERS. MODERATOR VIKENTY GRYAZNOV (Associate Professor of the Industrial design department at Stieglitz academy of Art & Design Creative director at Gryaznovdesign)

Papers Presentation, discussions

13:00–15:30 Papers Presentation, discussions



Learn more about
“Creative Industry” day
on the track's
official website

Round Table: “Design — New Other Communication Language”

Michael Krohn Zurich University of the Arts, Switzerland

Ksenia Diodorova Co-founder and art director of bureau Gonzo Design, Russia

Henrique Pessoa Pereira Alves Professional Landscape Architect, Politecnico di Milano, Italy

Review by Vikenty Gryaznov Associate Professor of the Industrial Design
department at Stieglitz Academy of Art & Design



*Round table “Design — new other communication language”
Michael Krohn (Zurich University of the Arts, Switzerland),
Ksenia Diodorova (co-founder and art director of bureau
Gonzo Design, Russia), Henrique Pessoa Pereira Alves
(Professional Landscape Architect, Politecnico di Milano, Italy)*

Will 2020 be seen by design historians as the beginning of a new era of design? That was the key question of the online conference, which was never voiced, but was clearly a refrain of every speaker. The result of many reports and discussions on the vertical and horizontal growth of design was the key conclusion: the era of the twentieth century is over, finally, 20 years later, the twenty-first century has come, with different goals, interests and needs, where human interests are at the center. The Internet, social networks and services have made every person who uses them as actors and stakeholders of all processes at once anywhere in the world where there is Internet. The free movement of meanings became the basis of a new culture. The Internet of Things has degenerated into a new paradigm

Whether this is the dawn of the postmodern era, or is it already post post modernism, we will be able to answer after a while, but it is already clear that companies, corporations do not sell a product (services) as such, but what it carries with it is history, empathy, interest, tolerance, freedom, relationships, connections, etc. That is, in fact, activators of emotions that accompany a product or service.

The creative industry every year is becoming more extensive and profound, not only from the side of needs, but also from the side of creating new connections between people — people, people — society, people — corporations. Therefore, the technology discussed in the context of the conference becomes not only the basis for new emotions, but also a catalyst for processes. Marketing, engineering, sociology will continue to merge with design within the creative industry. And of course an important question arises here: who learns from whom? Students for teachers, companies for consumers, or marketers for designers, etc. We can confidently say that today interdisciplinary interaction no longer depends on the industry or the location of the person. This is a banal but logical path that has entered the stage of its heyday.



Heart Ring — A Set of Stackable Rings Integrated with Chinese Culture and Western Aesthetics

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[Proceedings of the online conference, page 20](#)

Abstract

The current Chinese design lacks good ideas and design methods that can integrate Chinese and foreign cultures in the communication of Chinese voice, the understanding and acceptance of Chinese culture by international audiences is not accurate enough, which is one of the reasons that Chinese culture cannot effectively generate emotional resonance on the international stage through design. Suppose Chinese culture wants to adapt to this era of globalization more quickly. In that case, it needs to combine art and design, attract and impress international audiences with innovative products, break cultural barriers with cultural exchanges, and break cultural differences with cultural integration. This paper takes "Heart Ring", a set of ring designs for which the author has won many international awards, as an example to discuss the creation research of the combination of Chinese character culture and Western aesthetics, expound on the development of Chinese culture's cross-cultural design.

Keywords: Chinese characters, Cross-cultural, Ring design, Chinese character ring.



Design Education & the Evolving Nexus Beyond the Curve

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[Proceedings of the online conference, page 23](#)

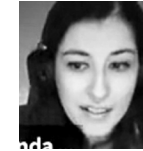
Abstract

In our rapidly changing world the scale of the problems facing us & the pace of creative destruction across the entire spectrum of human endeavour often defies existing solutions proposed by the meagre creative resources brought to bear on them. Educational programmes, students and graduate profiles across the world are struggling to adapt.

One of the wellsprings of the human initiative to solve these challenges resides within our universities/ centres of higher learning and the rapidly emerging fields of Interdisciplinary Design & practice. As per the survey conducted by the Ministry of Human Resources Development (MHRD), Govt. of India, there are 993 universities, 39,931 colleges and 10,725 standalone Institutions across India. These institutions further reflect the student density of India as the enrolments in higher education every year are nearly 37.4 million. Put another way that's about 25% of the entire population of Russia today and higher if we calculate within the relevant demographic.

How, where, when and what we choose to teach in contemporary art and design schools is an increasingly critical question. It's the quintessential question of depth versus spread as time at the University for a Student is a fixed and often a very expensive resource. It is one that is transforming the higher education ecosystem right before our eyes. Here are some of our implemented choices.

Keywords: Education, Interdisciplinary, Ecosystem, Design.



Social Problematics in & out of the Profession of Design

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[Proceedings of the online conference, page 27](#)

Abstract

What is the concrete definition of a designer?. As the 20th Century advanced, it was inevitable to inquire about the inherence of industrial design in the culture, as we saw the impact consumer goods have on the creation and modification of reality. The current approach that is given to Design is a tool for the materialization of an idea that is usually the search for a solution. A solution that can be tangible, virtual or discursive to a problem that can be social, economic, ecological, cultural and political. The solutions to the complex problems that designers face in the 21st century, must have a visible and real ethical dimension. The discussion no longer falls on the importance of Design in the construction of the social fabric, but on its scope, repercussions and above all the potential to build better societies.

Keywords: Design, Profession, Industry, Epistemological, Postmodernism.



Research on The Transformation of Design Education under the Background of Epidemics

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[Proceedings of the online conference, page 30](#)

Abstract

Under the context of COVID-19 influence, industries and social services are forced to be stagnated. Immediately, online communication technologies are advanced, and people's life transforms to cyberspace. However, numerous manufacturing still relies on a practical operation, like design. This study takes design education as a perspective to inquire about the current education model, distance learning, and which suggests a more resilient approach to conduct design and design education. Based on literature and case study, the SBAC Hub concept and its ecosystem are proposed to supplement scholastic education, especially during quarantine time, and it can also be an inspiration for micro-generation in the community. Given the essential quality, SBAC Hub offering map is created, and it will be the first step to materialize this system. Through observation, field study, and interview, most stakeholders satisfy with this proposition and would like to participate in the co-working process. In the future, the researcher will carry on this study and make the Hub be an education-centred participatory platform.

Keywords: Design education, Community Micro generation, Distributed systematic thinking, SBAC Hub.



Natural Maintenance

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[Proceedings of the online conference, page34](#)

Abstract

This short essay seeks to explore the spheres of influence on human creativity connoted as natural and artificial; and how these framings of ideology are an institutional construct to limit the imaginative capabilities of individuals and society as a whole, in order to maintain status quo power relationships. By assessing the relativity of perception that is core to these propositions, inevitabilities are reframed as points of friction ripe for engagement by designers seeking to craft more equitable futures through the political efficacy of design. Mindfulness and stillness are put forth as lines of flight to iterate the potential of ideology-crafting available through the processes of design thinking in order to encourage more equitable actions resulting in challenges to presented realities in the form of post-human/post-nature narratives.

Keywords: Natural, Artificial, Stillness, Equity, Design.



Reflexive Culture in Architectural Science and Education

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[Proceedings of the online conference, page 37](#)

Abstract

The objective of the paper is to define the specifics of reflexive culture in architecture science and education. Current relevance. The need to address reflexive culture is dictated by the following reasons: first, the need to find common grounds between architectural science and architectural education, which still exist separately in Russian architectural education practice; second, the development of online technologies, which compel to reconsider the architectural design teaching process; and, third, the need to introduce the notion of «architectural pedagogy» into architectural science and higher learning pedagogy. Research methods. The paper reviews research publications on reflexive culture, project method, critical thinking and reflexive learning in architecture and art education. Conclusions. Reflexive culture is an important constituent part of architect's professional culture. The category of reflexive culture may serve as a channel for introducing the achievements of higher learning pedagogy into architectural education and architectural science. The paper appreciates the potential of reflexive culture for architectural science and architecture and art education

Keywords: Reflexive culture, Architectural science, Architectural education.



Idea Generation and Ideation. What is the Difference?

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[Proceedings of the online conference, page 40](#)

Abstract

Ideation is sometimes being used interchangeably with the same meaning as 'idea generation', and some other times it is not. While this is not a significantly major problem, it worth noting that because of it, literature can lack clarity at times, being unclear what it is being meant. The author claims that these two terms are not synonymous, as idea generation refers to the production of ideas. In contrast, ideation refers to two concepts simultaneously, (a) the production of ideas as well as (b) evaluating and making a decision on which ideas to be processed further.

Keywords: Idea generation, Design education, Ideation, Creativity.



Design in the Digital Era: the Balance Between Technology, Creativity and Culture

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[Proceedings of the online conference, page 43](#)

Abstract

The contribution aims to reflect on the impact of digital transformation in the production of cultural and creative content. Design assumes a significant role within this scenario, as it has always been a link between technology, market and society. Precisely, the Made in Italy sector embodies the synthesis of culture, creativity and technology, in which design unfolds an articulated system of values deeply rooted in the economic, social and cultural values.

The paper will address the role of design in the ecosystem that sees the production of culture and creativity borrowed from technological development, considering that, if the cultural and creative industries traditionally operate according to a concentric circular model (Throsby, 2006), technology introduces a third dimension of depth: within a multi-dimensional space, design assumes the role of connector and catalyst of economic-managerial, technological, socio-cultural and aesthetic-communicative knowledge.

Keywords: Cultural and creative industries, Design culture, Digital revolution, Made in Italy manufacturing, Digital transformation.

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INTER-ACTION

Hosted by St. Petersburg University



St Petersburg University

Editor
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The day hosted by St Petersburg University had a special focus 'Inter-Action'. Within our conference day, we were intended to explore the communication mediated by digital technologies. Looking back in the rearview mirror over 2020, we can safely assume that this year has considerably transformed communication processes, reducing the share of direct interpersonal communication, and opened up a whole new set of questions. While readjusting the conference to

the current reality, our curiosity fell into the following questions around new interaction scenarios: What role can design play in the humanization of virtual communication? How can trust be established within the digital environment? How to better coordinate actions within professional communities? To what extent can we achieve a sense of proximity in the virtual interactive environment compared to offline communication? How do digital and material interaction mix?

30th
of October
SPbU Day:
“INTER-
ACTION”

Morning Session

- 11:30–13:00
- Thematic Meeting: papers’ presentation and discussion, special registration required
- MARCOS MORTENSEN STEAGALL, TATIANA TAVARE, CASSANDRA LOH, MICHIE KIARNA, NOLWAZI MPOFU, JUNJIRA SANGUANRACHASAB, CASEY STRICKLAND (Auckland University of Technology. New Zealand): “Design and Māori Values. A Rebrand Project for the Social Enterprise Sector”
- HISA MARTINEZ NIMI, JUAN CARLOS CHACÓN QUINTERO (Chiba University. Japan): “AI as a Co-Creation Partner. A Study of Image-based Design Projects Using Generative Adversarial Networks”
- YIWEN ZHANG (Tongji University. China): “Towards Interactive Approaches for Information Searching in Mixed Reality”
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- ROSENDY GALABO, BADZIILI NTHUBU, LEON CRUICKSHANK, DAVID PÉREZ (Lancaster University. United Kingdom): “Redesigning a Workshop from Physical to Digital. Principles for Designing Distributed Co-design Approaches”

Plenary Session

- 14:00
- Introductory speech by Aleksandra Bobretsova, DVHG moderator, Founder of Inruonline.com
- 11:20–11:40
- ALOK NANDI** (Creative director at Architempo. Spread Desig): “**Transfiction and Beyond: Interactions and Temporalities**”
- 14:50
- ANTON POPOVICH** (Founder & CTO. HINT Lab) “**How AI Will Shift the Design Industry**”
- 15:20
- IANA VAVILOVA** (Lead UX/UI designer at Dell Technologies) “**Complex Systems Design**”
- 15:45
- Coffee break
- 16:00
- EGOR KRAFT** (Interdisciplinary Artist and Researcher) “**Museum of Synthetic History, Algorithmic Prejudices and Automation of the Past**”
- 16:30
- LUCY HARDCASTLE** (Founder and Creative Director at Lucy Hardcastle Studio) “**Immersive Sensuality within the Digital**”
- 17:00
- Closing speech Interactive Sessions (run in parallel)
- 17:30-19:00
- IVAN PUZYREV** (VR expert and Digital Strategist) “**VR Meeting about the Future of VR**”
- 17:30-19:30
- DESIS STUDENTS INITIATIVE** “**Students’ Participation on Social Innovation Networks**”



Learn more about
“Inter-Action” day
on the track's
official website

Possible and Plausible Futures of Interaction

Alok b. Nandi Architempo. Spread Design
 Anton Popovich HINT Lab
 Egor Kraft Interdisciplinary artist, researcher
 Iana Vavilova Dell Technologies
 Lucy Hardcastle Lucy Hardcastle Studio



The Inter-Action day brought together a range of multidisciplinary experts to build a conversation on the crossroads of cutting-edge technologies, artificial intelligence, digital art, user experience, and Interaction design. The plenary session has included five speakers with a different perspective and background in the world of interaction mediated by digital technologies to draw plausible developments and foresee possible futures.

Prof. Alok b. Nandi proposed a critical discussion on conflicting constraints in evolving and hybrid contexts, such as the virtual environment. What are the signs and markers that help people navigate there? Multiple media, space, and technologies, high-tech interactive installations, and low-tech mise-en-scène — each of them should have its storytelling and rules of behavior.

Anton Popovich covered Artificial Intelligence issues, such as its potential for learning and creativity, falsification, and monotonous work. To which extent could and should AI be an equal collaborator to a human?

Iana Vavilova, being a practitioner in UX/UI design, shared her experience in building complex interactive systems, particularly pointing out the importance of connections rather than objects in the design practice.

Egor Kraft disclosed his research methodologies in art, where he uses AI to facilitate speculative investigations on historical documents and observe the consequences and the potential of such digital myths.

Lucy Hardcastle has closed the plenary session by providing us with a dive into the visual language she develops for the digital future. Tactility, visual illusions, sensual storytelling, 3D motion, virtual and material forms of visual communication — could these respond to the questions posed by prof. Alok Nandi?

The Interactive Sessions followed the plenary session. Ivan Puzirev organized the dialogue about virtual reality — the most promising and most immersive format for social interaction. The discussion unfolded various issues, among them: the future of immersive virtual spaces, ethics, and social transformation in virtual reality, the architecture of virtual spaces, transformed self-perception in Virtual Reality, and others.

The workshop "Student's Participation on Social Innovation Networks" organized by the DESIS Students explored the ways of creating a favorable environment for students to connect to/and develop social innovation initiatives in the spirit of a collaboration culture.

The experience of this conference has demonstrated to us the relevance of this topic to the variety of disciplines and approaches. The ongoing persistent, creative research forms new rooms for user experience where our knowledge shapes intuition needed for adaptability in these environments.

We sincerely thank our speakers and participants for having this discussion that provided a fruitful ground for the next Cumulus conference to be held in 2022. We look forward to the following collaborative discoveries and interactions, and we are happy to partake in developing a vision of a multiple, flexible, and unpredictable future.

Design and Māori Values. A Rebrand Project for the Social Enterprise Sector

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[Proceedings of the online conference, page 48](#)

Abstract

This paper details a rebrand design project developed for a non-profitable organization called Te Roopu Waiora (TRW), which is currently located in Auckland, Aotearoa New Zealand. This social enterprise is dedicated to supporting the Māori community living with sensorial, physical and intellectual disabilities (whānau hauā). As part of a year three bachelor design brief, the rebrand project enabled students to reflect on Kaupapa Māori principles and appropriately address the values of the organisation. As such, the methodology used a pragmatic paradigm approach and mixed methods design practices involving a human-centred design to problem solving. As result, the student project culminated in a range of cohesive design artefacts, aiming to improve the rentability and perception of the brand with the audience and stakeholders.

Keywords: Design in Aotearoa New Zealand, Kaupapa Māori, Branding, Design education, Human-centered design.

AI as a Co-creation Partner: a Study of Image-based Design Projects using Generative Adversarial Networks

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[Proceedings of the online conference, page 52](#)

Abstract

Recently, the use of Artificial Intelligence in creative disciplines, such as art and design, has increased notably over the last decade. This approach has facilitated processes that can be tedious and time-consuming for the designer, such as automatic image adjustment or automatic colorization. This project, however, focuses on the use of artificial intelligence as an assistant or coworker for the designer, with not only repetitive activities being transferred from the human to the machine but also decision-making processes at various stages of the design process. For this project, a workshop was held at Chiba University, Japan, during which a group of design students and designers worked jointly with an intelligent assistant on diverse design projects based on image generation using Generative Adversarial Networks (GAN). The objectives of this workshop were to transmit basic knowledge of machine learning in a practical way to designers with no previous knowledge of the artificial intelligence field, to explore the generative design of images using GAN, and to integrate an artificial co-worker into the design process to explore new possibilities.

Keywords: Generative Design, Generative Adversarial Networks, Artificial Intelligence, Machine learning, Design Workshop.

Towards Interactive Approaches for Information Searching in Mixed Reality

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[Proceedings of the online conference, page 57](#)

Abstract

Mixed reality (MR) devices blur the boundaries between the virtual world and reality, reshaping the way people work with assistive information. However, there are still strong limitations such as a limited field of view (FOV) and challenges for information searching tasks in MR glasses. Added capabilities of HoloLens 2, a recently released MR device, bring new possibilities to deal with these issues. Interactive approaches are proposed in this study, including body/hand-locked components, view-locked navigation components, and view-sensitive information layout. Prototypes were developed with and without these interactive approaches, and user studies were conducted to measure the task performance, usability, and presence. Results show that interactive approaches have positive effects on usability and presence, but no significant enhancement in terms of task completion time. Different cognitive and behavioral styles may lead to distinct preferences for different interactive approaches.

Keywords: Mixed reality, Information searching, Usability, HoloLens, Field of view.

Redesigning a Workshop From Physical to Digital: Principles for Designing Distributed Co-design Approaches

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[Proceedings of the online conference, page 61](#)

Abstract

This paper presents a case study of a redesign of a physical workshop into a virtual one to illustrate the application of a set of principles for designing and running co-design online events. Such workshops require a different co-design approach to overcome the challenges of working in spatially distributed settings, such as the lack of audiovisual cues, digital skills and physical presence. This approach involves developing a new design ‘language’ that a community can understand and use in engagement projects. In this paper, we present a set of principles for planning and facilitating online events, and designing interactive resources, and the application of such principles in a redesign process of a conference workshop. The findings from the case study suggest that short-term activities and active facilitation assisted by a technical producer can support the delivery of effective online workshops, enabling participants to achieve desired outcomes in a timely manner.

Keywords: Distributed co-design, Online workshops, Virtual events, Creative engagement, Design principles.

Hybrid Housing: Reimagining Shared Urban Living

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[Proceedings of the online conference, page 67](#)

Abstract

Architecture has been associated with permanence for a long time. Construction methods and materials are designed to create an architectural object that is durable, while the limited selection of housing typologies remain the same. The exercise of inhabiting is dynamic and complex, and it becomes more evident nowadays. In the era of globalization, changes reflect a society where mobility and flexibility are highly relevant factors. With high demand for housing, an undeniable need for redensification and a high index of wasted properties, it is necessary to rethink the way we live. What could the housing of the future be like in urbanized areas? This project is an invitation to reinterpret the most intimate nucleus of the human being, to understand housing as determining pieces in the shaping of the urban environment, where the type of house that is designed is directly related to the type of city that is built.

Keywords: Urban density, Housing, Circular economy, Prefabricated architecture, Sustainability, Flexible spaces, Contemporary nomadism, Temporality, Coliving.

Proceedings of the online conference
in collaboration with Cumulus

Tatiana Rivchun, Liudmila Aliabieva,
Natalia Ozerova, Mariia Zolotova (Eds.)

DESIGN: VERTICAL & HORIZONTAL GROWTH

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Humans, Technology and Speculative Design Futures: Can We See the Invisible?

Abstract

Recent technological developments have geared humans with profound opportunities to shape better futures. Although these advancements might seem astounding, they might also have serious ethical implications and societal consequences. The aim of this paper is to situate and connect design with the topical philosophical discussions about the future of humanity. In this paper, I problematize the relationship between humans and technological futures. I give a short account on the ethical implications of emerging technologies. I also discuss how humans are dealing with a post-anthropocentric future of multispecies, other critters and possibly other human species. Furthermore, I highlight the role of design practice as an aiding agent and catalyst in shaping better futures. The paper attempts to position critical, discursive and speculative design practices as fundamental tools in designing technological futures.

Keywords: Design Futures, Speculative design, Anthropocentrism, Technology.

Introduction

In his book “Sapiens: A Brief History of Humankind”, Yuval Noah Harari discusses how homo sapiens have been changing over time. He argues that natural selection gave humans opportunities more than it gave to other organisms. Yet, humans were still limited by their biological and physical limits. Eventually, this is not the situation nowadays. In the twenty-first century the position has changed; humans have gained the opportunity to cross these limits, changing the rules of natural selection by technology-driven intelligent design (Harari, 2014). While writing this paper, Elon Musk; the founder of the neurotechnology company “Neuralink” has unveiled a chip implant that would make it possible to create a real brain-to-machine interface so that humans could communicate with the machines. Inventions like this trigger many questions about what does it mean to be human and what sort of human are we go-

ing to be in the future? Does this mean we are about to encounter superhumans with computer-like brains? Or humans that could communicate with signals? would this mean that human mind could be part of a machine or would humans themselves be like machines?

The aim of this paper is to introduce design as a potential practice to explore and design better futures. My attempt is to situate design within the philosophical debates about ethics, technology and future human along with shedding the light on speculative design as a tool to research & examine emerging technologies. In the second section of this paper, I discuss some of the ongoing philosophical debates about the relationship between humans and technology. I give a short account on the anthropocentric theory that shaped our present along with a discussion about how technology of the twenty-first century triggered other movements such as the transhumanism, posthumanism and the Chthuluscene. In the third section, I give a brief account on the relation between ethical frameworks and anthropocentrism then I discuss the implications of the unwise adoption of technology. I follow this by the fourth section where I discuss the role of design in dealing with emerging technologies and why it's paramount that design should be aware of the technological ethical and social implications. In the fifth section I introduce the critical and discursive practices of design. I follow this by the sixth section where I focus on speculative design as a potential aiding agent and catalyst for designing futures. I conclude this with a brief discussion on speculative design criticism along with a suggestion for potential areas of exploration.

The anthropocentric view of the world

It feels sensible before getting into the details of human relationship with technology to give a short account on anthropocentrism. In environmental ethics, it is defined as “the belief that value is human-centred and that all other beings are means to human ends” (Kopnina et al., 2018). Anthropocentrism refers

to the belief that human being is the central element in existence. Which gives human beings a privileged space or exceptional position among other organisms and entities existing with them. This position is the root of the ethical consideration where it merely means that human is allowed to exploit any of the other co-existing beings in order to realise its desires (Rae, 2014). Anthropocentrism had a long history of debate and argument by environmental ethicists, sociologists and philosophers about human agency to the environmental degradation (Kopnina et al., 2018). This argument was extended to include the debate about how humans look at the other-than-human, non-human as well as cohabitating with other organisms whether organic or non-organic (Haraway, 2015)

In the past three decades, with the rise of awareness movements towards the environmental destruction, the anthropocentric positions have had rejections and oppositions being referred to as the main reason for the abusive relationship between humans & other beings (Rae, 2014). Donna Haraway argued that humans should shorten down the Anthropocene as much as possible and to prepare for other epochs where multi-species living together as “myriad intra-active entities-in- assemblages including the more-than-human, other-than-human, inhuman, and human-as- Humus”. She calls this the “Chthulucene” referring to the relationship between human and other earth critters (Haraway, 2015). There’s a criticism of the anti-anthropocentrism position grounded by the hypothesis that if the non-anthropocentric analysis comes from humans. Therefore, they are to some extent based on a degree of anthropocentrism, which is conflicting and confusing (Hayward, 1997)

The next “human”

Indeed, technology has geared humans with extra capabilities; whether it’s a medical enhancement, a prosthetic limb or even smart devices. The new capabilities humans have gained induced the emergence of several philosophical movements that aim to understand how the future of humanity might look like. One of these movements is the “transhumanism”.

Transhumanism encourages human race to overcome its weaknesses and vulnerable traits by means of technological advancements in order to bring about the transhuman or post-human (Bostrom, 2005). Transhumanist movement discussed enhancing human beings with various capabilities such as lifespan extension, augmentation of physical, emotional and intellectual human capacities as well as diseases extermination. The post-human in the transhumanist discourse might indicate an evolution of a new species that cannot be considered as humans but a new species of its own. Yet, other transhumanist theorists do not agree with this noting that the posthuman would have some more capacities than the ones of the current human; but cannot be considered as a new species (Sorgner & Jovanovic, 2013).

Rae summarises the debate about the posthuman in four main pointes which are 1) The end of the human, from an anthropocentric perception; that was a result of an epistemological composition that is currently ending; 2) Humans and the surrounding environment cannot be separated bearing in mind that the environment is becoming highly technological; 3) Human environment is not only about humans but it does consist of many other-than-human where animals and technology are the main poles, and; 4) a conclusion that the rational human should be perceived through the lens of relationship with the other surroundings. The binding idea that makes the post-humanist theory coherent is that anthropocentrism is caused by the unjustifiable conflict between the pure “human and “impure” others (Rae, 2014)

In this paper, I am particularly interested in the second and the third streams of debate where I can refer to Haraway’s debate arguing that we are actually now have become cyborgs,

in this age of technological developments supported with biological and technological enhancements, the anthropocentric boundary between human and non-human is no longer present. Haraway backs up this discussion by suggesting that the humans and machines are entwined, the machine has gradually become organic and human has partly become machinic (Haraway, 1991). This can also be seen in the invisible and unnoticeable artificial intelligence technologies we rely on daily without even feeling they are there (Cath et al., 2018; Floridi, 2016).

Implications of ethical frameworks

In the previous section I’ve contextualized the basic and fundamental debates about future technology and humans. In this section, I highlight some ethical inquires along with some examples of what might be the implications of the unwise adoption of technology. Before I identify some ethical implications, I will highlight the dilemma with the current ethical frameworks.

There are three main ethical frameworks, but they all share a basic anthropocentric perspective. The first is “Deontology”; where ethics is defined based on human intentions. The second is utilitarianism; at which there’s a need for human calculations to judge the consequences of an action and decide whether it’s good or bad. The third is virtue ethics, where the action is judged based on the character who is doing it. In all the three lenses, ethics is seen from an anthropocentric perspective that decides what’s good for the human. The problem is that if an ethical issue has been seen through the lens of anthropocentrism then it’s somehow excluding the others (Rae, 2014). Another argument is related to the 1948 human rights declaration that starts with “recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world” (United Nations, 1948).

This raises several questions such as what is dignity? and what are rights? and does human rights only that count? The concept of human dignity enjoys global acceptance because it refers to the notion of recognition. In other words, the declaration is a subtle confirmation of humans having the highest value because of being human (Lebech, 2004) it is clearly noticed that the discussion about dignity is also coming from an anthropocentric perspective, which is problematic when discussing the dignity of other-than-humans.

Ethics, technology and design

Ethics and technology have had a quite complicated relationship, in this section I try to give a short account on the nature of this relationship as well as the problematic dilemma of taking technology from science laboratories to be introduced to the market. In this section as well, I introduce the role of design in this debate.

Victor Margolin argues that ethics and technology are in a grey area where implications of moral nature aren’t clear for some actions; while we understand clearly the advantages and threats of technology, but we still do not have the intellectual and political tools to handle the technology integration with societies (Margolin, 2007). I’ll put artificial intelligence (AI) as an example for this complicated argument. AI has a very wide range of ethical questions and concerns rising around it, from issues such as trust and transparency to responsibility and self-determination.

These concerns could be seen in healthcare tasks delegation, users’ profiling in advertising and autonomous driverless cars (Taddeo & Floridi, 2018). Those are clear situations where AI can either be a very dangerous threat or a very supportive technology. This imposes the urgent need to apply robust ethical platform for implementing similar technologies in societies. All other emerging technologies might have the same concerns

as AI. These technologies made fundamental changes to humans’ relation with the material world where different key actors play different roles including scientists, engineers, developers and designers. They all have very central position in these transformations but there’s a doubt that they can predict what could be the uses of their outcomes and what could be the “dark side” of particular developments they may be introduced to the market (Margolin, 2007). Design can play an active role in addressing these dark sides, exploring them, revealing them and putting them under investigation.

Design issues

By the end of the cold war and the fall of Berlin wall; market-led capitalism has taken over any possible alternative models for societies thus design had only one way to align itself with; finding no other alternative political or social frameworks (Dunne & Raby, 2013). This indirectly contributed to unfavoured implications on the social and environmental levels (Jakobsone, 2017). Design is surely a fundamental part the of socio-economic system. The government-led economic system usually chooses particular paths for technological development. This sort of development is not random; yet it does have political drivers that are related to the industrial society where it develops (Malpass, 2018). It’s not always easy for designers to take themselves out of this system and to think of other alternative solutions. So, if design doesn’t know where to go or does go with consuming the “only made available” solutions; there might be serious implications of taking such path; noting that emerging technologies are rarely questioned due to the pressure made by politicians and shareholders demanding growth; moreover, technologies are usually made desirable for designers to adopt and implement (Auger, 2014)

It is obvious that the world around us is changing fundamentally; science and technology are growing rapidly to reach unprecedented areas such as synthetic biology, nanotechnology, and neuroscience; these areas are opening up new realms for design to explore and adopt on a level and scale never reached before (Dunne & Raby, 2013). The uprising technologies do not only focus on mere scientific developments but also developments that might manipulate our emotions and desires (Harari, 2014). The central enquiry of many of these radical developments is to design lives both human and animal (Dunne & Raby, 2013); this triggers many questions about the consequences and implications of what could be the future for these designed lives? Whether it will be human or inhuman or a mixture of both? How do they relate to each other and how could they relate to the environment?

It’s imperative now to think that there’s a need to reorient ourselves and to rethink ethical discussions that have historically been part of design (Margolin, 2007).

Design role

Designers from the various disciplines can contribute greatly to the futures. Designers can shape the relationship between human and technology. They are responsible for bringing products, buildings and technology to life. Design is an activity that lies between two worlds, the one we are living and the one that could be. Designers have the ability to turn an immaterial idea into material application that can be then introduced to the market (Margolin, 2007). It is obvious that the technological development is unstoppable; and that designers’ contribution to this development is paramount. So, the question is how designers can respond and contribute to the technological developments responsibly rather than going with the flow without questioning. Dunne and Raby (2013) argue that designers should not only design applications but also implications through creating alternative products and services that aim to question social and

technological development. Designers can do this by going upstream to test ideas before even becoming an established technology or application. Designers should look at the implications of adopting these ideas on society and to debate the political, cultural and ethical consequences. Design can facilitate the discourse on advanced research in science and technology as well as engaging wider audience in this debate. It can help in “developing a practical way of understating” for engineers and applied scientists in realising social and technological futures (Malpass, 2018). By this, design can follow what Hariri has suggested which is “influencing the direction of scientists” and to respond to enquiry of “what do we want to want? Instead of “what do we want to become?”.

This is exactly where design lies as a catalyst between the science lab and the market. That is where the consumer and profit led factors enter the field (Dunne & Raby, 2013), that’s also where the trouble starts along with the opportunity for change. It’s vital now for humanity, no need to mention particular categories of stakeholders, to act as early as possible towards the upcoming technological revolution before we end up taking decisions after it is too late or after mass destructions that might need years to recorrect. That’s very similar to what happened with the impact on labour force and the environmental consequences caused by the past industrial revolutions (Taddeo & Floridi, 2018).

Critical/discursive design as a catalyst for change

Having discussed the need for stimulating a debate on technology. In this section, I introduce the area of critical/discursive design practices where it’s possible to use their capabilities in creating the debate regarding particular technology. Bruce and Stephanie Tharp (2013) categorize design into four categories:

- Commercial design: this represents the majority of the product/industrial design practice, this category is driven by the market and its success can be measured by profitability.
- Responsible Design: a type that is stimulated by a humanitarian cause; can be defined as being socially driven for the users that are ignored by the market; this type produces products that can be put in sale but it’s aim is not making profit of sales.
- Experimental design; this type focus on exploring and experimenting processes rather than focusing on the outcome; it’s usually motivated by an enquiry such as exploring manufacturing technique, material or scientific development.
- Discursive design: this type at which design is used to communicate ideas rather than presenting a design outcome, it uses utilitarian objects, services or interactions as tools of thinking and opening up a discourse about a particular debatable issue. This type is not very common to see in market mostly in exhibition print and film.

This categorisation was mentioned to contextualise discursive design and to introduce another practice which is critical design. critical design is often used interchangeably with discursive design to describe a kind of design at which the aim is to debate and not to create a functional design outcome. Dunne and Raby coined this term as a response to the movements that look at technology as an always good practice that would solve any problem. They identified critical design as a practice that “uses speculative design proposals to challenge narrow assumptions, preconceptions, and givens about the role products play in everyday life”. They described it as an opposite attitude to affirmative design that reinforces the status quo. Critical design identifies the gap between reality and the different idea of reality that creates a space for discussion; it uses a dialectal discourse between fiction and reality to cause an effect (Dunne & Raby, 2013). Therefore, “critical design provides an analytical position for exploring, conceptualising and communicating

around emerging technologies” (Arnall & Martinussen, 2010). Mazé & Redström describes critical design as a form of design that uses design tools and process not to solve a problem but to rethink the borders and parameters of a problem from a critical of view (Mazé & Redström, 2007). Critical design is influenced by the critical theory and its aim is to capitalize on the audience engaged in the discourse and their intellect to convey messages (Malpass, 2017).

It is important to highlight the three categories identified by Malpass for the contemporary critical practices according to domain, scope, visual narrative and topic addressed (Jakobsone, 2017) which are: associative design, critical design and speculative design. The roots of associative design are coming from the Italian radical design and it capitalizes on experimental techniques driven from conceptual art such as subversion and experimentation. Critical Design is the approach I have identified in the aforementioned section and the third category is speculative design which is the branch of critical and discursive practices that focuses on the future of emerging technologies by commenting on socio-scientific research and theories (Malpass, 2017).

In this particular research, I’m focusing on speculative design with the aim to answer the question of why critical and discursive practices could be capable of aiding designers to design better technological futures with deep understanding of the surrounding issues not just designing mundane products.

Speculative design rationale

In this section I shed the light on speculative design from an ontological point of view, in other words why speculative design is there? and what does it do?

Speculative design can be considered a branch or a variation of the critical design practices. The branch that focuses on technological futures. Dunne and Raby (2013), the researchers who popularized the term, describe speculative design as “an activity where conjecture is as good as knowledge, where futuristic and alternative scenarios convey ideas, and where the goal is to emphasize implications of “mindless” decisions for mankind”. It uses design as a means of speculating about how things could be, to imagine possible futures; not through the usual means of predicting or forecasting such as spotting trends, extrapolating themes and predictions as they cite these methods are erroneous (Dunne & Raby, 2013). While Auger defines Speculative Design as” it combines informed, hypothetical extrapolations of an emerging technology’s development with a deep consideration of the cultural landscape into which it might be deployed, to speculate on future products, systems and services” (Auger, 2013)

Speculative design does not provide answers as it aims to raise questions and to provoke debate (Raby, 2008). It aims to design alternative presents; by doing this, it can always make radical interventions to the current practices and evolving technologies by applying different ideologies and practices (Coulton et al., 2016). Auger adds to this argument that speculative design emphasizes the “philosophical enquiry into technological application”; it tends to take discussion on technology beyond the experts to a broad population of audience (Auger, 2012). The resulting artefacts often appear subversive and irreverent in nature; they look different to the public and this is the key behind triggering discussions and stimulating questions (Coulton et al., 2016). Malpass has argued that the main aim of speculative design is to “encourage the user to reconsider how the present is future and how we might potentially have the chance to reconfigure the future” as it “attempts to explore ethical and societal implications of new science and the role product design plays in delivering it” (Malpass, 2013)

One of the most important offerings of speculative design is that it does not force particular ideas on its audience on how

they should perceive or deal with particular technology. Its purpose is to confront the audience with emerging science or technology too early and leaving the audience to choose what’s meant for them to use such technology (Auger, 2014). This sort of public engagement is basically what makes speculative design democratic practice (DiSalvo, 2012) using design to reconfigure our futures with the public voices and reflection considered in the decision about technology. Speculative designers do not suggest what preferable future is, they let the society decide what it is a preferable future for them, whereas affirmative design, government and industries actually decide on their preferable future and create it (Dunne & Raby, 2013). It encourages people to suggest their preferable future that has no direct relevance with today’s perspective of how the future should be and this raises the awareness for society on how they could influence their choices for the future (Jakobsone, 2017); the logic of the ‘laws’ of future implies that if we strive for something, we can eventually turn it into reality, even if it seems incredible now (Voros, 2001).

Before I conclude, it is important highlight that critical and discursive design have had criticism among the design community. The criticism for these practices is mainly built on the fact that these practices are not producing functional objects which is defying the main purpose of the design discipline whose main aim is problem solving (Jakobsone, 2017). The second aspect of criticism is the association with the Frankfurt school of criticism which has put critical design in a privileged area where only the “elitist” can reach and interpret its proposals. This is also connected to Tonkinwise argument about critical design being sometimes there to solve first world problems (Tonkinwise, 2015). Some of the designers already present dystopian futures about, for example, the scarcity of energy where some areas of the world are actually living the same situation now. The third aspect of criticism is the reflection mechanism; Sharp and Sharp describe the action of creating a critical design proposal by a “message in a bottle”; at which designers send a message to unknown audience without having control on what sort of reflection does this proposal make (Sharp & Sharp, 2013).

Conclusion

In this article, I’ve discussed the relationship between humans and technological futures aiming to identify what technology is bringing to humanity and to what extent it might change the notion of human as we know it now. I discussed the basic frameworks for ethics concerned with technology and gave some examples of what the implications of technology could be. I followed this by highlighting the role of design in acting towards the socio-technological challenges of the future. Then I suggested the critical & discursive practices in design to be an appropriate approach to imagine ethical implications of technology in order to debate about these challenges as early as possible. In particular I focused on speculative design as an approach to use design as a medium for technological futures enquiry. In future research, I aim at tackling the gaps in design futures practice by further exploring and examining adjacent design practices to speculative design such as design fiction and experiential futures where there’s an opportunity to tackle some challenges that speculative design had struggled to overcome.

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“See You in Zoom”: Digitally Extended Presence as a New Normal

Abstract

The 2020 Lockdown has forced grand institutions (from British House of Commons to Venice biennale) as well as business and individuals to transfer their activities almost entirely into the web. Digital presence, which a year before would hardly qualify as a presence at all, in 2020 has become legitimate, officially approved and mutually agreed upon.

Our report focuses on specific traits of contemporary digital embodiment, online dialogue and combined meetings that take part in “real life” and conference apps simultaneously.

We argue that digitally extended communication — which has long ago been described in science fiction — is now taking shape due not to a burst of technology but a change in social conventions established during the period of pandemic and has become the calling up an update in logistics, project management, education process, etiquette Etc.

We aim to examine the change in spheres of art, design and humanitarian education in order to outline features of digitalized presence and Zoom-mediated communication. The challenge is to seize the look of “new normal” and to reflect upon its consequences.

Keywords: Lockdown, media communications, museum, virtual reality, corporeality, presence, digital art, contemporary art, cultural industry, media design, exposition design.

Introduction: “relocation to the online”

This spring both West and East faced empty airports and railway stations, closure of theatres and museums, cancelled concerts, postponement of cinema premieres — and the development of strategies, collective and individual, of adaptation to the realities of the Lockdown-world which demanded lightning-fast transformation from all actors of a global society. One of the means of such adaptation was a transition of all the significant activities online and a search for the new formats of interaction via virtual platforms such as Zoom, Facebook’s Messenger Room, MS Teams Etc.

The “relocation to the online” took place both at the level of individuals and institutions. During the pandemic, we have seen live-streaming performances of the Metropolitan Opera and the New York City Ballet. Dance, singing, acting, happenings Etc. in the era of coronavirus went online: we have lost the immediacy of real bodily presence in real space and gained the concept of a “mediated body” in a virtual space as long as a new sense of togetherness with other people via online communication.

The art world had to adapt to new circumstances rapidly. Museums worldwide (such as Metropolitan, British Museum, State Pushkin Museum and many other institutions) reacted to COVID-19 Lockdown by offering virtual visits and enabling alternative paths for viewers to experience their exhibitions and collections — basing on online interactive experiences.

However, there is a catch: web transforms spatial arts into temporal arts, online we see every piece of art including paintings, sculpture, objects and installations — as a moving image, temporal visual flux which resembles video art or a movie. Since the beginning of a “digital shift” all types of art pieces have been transformed into sequences of codes thus blurring its media specificity, but no one expected all of them to accept the laws of a flat-screen.

For example, in the early days of the pandemic, some museums streamed images of paintings — and as this caused bewilderment to the audience, so this practice was quickly abandoned. Making a virtual tour of the museum halls without expert comments or showing a picture without a story told about it — has little sense for the viewer. The network space was soon full of streams, online tours, lectures, seminars, discussions and webinars, both about specific artworks and some aspects of the “life” of a museum or gallery. Institutions’ representatives talked about their favourite art pieces and shared personal stories related to the perception of art. For example, the above mentioned State Pushkin museum introduced a series of new online-events and educational content: before the Lockdown

youtube-channel of that museum uploaded 5–7 videos per month and during the spring-summer of 2020 there appeared 40–50 videos per month. Furthermore, the museum’s Facebook page daily presents several texts on art, short educational videos and live streams. But winning screens is a challenge: museums found themselves forced to compete for the viewer’s attention on a par with youtube entertainment, video games, TV series, news websites, Etc. In an attempt to compete some art institutions placed a bet on the scientific approach, making videos which mostly resemble short (and not too thoroughly prepared) documentaries or lecturing in Zoom. Such formats open up a perspective of museums entering the market of filmmakers and “edutainment” — MoMA is actively pursuing this path. Unfortunately, it may end up in a losing the depth of both art analysis and sensation of beauty (an online course devoted to contemporary art which MoMA launched on Coursera platform has been quite unsatisfactory due to a lack of systematic approach).

On the other hand, there are online projects that resemble not entertaining content, but video art (which Anna Tolstova points out in her article for “Kommersant”). In comparison to the cinema, video art has a sharper focus of critical reflection of media technologies and the influence it has on a viewer. For example, we’ll take a look at how film directors and artists treat time. Watching a movie, a spectator dissolves in the flow of storytelling, one forgets about time carried away by the twists and turns of the plot. And video art, on the contrary, tends to emphasize the passage of time and keeps the spectator awake. Christian Macklay made it clear in “The Clock” (2010), a video assembled from 12 000 movie clips showing time. As the artist explained: “It is composed of moments from the past, but the ever-moving clock that matches your real-time places emphasis on the present, helping the viewer to be reflective about the viewing process”.

Following this reflective track, the State Pushkin Museum’s media art department launched a project “100 Ways to Live a Minute” which resembles video in artistic strategy. Within the framework of this project, artists, curators, and art critics talked about their experiences of spending time meaningfully — and offered the viewer an opportunity to develop his strategies for meaningful interaction with the here-and-now. Also, within the framework of the project “100 Ways to Live a Minute”, there is a “Digital Exchange” section: exclusive screenings of media art by the world’s largest artists who work with the themes of time perception. Pieces of Gary Hill, Laurent Grasso, Clement Cogitore, Taus Makhacheva, the Provmyza group, Julian Rozefeldt and many other media artists — were opened to the public for a day, a limited time to spend wisely. And it is the logic of critical viewing of the art consuming process that distinguishes a well-curated piece from entertaining content on the Internet.

Museum space reviewed and revisited

Joseph Beuys proclaimed that every man might be an artist, today we could assume that any space could become a museum (utilizing video projection, AR, VR and artistic initiatives, Etc.). And authentic areas are facing a challenge of rethinking the logistics.

Currently, there is a discussion unfolding about the attitudes to design of museum premises. Due to the epidemiological situation, 2019–2020, restrictions and social distancing have been introduced in most museums worldwide. For example, when we visited the State Hermitage two weeks ago faced an instruction to choose one of the two proposed routes, and following it, we could neither make a turn nor come back. It resembled a video game with checkpoints where you had to choose, say, between Rubens and Rembrandt. A viewer could see only one of them and if he wanted to encounter the other — one has to start the route over again. One health-point gone :)

The Stay-safe measures will possibly change the way museums’ are functioning for a long time. Shortly, it will not be possible to wander around an exposition. There is, however, a solution: Peter Zumthor has recently designed for the Los Angeles County Museum of Art a vast interior space which interlinks the exterior and indoor space.

Among other exciting proposals are drive-through exhibitions (such as “Gogh by car”) which allow visitors to enjoy the beauty of digitized paintings not even leaving their cars.

Post-COVID Avant-garde and Kitsch

Having no shortage of Stay-safe solutions, we find it essential to point out an opposition that outlines the features of two trends in the digital transformation of culture. Focusing on the ultimate goal of an online product we should ask ourselves: is it an expansion of an artistic message or just an enhanced method to meet the consumer’s request? What cultural perspective is implied?

Above, we analyzed the digital transformations of the museum using the models of cinema and video art; however, we could sharpen the problem statement by referring to a modernist concept of a confrontation between Avant-garde and Kitsch.

Reflecting on it in 1939, Clement Greenberg described, on the one hand, highbrow and intellectually rich art of the Avant-garde, being addressed to the elite, seeking answers to “absolute” questions; and at the opposite pole was the mass culture, a simplified entertainment, Kitsch cultural production. Avant-garde is determined to awaken the viewer, call on him to create complex mental constructs and develop his artistic sensitivity and enhance socially oriented projects. On the other hand, Kitsch introduced a simulacra of culture that works like a lullaby for an unsatisfied person, as a distraction from dissatisfactory social reality, it gives one beautiful dreams that divert from revolutionary issues.

Greenberg’s theses have been largely criticized, and today the art theory no longer distinguishes between “high” and “low” in culture. However, we argue that it makes sense to reconsider the Avant-garde/Kitsch opposition focusing not only on aesthetics but also on the ethical component.

The historical Avant-garde, embodied in the projects of Malevich, Mondrian, Tatlin, the Bauhaus masters and other artists, was aimed at “life-building”, at the transformation of society by the methods of art and humanized technologies. It was an attempt to harness a more rational and justified global community. This impulse was partly replayed after the Second World War, when a new generation of artists appeared on the scene, seeking to blur the boundaries between art and life (notable examples: Situationist International and Fluxus). Further, technological development delivered new media to the cultural field: video art, media art, science art, and internet art — these practices also have a distinct reflective focus and transformational potential. Using new social models and modern technologies, avant-garde artists want to build new formats of life together in a globalized society and expand the horizons of art’s possibilities. The digital projects of large museums that we mentioned that bring their collections to the online space creating VR tours, international platforms for “digital exchange” and vivid educational video content are examples of building a more open, inclusive and liberal noosphere.

On the other hand, entertainment projects that use works of art only for marketing and decorative purposes, which do not give the viewer a significant aesthetic and intellectual impulse (like Van Gogh Alive, becomes a new round of Kitsch in the cultural field.

In Lockdown period Kitsch works like a pain reliever for a spectator, worn out by boredom. Avant-garde, on the contrary, may be a hard to swallow pill but a powerful means of awakening from slumber.

Another striking example of how going online has allowed an art project to unleash its potential fully is the Burning man 2020. The previous year, 2019, this explosive art festival gathered a record number of participants — about 80,000 people, and in September 2020, the Nevada desert was supposed to accommodate an even larger community. But due to the new coronavirus, the event was cancelled. In order to keep up the spirits of the burners during these challenging times, festival management decided to create a copy of Black Rock City on the Multiverse online platform. And although the organizers made a disclaimer that VR-Playa would likely be messy and awkward, they nevertheless decided to make this powerful technological shift hoping that the virtual Burning man could become engaging, connective, and inclusive like never before.

On the online platform, a model of the city was created with a multitude of scenes, sites for master classes, musical events and communication. The network space contained Endless Playa, on which digital mutated vehicles, sculpture and installations were deployed. There were also lots of burners’ videos, live streams and online-chats. Thereby, Burning Man brought together not only dedicated participants but also new guests of the festival who had no opportunity to come to the real desert. Thus, the ten principles of burners not only remained but also reinforced by digital expansion, revealing burners’ philosophy to more people from all over the world.

It is interesting to note though: despite the COVID restrictions and the official cancellation of the festival, in September 2020, several hundred people (according to NBC News 4) arrived at the traditional place where Black Rock City gets built, they were determined not to step away from tradition. Supporting this rebellious initiative festival managers made sure that vehicles were positioned at a safe distance and other precautions were followed.

Conclusion

Previously only a personal, physical presence was “legitimate” for dancing, visiting the museum and the opera, participating in important negotiations or a scientific conference, studying in a university, and since the Lockdown, these conventions have been revised. What previously would not be considered as presence, now is perceived as such. In a post-Lockdown world, digital presence is mutually agreed to be a new normal, alongside physical presence. Considering that today there is a choice between two comparable forms of presence, and due to circumstances, current epidemiological situation and corresponding risks, desire to save time and effort, people tend to choose online interaction. It means that today offline is not so much of an option but a choice, even a privilege. An offline contact today means effort and commitment like never before; it becomes more valuable and gets experienced as a special occasion. Digital togetherness which we were forced to go into has enabled us to rethink and re-feel our co-presence in a real space.

It works the same way for the art world: offline is crucial for galleries, art auctions and museums (that market got unprecedented money loss during the Lockdown). Why? We could say that creative industries have designed effective means to reach out to spectators who are ready to consume digitised cultural products. Both the Kitsch and the Avant-garde are ready to play in this market field, and the show is going well. However, we argue that there is a “secret sauce” in the act of viewing the original piece of art.

Digital presentation of chef-d’oeuvre makes appreciation easier and faster, however, once we go to an offline exhibition our interaction with a piece of art intensifies, seeing it “in real life” becomes a valuable experience because we perceive texture, size, colour, and materiality. Moreover, we should take into consideration the way a viewer has to make from his apartment to an exhibition space, everything he sees on the route (museums and significant galleries are mostly situated in beautiful lo-

cations) and the sensations one gets entering the laboriously designed and crafted exhibition interior. Therefore, meeting a piece of art “in-person” constitutes a synesthetic experience combining image, sound, smell and movement space, we get an integral feeling instead of “flavourless” information received in the weightless space of visual sign exchange.

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Nance: Satirical Jewelry Design for Feminist Perspectives in Augmentation

Abstract

Society is heading through augmentation towards artificial super intelligence. Many advances are focused on reaching the singularity with minimal critical considerations that create short-term deliverable controls that allow AI to develop within constraints. This paper uses the tool of satirical design of an augmented jewelry piece designed with a theoretical base artificial intelligence, economic, and feminist theory in order to expose the gaps our current society has and implications if these gaps present in AI development. This project does not pose a solution to critical considerations in augmentation, but instead stresses the importance of critical satirical industrial design in the sector of augmentation, posing it as a tool to show possible concerning realities if there is limited focus on diverse perspectives in critical considerations.

Keywords: Feminism, Artificial Intelligence, Satirical Design, Augmentation, Design Theory.

Introduction

Following the theories of Nick Bostrom and Ray Kurtzweil, we are growing more intimate with technology (Kurtzweil, 2001) and we have to consider great “strategic analysis” to specifically discover crucial considerations that we need to spend time developing philosophies around as we are developing augmentation and artificial intelligence. Specifically, Bostrom recommends that we need to post-pone discussions solely around long-term existential risks of a post anthropocene, but develop shorter-term philosophies that have greater impact and direct solutions. If these solutions are not considered before the singularity and super intelligence is fully operating on its own, then we are looking at problems that we have not prescribed controls for AI to stay within or learn around. If these controls are not in place, then they can exponentially grow upon one another and lead to a path of extreme harm for those who were not considered in Bostrom’s explanation of “strategic analysis.” (Bostrom, 2016)

Specifically feminist AI projects that surpass pop feminist surface-level pursuits are few and far between according to Allison Adam (Adam, 2001). Many projects in the science fields and AI development are surface level and targeted specifically at getting more women into industry, which is extremely necessary, but projects need to consider the social epistemology of augmentation in relation to feminism specifically as we are preparing to transition into augmentation towards the singularity. Within the science and engineering fields the expectation to consider feminist projects is not attended to by men and is expected to be taken on and lead by the few women in the field, creating a gap in feminist considerations.

Specifically many feminist developments in the field of artificial intelligence are within the confines of popular third-wave feminist ideas (Adam, 2001) that are also linked with ideas of “power feminism” (Hooks, 2000). We see this expounded on in popular media and through products and advertisements where products are pushed through as “empowerment feminism” which has been rebranded into a version of feminism that encourages women to select their own views of what feminism means, what rights they want to fight for, and what makes them feel good or feel more successful. This version of feminism is also linked to consumerism that communicates alliance with the empowerment feminists. Within empowerment feminism there are products focused specifically on increasing a woman’s confidence for ultimate corporate success, further communicating the capital value and ascension of the female and reinforcing sexist norms of femininity within corporate environments. (Zeisler, 2017)

This is a common phenomenon we see in corporate America since the 90’s through today, where privileged white women give up on revolutionary feminist ideas once they get a taste of the economic power they find within the existing social structure, where they are still subjugated to male domination. The white privileged “power feminist” sees her oppor-

tunities as freedom when it is purely assimilation specifically into a double bind of balancing traditional feminine characteristics and navigating the “old boy’s club” in order to reach her successes. These ideas of feminism are not fighting for political rights, are not fighting for equality in the workplace, and are not fundamentally trying to resist sexism in society, but are excelling at finding ways through privilege to assimilate into it. Specifically this fits within an overarching neoliberal version of success and self worth being tied to capital gain, forcing the female to feel social pressure to maintain traditional domestic labor standards and new neoliberal capital standards. (Hooks, 2010) What we see today with empowerment feminism is a moment that is mirroring the “post-feminist” ideas of the 90’s and 00’s that wasn’t so much “anti-feminism as much as they were a mockery of feminism as just too earnest.” (Zeisler, 2017).

Specifically, looking at the worth of women in neoliberal society, women are stuck in a dichotomy, where the expected worth of a woman is in her feminine characteristics, but she experiences the added expectation of being a capital member of society where she must also balance a strict amount of masculine characteristics to succeed in the male dominant capital based value of a neoliberal society. This creates a world where women are expected to fight for access to the corporate world, balance expected feminine assets within that corporate atmosphere, and find her own space within more masculine “old boys club” behavior. Combining this with “empowerment feminism,” there is higher and higher pressure for women to submit to sexist work environments in order to be rewarded as one of the few tokenized women that make it to the top, balancing domestic visions of femininity, and also having to work more hours and perform at a higher level than her male colleagues to receive the same amount of recognition for that labor (Wood; Fixmer-Oraiz, 2017).

Specifically the concern of this project is around the popular views we see in feminism and the mass glorification of “empowerment feminism” not only in popular media, but beginning to see recorded in feminist academic circles. (Hooks, 2000). As we develop augmentation and pinpoint critical considerations, it’s concerning not only that feminist issues would be largely overlooked in the extremely male dominated field of artificial intelligence, but that empowerment feminist principles have a high probability of being circulated into those critical considerations. If we are creating augmentation within the precepts of neoliberal social values and empowerment feminism, then we will create augmentation that is “feminist” in a third-wave point of view, and does not work towards a anti-sexist society, but assimilates into existing sexist norms.

The Role of Satirical Design

This project relies on the tool of satirical design since its role in design is to provoke a political or economic topic where there is not a solution, but a critical perspective on politics is taken with a taste of jokiness. In Miller’s interview with Slavs and Tatar’s 2019 *Pickle Bar* biennale installation, they stated “Satire’s power lies in its ambiguity: the best satirical language is so clever and so coded that the butt of the joke can’t quite work out that he’s the punchline. Satire has bite—or a briny acidity, depending on who you ask—and unlike more palatable jokiness, it’s long been associated with subversion and societal upheaval.” Further, the interview goes onto express that satire is a way of creating visual work that connects complex academic philosophies to a version of “popular philosophy” and helps connect an academic perspective on politics today and bring it “to the people” in a more tangible and accessible format (Miller, 2019). Satirical design is able to engage user audiences to critical thoughts through design and help differentiate types of critical design practice (Malpass,

2015). A satirical narrative around product design can have incredible impact because we have such intimate interactions with products and they reflect ourselves through our purchasing habits and hold our self concept within them (Sandlin, J. A.; McLaren, P.; 2010) (Marx, 1867). Satirical products could have a strong impact of reflection on the ideas that are being critiqued since we have such an intimate relationship with the products that we own.

In 2018, Niklas Jacob worked with 17 other designers to create satirical *IDEA* flatpack furniture to make our interactions with each other around the home humorous and thought provoking. The project was successful at joking about our contemporary interactions within our homes and with our loved ones. One piece of furniture assists those seated at the table to look down at their individual phone rather than looking at the others around the table (Yalcinkaya ,2018). Max Siedentopf explores satirical versions of what to do while quarantining yourself during the Coronavirus pandemic. The project comically portrays lo-fi images in meme-esque fashion creating helpful hyperbolic tasks to fill your time while quarantined due. The project gives a humorous take on harsh realities we are living in. (Ravenscroft, 2020) These projects are successful not in creating a solution, or proposing a specific change in behavior, but in provoking thought and perspective on a specific subject through an object.

Specifically within the space of design and augmentation, we see few projects that broach this area. One specific installation that is within the realm of critical design practice — without being specifically satirical — is the impactful installation from the 2018 London Biennale U.S. pavilion called *Face Values* by digital artists R Luke DuBois and Zach Lieberman; which constructed a critical commentary on biased artificial intelligence. The installation by DuBois specifically, brought visitors quite literally face to face with racist and sexist functions of AI that has been implemented and is currently being used. The visitor is asked to create a specific emotional facial expression, and being fed back to the visitor on the screen in front of them are what the AI assumes their age, sex, and ethnicity; most of which is extremely wrong, but is particularly more inaccurate for those that are not white males. The installation also includes a list of several governments, police departments, and marketing agencies that use the technology to inform their practice. The crux of the project is to have visitors leave knowing the technological advancements of facial recognition is not functioning in an equitable way and is taking on the biases of those who created it. (Ponford, 2018)

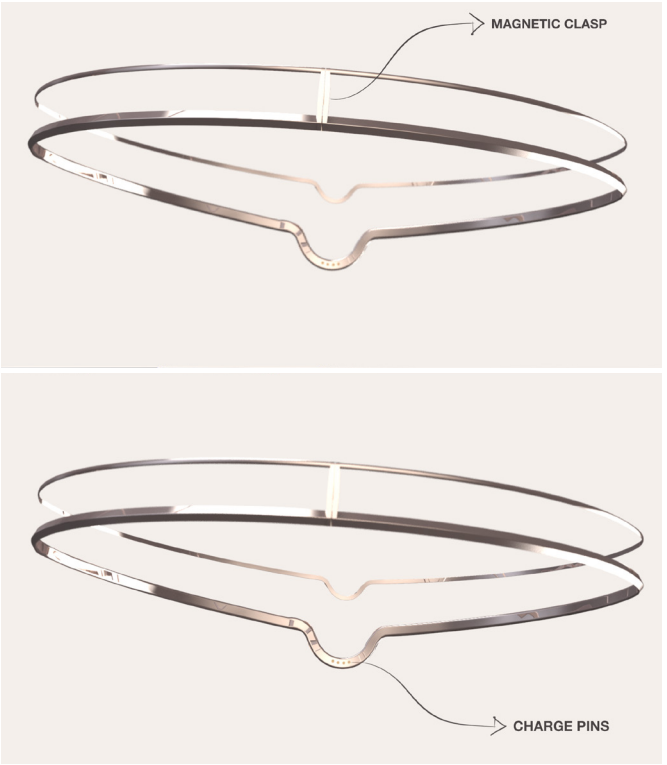
The success of critical design perspectives isn’t in creating solutions, but its strength is in bringing critical analysis and philosophy into a more tangible and digestible format. The purpose is to provoke thought on a subject that is particularly difficult to discuss, but with a bit of humor.



Nance

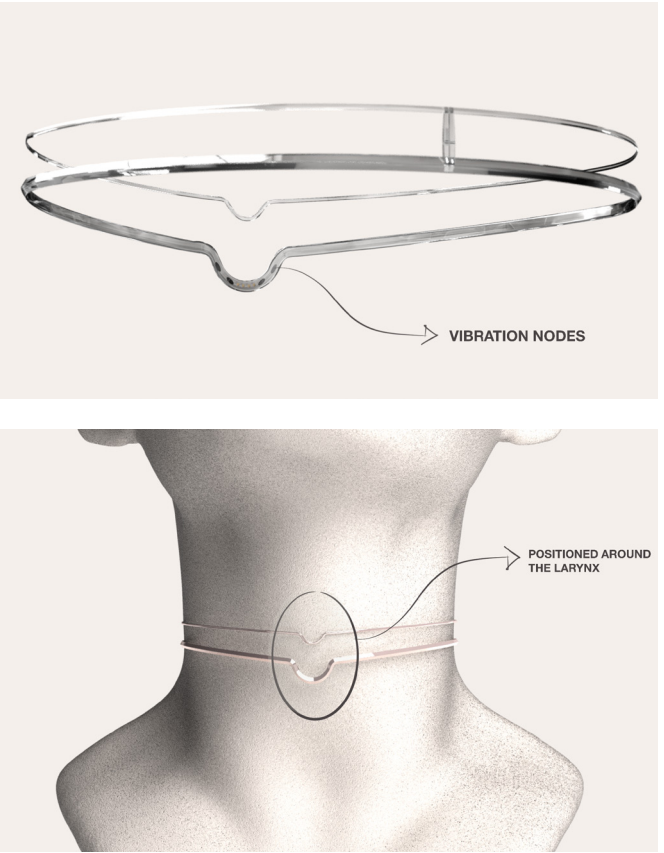
Going back to the literature review and the theoretical focus of this project specifically, there is a gap in augmentation projects addressing feminist issues. Specifically ones that address issues similar to *Face Values* that critically assess where we are now with AI development, and faces users with possible realistic problems with bias in augmentation development. The focus on this paper was to create a satire on possible realistic augmentation products if we develop them with feminist values in mind, but stay within the concepts of neoliberal third-wave empowerment feminism.

This project focused specifically on the speaking norms and assimilation that empowerment feminists are excellent at. In empowerment feminism, this phenomenon is encouraged to be worked past by balancing the double-bind as well as you can and learn through time when to jump in and when to stay out; continuing to be subservient to the existing sexist corporate culture and continue to work harder, longer hours, with less pay than male counterparts in order to work through it eventually (Wood; Fixmer-Oraiz, 2017). One way that augmentation may be created to serve this culture, is augmentation that could help assist with allowing the female to be more subservient to verbal communication norms. In regards to vocal communication, since women are often interrupted and also have to maintain a specific level of feminine and masculine communication (Wood; Fixmer-Oraiz, 2017), having a product to help the female be interrupted and spoken over by men would be suitable for this version of neoliberal empowerment feminism; allowing the female to focus qon working up the corporate ladder within current conceptions of preferred corporate femininity for her valued place in a capital valuing society.



In order to help keep a woman from speaking when a male speaks is to paralyze the vocal cords for periods of time when a male starts speaking. This can be done by paralyzing the larynx to keep the voice from working. Therefore, the product must lie around the larynx and considering the third-wave neoliberal feminist focus on beauty and fashion products that empower women to excel at their jobs and pronounce their individually identified feminist views through purchasing products and consumption, a necklace becomes a fitting product and form to take. Voice recognition software would be needed in the prod-

uct to recognize a range of vocal depth that is associated with the male voice to identify when males speak. A vibrator within the necklace placed around the larynx vibrates to partially paralyze the larynx for a short period of time while the device recognizes the user starting to use their vocal cords when a male is already or beginning to speak. The first vibration wouldn’t fully paralyze the vocal cords and speaking would still be feasible, but the vibration is meant to be an initial shock to signal the user not to speak. From that point, if the device is triggered in succession, the vibrations grow in intensity, both to keep the female user from continuing to try to speak when a male counterpart is speaking, but would also slowly train the female how she would most appeasably communicate with her male counterparts over time. This is meant to mirror the slow training of roles that happens over time in a neoliberal, male dominant hegemonic society.



Conclusion

This project does not propose a solution to feminist augmentation, but uses the tool of satirical design to poke both at the gap in feminist critical considerations in the development of artificial intelligence and augmentation, but also on popular ideas of empowerment feminism and power feminism that serve a small group of traditionally privileged women to work towards assimilating into a sexist society rather than resisting towards an anti-sexist future. The necklace specifically critiques the assimilating behavior within corporate culture around verbal communication where women are often interrupted, are spoken over, or heard less in corporate environments. Nance functions by vibrations in the necklace around the larynx of the user to paralyze the vocal chords and keep the user from speaking when male voices are recognized. This necklace is an object that uses standards of feminine beauty along with augmentation functions to increase the ability for a woman to assimilate into the existing sexist corporate culture, posing a satire of augmentation submitting to neoliberal norms within third-wave feminist principles.

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The Return of Avatar as Ever-changing Postdigital Identity

Abstract

The world of social networks and instant messengers providing round-the-clock communication of users was preceded by a phenomenon of avatar, without which it would be inconceivable. The text covers the evolution of user’s notion of its virtual body. The main quality of the virtual environment — making everything possible — gradually inspired increasing rate of changes of avatars and experiments with users’ appearance using masks and applications. Ever-changing state of virtual body has a lot in common with a concept of body without organs and expresses itself beyond mimeticism. Recent activity of Instagram and Youtube users show the way the nonmimetic virtual world can be constructed deriving from the virtual body.

Keywords: dentity, technology, avatar, post-digital, Instagram, corporeality, virtual, body without organs.

We can hardly imagine the modern Internet without user-pics or avatars or other forms of human presence in the virtual space. An avatar is a picture, which is uploaded as a representation of oneself, one’s personality. The environments created by different technologies contain different versions of the user’s personality. This splitting of personality in the virtual world is our new normal. This does not interfere with communication with other users. Until last decade frequent changing of avatars or frequent changes of person’s outlook on their photographs was considered untrustworthy, now, on the contrary, the desire to show different selves can be perceived as aspiring for new sincerity.

Speaking about the material world, one has to divide a person into soul and body. The physical body limits freedom of action and thought: the constancy of the bodily configuration is projected onto mental activity. Virtual space represents the maximum freedom from the limitations of matter and allows person to be itself at maximum, which almost means to be anything. If in the material world identity is a superstructure based

upon a biological body, which it distinguishes from the other similar ones, then in virtual space it is the virtual body itself.

Expanding possible bodily configurations in virtual space often follows the beaten path. This applies to a variety of virtual masks. Masks were traditionally used in shamanic rituals to free the spirit of the shaman from his human body so that he can connect with the world of deities or ancestors, and speak on their behalf in a different guise.



Figure 1. Charles Fréger, photograph from the “Wilder mann” series, 2010 — now

Some of the costumes in Charles Fréger’s photographs (Figure 1) are part of contemporary rituals and create a compelling sense of bodily and spiritual transformation. In virtual space, the physical body transforms into a virtual one, practically becoming a body-without-organs, reaching somewhat higher state in relation to material one. The viewer’s trust mode for this reincarnation is approximately the same. We do not merely believe that we have something uncommon before us, we see it.

Natural body movements and facial expressions are complemented by new ones that seem unnatural. This brings together

shamanic rituals and 20th century modernist art. Oskar Schlemmer put the dancers in strict conditions, limiting their movements by the costumes themselves and strict instructions on how to move around the stage (Figure 2). The modified choreography of the body opened up an ideal world of pure moving forms and textures. The performers who could no longer move as humans embodied inhuman, metaphysical harmony, which does not exist in the earthly world. Modernism has succeeded in combating mimeticism in art. If we transfer this trend to the reality of social networks, it means that the avatar may no longer pursue the unattainable goal of replicating the real appearance of a person. The absence of such a goal opens the way to experiments with self-identification in a virtual space where there are no restrictions or laws, and in which corporeality is also not limited by anything.



Figure 2. Costumes by Oskar Schlemmer (Bauhaus) for the Triadic Ballet, at Metropol Theater in Berlin. Photo: Ernst Schneider, 1926

As a result, there are two types of self-identification through body in the modern virtual world. One is the desire to consolidate the identity, and, accordingly, the appearance of the virtual body, we may call it conservative. The other is the drive to expand. The first is accompanied by identitarian essentialism as Mark Fischer (2013) names it in “Exiting vampire castle”. It is the idea of an inner core, essence or nature that needs to be reflected, imitated and embodied in a virtual environment. The second implies the idea of a performative construction of identity through a virtual body. Parallels can be drawn with the history of art of the twentieth century — particularly with the transition from depicting to constructing or performing.

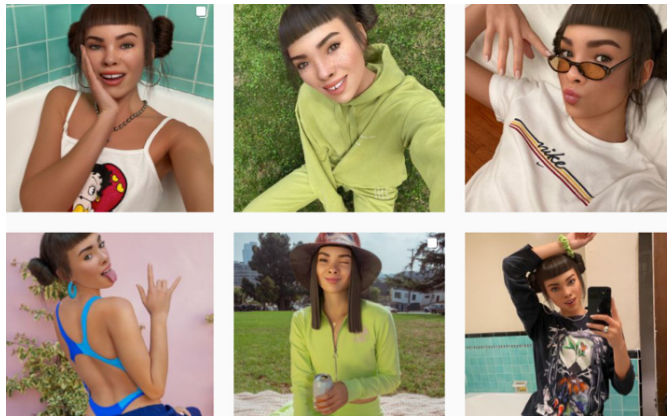


Figure 3. Compilation of various Lilmikella photographs published on Instagram, 2016 — now

The first type describes the universe of the Avatar movie, which ends far from revealing all the possibilities of transplantation of consciousness. With all the possibilities, the authors of the film choose a new body for the main character, which on-

ly slightly differs from the original. It is also anthropomorphic, but more mobile. It is difficult to imagine a more boring choice, probably dictated by the need to arouse empathy in the audience, since something unlike a human is more difficult to empathize with. Another example is Lilmikella (Figure 3), virtual model, which looks almost the same in all photographs since it appeared on Instagram. The third example is furry community. When identity, created as a new body in virtual space, is embodied in the real world, it becomes much more rigid due to the slowness and high cost of material production of costumes. Community members often choose it for the long term.

Performative construction of identity through a virtual body starts with the early days of programming. In 60’s, the first programming languages were written and the first graphical interfaces were created. The first presence of human movement in a virtual environment was the mouse cursor. We are used to the fact that the mouse cursor now constantly changes its shape when moving, for example, in Microsoft word, but we believe that it is natural for a person to remain the same forever. Later computer games like Pac-Man (1980) introduced more evolved cursor — moving body of a main character. Since the first video games outlook of character’s body was a subject to constant changes during the game.

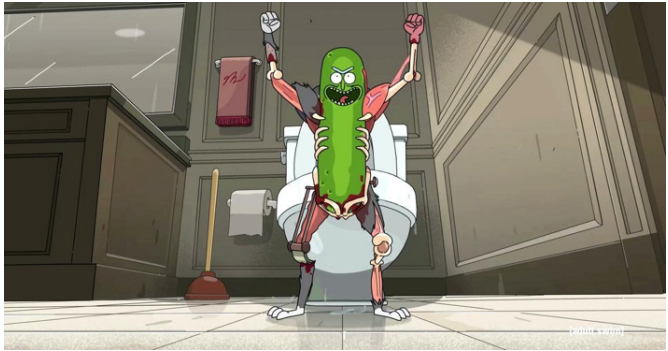


Figure 4. Still from Rick and Morty episode 3 season 3, 2017

In the series Rick and Morty (2013 — present), human beings in the world of future technologies are not defined by physicality at all. In episode 3 of season 3 of Rick and Morty (Figure 4), one of the main characters of the series, Rick Sanchez, turns himself into a pickle. In the course of the plot, his pickle body is enhanced with new limbs transplanted from the rats he defeated. What drives his constantly changing body shell? As Carlos Castaneda (1998) wrote, “shamans ... defined their quest as the quest of becoming, in the end, an inorganic being, meaning energy aware of itself, acting as a cohesive unit, but without an organism”.

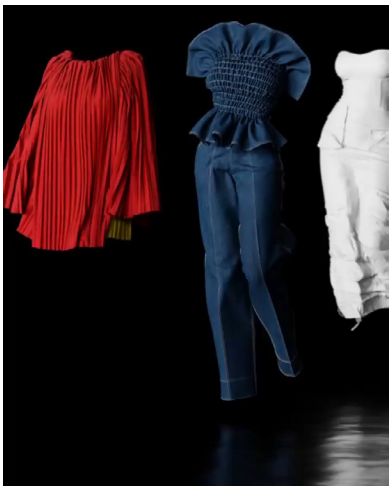


Figure 5. Hanifa, digital fashion show, 2020

The 2010’s saw the emergence of a multitude of authors working in the field of motion design. In some works, for example, by Kiyan Forootan and lotsalote, there are moving figures with emptiness inside, the movements of which are similar to human ones. We can compare the motion-tracking data needed to create such a video with the formless energy in Castaneda’s writings. We seem to see some manifestations of an animated invisible force, but not itself. The show of the collection of the Congolese brand Hanifa (Figure 5) leaves a similar impression.

When we look at the images of Leigh Bowery (Figure 6), we can never understand who is wearing the mask, and whom it represents. This is an almost graphic illustration of Judith Butler’s (1990) performative theory of gender. “In imitating gender, drag implicitly reveals the imitative structure of gender itself — as well as its contingency,” the author writes.



Figure 6. Leigh Bowery photograph, author and date unknown



Figure 7. Salvjiaa Instagram post, December 31 2019

It is much easier to create a fluid identity in a virtual environment. To do this, artists or content owners and authors on social media accounts can resort to a variety of tools, from Instagram masks to Photoshop and more sophisticated image and video processing programs. Salvjiaa (Figure 7) and Matieresfeales accounts have various anthropomorphic forms of virtual bodies of their owners. They distance themselves from the usual configuration of the human body. The environment in which the body is located has the characteristics of familiar “human” spaces. The space in the picture is still depicted, or reproduced from real life, while the identity or body of the character is being created or constructed. The same combination is obtained when using the Instagram mask.



Figure 8. Carolthekitty Instagram post, September 5, 2020

We see a similar approach in the work of Carolthekitty (Figure 8) and many others. The analysis of multiple accounts allows us to highlight the problems of such a performance in the

social media space. Since it is impossible to imagine what would restrict the incarnations of the virtual body, sooner or later a moment will come when the viewer will not be able to see one incarnation and the other as incarnations of the same body, to put it in simple words it would see them as different beings.

Some accounts leave the viewer the opportunity to identify the image in different posts as the same virtual body, some go further. In this case, the body turns into a set of visually distinct entities, objects and forms, from which a society or a whole world can be composed (Figure 9). The virtual body constitution becomes a model for the structure of the virtual world. This can be seen in the video of the Cool 3D World channel, where the laws of physics, logic, human and God are violated (Frame 10).



Figure 9. Carolthekitty Instagram post, April 17, 2019



Figure 10. Cool 3d World, Earth & Moon video still, 2017

To sum up, ritual and artistic practices inherit each other and give rise to an alternative representation of the forms of thought, body and life in a virtual environment. Autonomy of artistic and spiritual creativity on the Internet is especially important in the post-digital era, when the material world begins to transform under the influence of the virtual. The forms of thinking based on the analysis of the material world and the subsequent human activity so far leads to its collapse. Only an alternative, virtual reality, free from imitation of the material world, is capable of generating a different type of consciousness and values, just as it is capable of generating new different forms of corporeality.

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CREATIVE INDUSTRY

Hosted by Peter the Great
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Heart Ring — A Set of Stackable Rings Integrated with Chinese Culture and Western Aesthetics

Abstract

The current Chinese design lacks good ideas and design methods that can integrate Chinese and foreign cultures in the communication of Chinese voice, the understanding and acceptance of Chinese culture by international audiences is not accurate enough, which is one of the reasons that Chinese culture cannot effectively generate emotional resonance on the international stage through design. Suppose Chinese culture wants to adapt to this era of globalization more quickly. In that case, it needs to combine art and design, attract and impress international audiences with innovative products, break cultural barriers with cultural exchanges, and break cultural differences with cultural integration. This paper takes “Heart Ring”, a set of ring designs for which the author has won many international awards, as an example to discuss the creation research of the combination of Chinese character culture and Western aesthetics, expound on the development of Chinese culture’s cross-cultural design.

Keywords: Chinese characters, cross-cultural, ring design, Chinese character ring.

1. The carrier of Chinese cultural heritage — Chinese characters

Chinese character is one of the oldest characters globally, and they are also the statutory characters used in China today. It is a written symbol of Chinese and a carrier of Chinese culture and ideology. Every Chinese character contains the creator’s wisdom and logic of the characters thousands of years ago. In the process of cross-cultural dissemination of Chinese culture, Chinese characters carry ideology and convey ideas and values to the outside world. French symbolic philosopher Jacques Derrida said that western characters highlight the meaning behind symbols, while Chinese hieroglyphics focus on the ideological content of the characters themselves (Derrida, 2015). Chinese characters have two cultural functions: one is to record cultural

information, and the other is to create cultural phenomena (Liu, 1999). At the same time, each Chinese character has its unique meaning and aesthetic value, which is the characteristic of “字本位 (sinogram-based theory)” (Xu, 2005). All in all, Chinese characters have an explicit cultural and symbolic nature. Through Chinese characters, one can understand the ideological structure and thinking characteristics of Chinese culture. Using Chinese characters as a cross-cultural communication medium can arouse the audience’s curiosity and desire to explore the culture behind Chinese characters.

In China, the word “文化 (culture)” appears for the first time in 周易 (Zhouyi): “观乎天文，以察时变，观乎人文，以化成天下 (Observation of astronomy, to observe changes in time, observation of humanities, to transform into the world).” “Culture” includes the historical traditions, life systems, and thinking of specific nation models, values and art, etc., represent the accumulation of society and history, and are the results shaped by humans for a long time. The English origin of the word “culture” can be traced back to the Latin “colere”, which means “to live, farm, and worship” (Sorrells, 2015). In the Oxford English Dictionary, the word “culture” refers to: “the lifestyle of a specific group in a specific period, especially general customs and beliefs.” Contemporary understanding of “culture” includes the material culture and spiritual culture in the human world.

Chinese characters have undergone thousands of years of change and development, are the condensing of Chinese wisdom and strong vitality. They have recorded and continued the Chinese people’s living habits and value standards for a long time. Have always influenced China’s aesthetic style and thinking mode. Chinese characters are symbols that record the Chinese language. The pronunciation and meaning of Chinese are embodied from abstract concepts through the form of signs, which expands the communication function of Chinese. “The cultural information carried by Chinese characters has two sources. One is the words in Chinese, and the other is from the shape of the Chinese characters.” (Wang, 2002).

The famous cultural scholar Yu Dan once said: “Chinese characters are the lines held in the Chinese nation’s palm. Following its pictograms, you can touch the secrets of all concepts’ origin; Chinese characters are also the native soil flowing under the pen tip. Every stroke and painting of Chinese characters flows through our veins and contains our local feelings.” Chinese characters record and spread Chinese, and Chinese is the cultural medium of society, so Chinese characters also have the attribute of spreading culture.

2. The origin and cultural connotation of the creation

2.1. The creative origin of “Heart Ring”

How to explore creative inheritance through design in the context of globalization, so as to awaken the world’s interest in and connection with Chinese culture has become an interesting and valuable challenge. “Heart Ring” attempts to create new concepts that can blend Chinese and abroad through innovative forms of cultural communication, Chinese characters recognized as one of the most difficult to master in the world, making it to become a cultural media that is accessible and appreciated by everyone regardless of ethnic, culture and background.

Chinese characters with a history of 5,000 years are the label and source of Chinese culture and value. Chinese hieroglyphs highlight the symbols and references of the shape of the characters. The hieroglyph contains the ideological content of the character itself. Chinese expression has the characteristics of “sinogram-based theory”, which means every single character has an independent meaning and aesthetic value (Guo, 1985). Chinese characters have symbolic characteristics, and people’s experience and comprehension of Chinese characters form the primary way to understand the meaning of Chinese characters. In summary, Chinese characters can be used to understand and explore the special relationship between Chinese culture’s thinking structure and characteristics. Using Chinese characters as a medium of cultural dissemination can effectively stimulate the world’s curiosity about Chinese culture and have the effect of getting twice the result with half the effort.

The combination of Chinese characters and accessories has significant cultural significance. In the integration process, the expression mode of visual symbol transformation enables accessories to have prominent cultural symbol characteristics, strengthens the cultural and spiritual meaning of accessories, and deepens the world’s recognition of traditional Chinese culture. Through the innovative practice of traditional Chinese culture, Chinese characters’ expression and application will be expanded and promote the publicity and application of traditional culture.

2.2. The connotation of the word “心 (heart)”



Figure 1. The character “心 (heart)” evolved from oracle bone script to regular script

The Chinese character “心” was first seen in oracle bone inscriptions. The shape of the word “心” in oracle bone inscriptions resembles a human or animal’s heart, and it means heart. Simultaneously, the heart is located in the center of the human body, so “心” also has the meaning of center and middle. However, its connotation does not only represent an organ in the body. The 医宗金鉴 (Yi Zong Jin Jian) records: “The essence of shape is the mind.” This sentence means that the most precious part of a body is the heart. “心” also symbolizes a person’s thought, character, and spiritual energy. The Chinese definition of “心” appears in the 易经·复卦 (Yi Jing·Fu Guo) : “复其见天地之心乎.” which mean the fusion of the universe and nature

with the heart. Wang Yongming’s Mind Thought: Judging the truth of all things in the universe is born out of the mind. “Heart begets all things” is also a condensed summary of this sentence, and it also expresses the mindset of the Chinese people.

3. “Heart Ring” creative process

3.1 Difáculties in creation

Chinese character is one of the oldest and most challenging to grasp in the world. The cultural and aesthetic meanings contained in Chinese characters can be expressed in different ways. Creating cultural products that can be accepted and resonated by audiences with different cultural backgrounds is a significant difficulty in the design process. Chinese characters are pictographs, which constitute graphics only representing morphemes, not syllables. Generally, the meaning can be conveyed through the font, and the content of the expression is directional. According to the needs of cultural development, the form and substance of Chinese characters express their connotations and show the individualized information transmission that is different for each individual.

Secondly, the study of Chinese characters and the study of jewelry design are intertwined with multidisciplinary fields, and the system knowledge is independent. How to effectively combine the two, systematically master the connotation rules and connotations of Chinese characters and jewelry design requires in-depth exploration to find the combination of internal and external connections and form value. Chinese characters focus on cultural connotations, while accessories focus on expressions. In merging the two into one, it is necessary to consider how to organically integrate the characteristics and values of the two parties to form a complementary new form and trigger emotional resonance among the audience to inherit cultural value.

3.2 Progradation

In modern society, people have begun to care about the abundance of spiritual and material matters in life and have higher standards for the creation; they have a higher level of pursuit for the “design” of various materials. The “design” mentioned here can be understood as the design language of visual communication symbols. Jewelry design is a type of visual communication symbols, especially rings. It has cognitive and aesthetic functions and plays a role in form creation and information transmission, and is a cultural carrier (Arnheim, 1998).

“Heart Ring” is a work that combines Chinese character culture and Western aesthetic expression, trying to find a way to break the boundaries of Chinese characters through visual presentation. In the Ming Dynasty of China, there was “Inscription Rings” with inscribed auspicious characters such as “福”, “松”, and “安” (He, 2011). In the West, similar word rings were called “Signet Ring” in ancient Europe, the text content is mostly related to family and religious beliefs (Dong, 2014). Combining these two traditional cultural concepts, “Heart Ring” cleverly combines Chinese characters and emotional expression into one, giving it the ring’s ancient medium form. Inspired by the Chinese characters with the radical “heart” at the base of the word, and implicitly the implied meaning of “十指连心 (ten fingers connected to the heart)”, created a personalized stackable ring.

According to the composition method of Chinese character combination and decomposition, Chinese characters are composed of strokes and radicals combined into a whole according to a specific rule. In decomposition, the strokes and radicals are deconstructed according to the structure, and each unit after the structure has a certain meaning separately. This work is cleverly divided into two parts by using the upper and lower structure of Chinese characters. For example, “恩” can be deconstructed into two parts: “因” and “心”. The gold-plated “心”

ring can be worn alone or combined with other platinum-plated Chinese-character rings to form various “心” Chinese characters. Each unit has independent aesthetic meaning and decorative value. At this moment, Chinese characters have become a unique visual symbol with a specific connotation. This combination is an innovation in product form and deconstruction and reconstruction of the “beauty of Chinese characters”.

The aesthetic function of Chinese characters is mainly reflected in the composition and psychological level. The abstract expression structure and different glyph styles of Chinese characters have the beauty of pictograms, showing Chinese characters’ essential design consciousness. Being good at targeting the beautiful things in nature, Chinese characters naturally create a psychological perception of beauty and stimulate related emotional reactions. This product is an entirely open “text” for the wearer, which can be matched and combined according to different cultural backgrounds and emotional orientations. In the process of selection, personal meaning is endowed to the Chinese text, so as to appreciate the beauty of Chinese characters and at the same time, integrate their ideas and emotions. This kind of open design concept is also more in line with the diversified appeals of young people’s emotional expression and value under the background of “post-modern culture”.

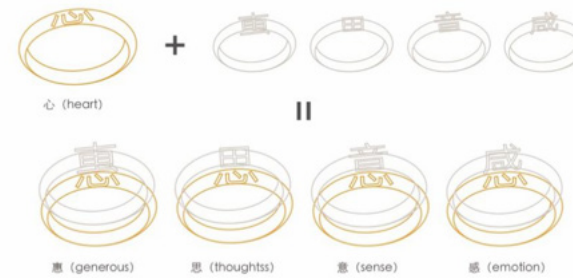


Figure 2. Example of heart ring combinations



Figure 3. Heart ring-“恋” and “忍” **Figure 4.** Heart ring state of decomposition



Figure 5. Heart ring wearing effect

4.Design results

“Heart Ring” combines the author’s dedication and love for cross-cultural communication and has won many international and domestic recognitions and honors, including the 2017 Italian A’Design Award Gold Award, 2017 German Red Dot Design Award, 2016 China “The Beauty of Chinese Characters”-Global Youth Design Competition. The German Red Dot Design Award-winning comment: “The ring is a kind of jewelry with great symbolic significance. This ring is made of silver-plated gold, With the Chinese character “心” engraved on it, which is also the focus of this design. It can be worn alone or with other silver-plated platinum rings. These other rings also include characters, which can be combined with the heart’s root word to create another meaning. In this way, exquisite jewelry becomes a carrier of information. These exquisite rings can be perfectly combined in physical, aesthetic, and symbolic meanings. This is the charm of them.” The ring is exhibited in the “MOOD (Museum of Outstanding Design)” design museum in Como, Italy, the Red Dot Design Museum in Germany, and other exhibition halls worldwide. At the same time, it was published in China Daily and Economic Daily.

5.Conclusion

In the cross-cultural dissemination of Chinese culture, Chinese characters are a perceptual communication medium at the ideological level. It is precious to spread culture and ideas through Chinese characters. In the context of globalization, combined with artistic design, explore the possibilities of creative inheritance and emotional transformation of Chinese characters, explore the aesthetic meaning and expand cultural connotations, so that the international community can more easily and interestingly come into contact with Chinese culture. The audience may not know Chinese characters, but through the products created by Chinese characters, they will understand and come into contact with Chinese culture’s implications.

“Heart Ring” deeply explores the symbolic and cultural connection between Chinese characters and jewelry and combines cultural connotation and emotional experience. The designer uses Chinese characters as a medium for creative design, integrates Chinese characters into modern people’s daily lives, forms a fashionable and popular element, breaks the design techniques of traditional jewelry, uses innovative expressions that conform to the aesthetics of modern people, and expands by relying on diverse changes in structure And enrich the application of Chinese character elements. Through the understanding of beauty, the obstacles to cultural exchanges are eliminated, so that the world can correctly understand and contact the Chinese character culture. It promotes the continuation of Chinese civilization and enhances the influence of Chinese culture on the international stage.

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Design Education & the Evolving Nexus Beyond the Curve

Abstract

In our rapidly changing world the scale of the problems facing us & the pace of creative destruction across the entire spectrum of human endeavour often defies existing solutions proposed by the meagre creative resources brought to bear on them. Educational programmes, students and graduate profiles across the world are struggling to adapt.

One of the wellsprings of the human initiative to solve these challenges resides within our universities/ centres of higher learning and the rapidly emerging fields of Interdisciplinary Design & practice. As per the survey conducted by the Ministry of Human Resources Development (MHRD), Govt. of India, there are 993 universities, 39,931 colleges and 10,725 standalone Institutions across India. These institutions further reflect the student density of India as the enrolments in higher education every year are nearly 37.4 million. Put another way that's about 25% of the entire population of Russia today and higher if we calculate within the relevant demographic.

How, where, when and what we choose to teach in contemporary art and design schools is an increasingly critical question. It's the quintessential question of depth versus spread as time at the University for a Student is a fixed and often a very expensive resource. It is one that is transforming the higher education ecosystem right before our eyes. Here are some of our implemented choices.

Keywords: Education, Interdisciplinary, Ecosystem, Design.

Introduction

The COVID-19 pandemic, market forces & technology with its myriad branches from Big Data, to Artificial intelligence have in some cases accelerated changes already taking place in the 21st century and in others catalyzed completely new realities. It has brought to life our deepest fears, the rapid demise of the familiar whilst simultaneously highlighting our extraordinary resourcefulness and potential as a species. Technology

led change is so rapid and pervasive that job descriptions get obsolete as soon as they are evolved, along with product categories and industries. Educational programmes and graduate profiles across the world are struggling to adapt.

Constantly switched on, hyper informed consumers, on symbiotic networks demand solutions that speak to their needs and experiences. It is crucial to understand however that their experiences are open to alteration in real time and do precisely that in ever shortening time cycles. This indicates that the design solutions and by implication the designers of the future will constantly need to interact and morph along with the social and cultural contexts within which their designs exist.

The scale of the problems facing us & the pace of creative destruction across the entire spectrum of human endeavour often defies existing solutions proposed by the meagre creative resources brought to bear on them. Myriad factors have dramatically disrupted the way we perceive, experience, and interpret the world around us. The choices we make today will have far reaching consequences for all our collective futures including the future of design and education.

One of the wellsprings of the human initiative to solve these challenges resides within our universities and centres of higher learning & the rapidly emerging fields of interdisciplinary design & practice. How do we decide what we teach in contemporary art and design schools is an increasingly critical question. It is one that is transforming the higher education ecosystem right before our eyes with the domains of art, design, science & technology forming a nexus with our socio-cultural and emotional needs.

This is the right time for a deep and searching reflection on diverse issues affecting what we teach in our art and design schools. These range from curriculum, pedagogy and emergent domains at the intersections of diverse fields of human endeavour. Will the knowledge environments of the future choose open source/universal access resources and tools leading to technology enabled human centred systems? Shall we choose

a different path built on a rapidly scalable content model, controlled by a mere handful of companies? Will we fear change or embrace it and adapt fearlessly?

It is therefore critical that our choices be led by and rooted in a humanistic vision of education, innovation and development. The transmission of human knowledge networks are now inextricably linked with technology, connectivity and access to information cutting across boundaries of caste, creed, gender, age and nationalities.

What we need are a set of new pathways evolved through a new sense of inquiry and purpose that balances both the needs of the society & the individual. These issues need responses rooted in paradigms evolved for the future rather than in systems of the past.

Initiatives that expand the reach of design beyond the culture of consumption & repurpose it towards social innovation are vitally important. These include the issues of environment, health, poverty, and education among others and place the Human experience at the heart of these emerging narratives.

If we take a bird's eye view of these developments we see that the various streams and disciplines that once defined human knowledge networks in the last century are increasingly dovetailing into each other via a series of infinite collisions, intersections and overlaps. The constant journey of the many towards the one is a recurring idea not only in Indian culture but in many others. It juxtaposes neatly into our modern world if we consider the multiple dimensions and the sheer complexities of the challenges that face us as a species.

Our cultural roots ensure that the idea of interdisciplinary solutions, handed down the ages through our literary and cultural traditions — of looking at multiple dimensions, forms and solutions to a problem has a deep resonance for us as a species. There is also an acknowledgement that the known always is, in every process of human cognition, countered and circumscribed by something unknown and the pathways to reach it are many. These ideas have a deep significance for the development of interdisciplinary design education around the world.

If one transfers the idea of biological, social and cultural diversity into the cognitive realm, it forms the underlying principles for the emergence and importance of interdisciplinary thinking and practice in the many diverse fields of Human endeavour including design. The idea that all design disciplines are interconnected, flow into each other and that this flow is accelerated by advances in technology towards a singularity or a meta discipline has long been prophesied by our philosophers, thinkers and authors.

Thus the role of design as a universal instrument spanning the whole range of human activity, effortlessly leapfrogging artificial boundaries of the so called creative professions is one that hardly needs emphasis.

Chaos & A boy with a Hammer

In the last decade of the last century as young design student I came across a seminal book by James Gleick called Chaos. Published in 1987 it was a lucid introduction to the early development of chaos theory and the amazing science of the unpredictable. Today the Butterfly effect is a well known term describing enormous deviations which may or may not result from small changes in initial conditions in dynamic systems (initially used to describe weather systems) and its resultant applications in the study of many diverse fields spanning science, technology and design.

If we consider the current climate of rapid change and its consequences both have eerie resonances in chaos theory, making the future extremely difficult to predict. There is no way to accurately predicting which socio cultural or technological trigger will be significant in the future enabling us to see what lies around the next corner, let alone months or years ahead.

This necessitates a completely new and dynamic approach to innovation, education and strategic planning: intuitive, flexible and easily adaptable to creative economies.

Another idea worth exploring is the “Law of the Hammer” articulated by Abraham Kaplan, and published in an article for The Library Quarterly in 1964. The idea was explained through the example of a small boy who if given a hammer, would find that everything he encountered needed pounding. Kaplan went on to allude to the human tendency to formulate our problems in such a way that they seem to demand precisely what we already happen to have at hand.

The Law of the Hammer (also known as the Law of the Instrument) has enormous implications today in diverse fields including education and institutes of higher education (I.H.Es). It is an idea that we hear and read constantly being applied to everything from artificial intelligence to online education: this or that tool will transform education.

Experience tends to suggest that it will not, but most of the time the individuals or organizations expressing this idea are convinced about their hammer. The curse of tool blindness is pervasive in the context of the profusion of technological tools available in our society and especially so for art and design education. Some educators say: “let's teach all children how to code” or “online education is the future.” Domain experts often enter with preconceived notions about the requirements and solutions. This flawed approach remains the norm in many sectors particularly education design and social innovation.

This tendency to attack challenges based on the toolset which we are most skilled at or feel most comfortable with pervades almost all fields of human endeavour. Scientists, Technologists, Artists, Designers, Warriors, Politicians & Educators may all have biases that incline them to deploy their core skills or experience obtained within their specializations to larger problems that may lie outside their own fields.

This may not constitute the most efficient approach to explore specific challenges, especially when the problem has multiple dimensions which require radically new holistic approaches towards optimum solutions. This ability, to look outside of our core tendencies, skills and experiences and approach complex challenges based on the tools that the challenge demands rather than those we have at hand is an increasingly critical skill that we need to teach ourselves.

Lessons from the past

As we step into a new decade the reduction of learning opportunities and associated value in Art and Craft is an acknowledged trend in our society culture and education. Traditional methods of producing goods have been transformed almost beyond recognition through a gamut of emerging technologies from Artificial intelligence to rapid prototyping. The parallels today with the conditions that gave birth to the Arts and Crafts Movement in Europe in the 20th century are striking.

It was a movement that emerged from the need to elevate the production of decorative arts in response to the rise of industrialisation, reducing the value society placed on craftsmanship and the manufacture of traditional arts. Ranging from textiles to wood and from architecture to jewellery, the Arts & Crafts movement spanned many fields of design and led to a flowering of expression and creation in diverse areas.

Then as now there was a mad rush towards efficiency, scalability and industrialization. There was a belief prevalent that the 1st industrial revolution was the solution to all human needs and challenges. Today a century later we see the same scenario play out with pretty much the same assumptions. Only this time it is industry 4.0, emerging technologies and automation that are the magic bullets that will solve all our problems

While the benefits of technology and its ability to help solve many of the challenges facing us today are manifest wheth-

er it is a one stop solution to all human needs and the creative economies of the future remains to be seen.

Artist and critic William Morris was one of the leaders of the Arts and Crafts movement in Victorian England. He felt that the separation of the act of designing from that of making and fragmented assembly line approaches weakened relationships between the maker and the product. In the process it ends up damaging both the quality of the artefacts and their creators. The sense of detachment of the craftsman from his craft eventually led to a diminished sense of purpose and fulfilment that filtered across society.

Today a similar story is unfolding across the world. Arts and Crafts have already been pushed to the brink of extinction by societies and cultures by increasingly eroding their cultural value and place in our social fabric. We have no time to pause and appreciate their innate beauty, the human skill that goes into crafting them or the time and education it takes to master these skills.

In the intervening century we have also made astonishing progress in the field of neuroplasticity. We now know more than any other time in history about how the brain learns, retains and accesses information. It is how the brain constantly adapts and rewires itself to survive and thrive in our world. Today neural agility is the holy grail of modern education and there is for lack of a better term an Interdisciplinary curriculum race across the world. There is widespread understanding of both the significance of a thriving knowledge economy and the role of interdisciplinary pathways, people and education in achieving that goal.

What is lesser known however is the increasing belief in designers, administrators and educators alike that the path to interdisciplinary education and competencies might lie through the genesis of a second arts and crafts movement. One born out of the needs of our present society — rooted equally in technology and the human experience. It is no secret that one of the most challenging areas for design education in the post Covid world is the ability to transfer digitally — material and tactile skills, especially those that lie in the realm of making and need time, practice, experience and perseverance to master.

These are complex cognitive abilities, as they call for us to unite our cognitive, visual and motor skills, allowing for the hand to be guided by the visual stimulation our eyes receive. Practice and time then form the neural pathways for the acquisition of that skill. It is these basic skills that serve as scaffolds for students to transcend discipline based silos of knowledge in the search for solutions.

The transfer of knowledge and data into lived experience lies in the metamorphosis of “knowing it” to ‘knowing how’. This forges new neural pathways and the transference of abilities from short term into long term memory. Manual drawing and making skills that allows us to manipulate and explore materials form the basic body of both traditional Arts/crafts and design education. Hand skills thus are catalysts to the intimate learning experiences of the material and its manipulator.

Over time these skills have steadily lost relevance and space in our educational curriculums as we chase the next cool skill or the “in” thing. Perhaps it is time to revisit these roots of Design, education and the human experience. As a society we need to reflect deeply on these developments that will ultimately underpin our creativity, cultural/spiritual and economic success.

Educators at the tip of the spear

One of the unfolding lessons of the pandemic is the tremendous resilience and innovation adopted by educators across the world by adopting technology engaging stakeholders across the spectrum from governments to university administrations on one hand to students, their families and social networks on the other. Successes have been more pronounced wherev-

er the institutes of education and higher learning have provided educators access, the freedom to make decisions and forge the necessary collaborations.

The institute where I teach was one of the many in India and across the globe that moved rapidly to embrace the changes transforming the world around us. What helped immensely were the enabling behaviour of the university administration and a tremendously capable faculty body. Another vital link were the existing linkages and new ones forged with global design institutes in Europe and Australia which enabled us to learn from emerging best practices everywhere. In these times we found often that educators across the world generously shared their insights and shared what worked in classrooms to enhance student engagement. It was a collaboration that grew organically gathering nodes without being driven as a top down initiative by administrative and institutional policies.

Within the University there was a consensus early on there have to be parallel investments into traditional material and craft workshops as well as cutting edge technological tools like rapid prototyping, machine learning & Artificial Intelligence.

The idea of making had to encompass both its traditional skills as well as new ones needed by evolving technologies. These skills reside at the nexus of traditional domains of science, technology, engineering and mathematics; and the university wide effort to transform STEM into STEAM. These allied to individual student experiences and interest might provide one of many viable gateways to evolving design driven innovations.

Sounds easy enough in theory however in practice it means a university wide debate, reorganization and the allocation of perpetually scarce resources.

Within the faculty body and administration there was also a dawning realization of a different kind. We realised early on that the true transference of education at a university like ours happens just as much in our classrooms as outside it. It is tied to the immersive experience of the student at the campus — of being there amongst the varied and arcane rituals of campus life. A learning that emerges as much from a designed and defined curriculum as from the post class chats with professors, the innumerable trips to the library, debates with classmates, the pressures of assignments and the need to make decisions, adjustments as an adult away from the safety net of their parents. With these insights arrived through innumerable meetings and discussions with the faculty students and administration, (sometimes over years) came certain realizations.

Innovation rich environments in educational institutions lie in their ability to create a symbiotic convergence of the four pillars of the intellectual capital:

Human capital, that is inherent capabilities in all stakeholders — Faculty, Students Administrations, communities and nations, developed through our education, experience, attitudes, and expressed through our skills and constructs, that impact evolving scenarios and social prosperity.

Infrastructural capital is a capability inherent in the infrastructural elements of educational and knowledge systems of the society — in the institutes of higher learning, research infrastructure, intellectual property etc.

Socio — Cultural capital is a capability allocated in our society in the form of social rewards, position, standards of conduct, networks and engagement that facilitate innovation and exchange of knowledge, thus innovation

Geo Political capital is related with the perceptions of our nation and societies beyond their geographical borders, encompassing the levels of integration with global economy, investment workforces and practices.

While we adapt to newer methods and models of delivery engaging with learners the School/college /university as a social and a physical place where students complete one of their rights of passage into adulthood is indispensable and must be protected. The concept of the colleges & universities as a distinct

space-time of shared experiences, unique and different from other spaces of learning whether self led, technology enabled or any combination thereof is a vital link to the holistic development of an individual and must be preserved.

We need to expand the campus and place centred idea of an institute of higher learning towards engaging not only students and faculty but entire communities regardless of location in our interconnected world.

The Designer has to emerge out of the discipline specific silos created in the last century and enshrined in our Institutes of Higher Education (IHEs) and transform into a multi disciplinary practitioner of design. This is vital in order to deal with Gordian challenges that defy solutions through the lens of any single discipline/domain. It calls for practitioners of design who can bring to bear a comprehensive understanding of human culture, history, context, psychology, ethics and motivations upon design issues along with the traditional tools of science, art and technology.

A sense of aesthetics, an appreciation of the rigor required for design and an ability to balance these diverse needs will define the designers of the future.

Design programs today have to create not only leaders of thought and problem solving professionals, but also champions for social good by orienting their graduates to serve both their economic and social responsibilities. This means equipping graduates with an understanding of diverse bottom lines and a global vision to connect commercial interests to socio/cultural value.

From these insights emerged a consensus to evolve a hybrid Higher Education Delivery (HHED) model for our universities that envisaged a symbiosis by blending emerging technologies with the best parts of a traditional university environment. The challenge was to do this while simultaneously trying to bridge the experiential gap between traditional and future ready systems of design education.

These ideas became the seeds that led to the genesis of two foundational interdisciplinary Programmes at our university — The Bachelors in Design (Global) and the Masters in Design (Integrated). At the heart of both courses resides a comprehensive reimagining & redesign of the pedagogy, delivery models and through these the anticipated learning outcomes of the curriculum of these programmes.

They were designed to be benchmarked to international best practices through an exhaustive study and analysis of scores of top notch global programmes, often involving visits and interactions with their faculty and administrations over the last past decade. The aim was to allow students to seamlessly travel to and study at partner universities across three continents and also leverage the interdisciplinary strengths of various knowledge domains ranging from Law, Medicine, Business as well as diverse design disciplines available at our campus.

The Interdisciplinarity Conundrum

The development of interdisciplinary practices in higher education poses another unique challenge. These programs aim at personalized student learning experiences that in theory flow through the intersection of interdisciplinary fields of study and research. This in turn enables collaborations and the pursuit of deeper insights.

In practice however often such goals often end up at cross purposes with the university’s organizational structures, predicated upon traditional boundaries between design disciplines, student learning objectives and criteria that must be met to fulfil qualification requirements.

Thus an invisible tension exists simultaneously at an institutional level, within the faculty and student body that form the core of the interdisciplinary experiences. It’s the quintessential question of Depth versus Spread. Time at the University

for a Student is a fixed and often very expensive resource. Interdisciplinary streams constantly grapple with what to teach, what resources to allocate and at how much depth. Finding the right balance becomes a key issue as is staying the course and resisting the urge to fall back on the systems, processes and structures of the past

We initiated our search for balance and an interdisciplinary environment with the design of our university campus. An environment that fosters contemplation and curiosity is an absolutely critical building block of an interdisciplinary university. It is almost as important as pedagogy and the subjects themselves. It is one thing to say that we are interdisciplinary school and completely another to have a campus that embodies this idea. Today the departments of Artificial Intelligence and Rapid Prototyping, Visual studies and Lifestyle Accessories with its focus on traditional crafts, sculpture and liberal arts are clustered with the colleges of Law, Medicine & Business by intent on green verdant environs. The facilities for the interdisciplinary programmes have been nestled amongst these traditional schools such that they can seamlessly weave departments, labs and resources. This allows students of diverse streams to interact with each other and forge new ways of thinking on complex challenges that continue to evade solutions.

The University seamlessly entwines colleges, football fields, cafes and sports facilities. There are bougainvilleas that wrap themselves around trees, quirky sculptures, animal shelters and lotus ponds that surprise you while walking around and encourage exploration.

Another keystone was creating a culture where reaching out to diverse schools and departments is a way of life; where senior professors and junior faculty routinely invite each other into to cross disciplinary inputs for a shared journey with the students towards discovery and innovation. I touch upon these two as both are often multi decade projects and don’t emerge overnight. It requires the right educators, institutional will, the encouragement of risk taking and mistakes and committed teams.

The final step involves interacting continuously with all stakeholders — Students, Faculty, Administration, International Partners as well as the Senior Management to create and deliver an educational experience that follows global best practices as well as the current guidelines laid down by the Government of India as part of its new education policy. There is also a feedback policy in place that will glean experience from the first few semesters and years to continuously refine the academic curriculum and delivery mechanisms.

The New Interdisciplinary Programmes have been designed to fulfil three primary objectives — to be rooted in the fundamental rigor that the practice of interdisciplinary design demands, to act as a catalyst for the free flow and expression of the creative instincts of our students and to learn from the best practices everywhere and yet relentlessly try to chart a course of our own.

Only by allowing the osmosis of knowledge through disciplinary barriers can we more closely align with the dynamic nature of knowledge in real world that lies beyond the boundaries of our universities. Therein lies the opportunity and the challenge to create a unique educational experience for our students.

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Design as a Tool of Communication and Creation of Reality

Abstract

What is the concrete definition of a designer?. As the 20th Century advanced, it was inevitable to inquire about the inherence of industrial design in the culture, as we saw the impact consumer goods have on the creation and modification of reality. The current approach that is given to Design is a tool for the materialization of an idea that is usually the search for a solution. A solution that can be tangible, virtual or discursive to a problem that can be social, economic, ecological, cultural and political. The solutions to the complex problems that designers face in the 21st century, must have a visible and real ethical dimension. The discussion no longer falls on the importance of Design in the construction of the social fabric, but on its scope, repercussions and above all the potential to build better societies.

Keywords: Design, profession, industry, epistemological, postmodernism.

Introduction: Design as a tool of communication and creation of reality

What is design? What is the concrete definition of a designer? Where is design implemented? According to different literature We have a general idea but without concrete limits, little defined; more a general vision of all the activities, processes, and solutions in which the person who personifies design is involved. The Industrial Revolution is the historical time in which we can place the birth of industrial design specifically as a profession. This shift in the consumer goods production had profound political, economical and social implications in the way of being, acting and seeing societies as a whole. Industrial design is a product of the hybridization between craftsmanship of consumer goods and the creative / innovation view of the world inherited by the artistic currents of the moment. Due to the “Designer’s ability to create affordable and functional objects for vast markets represented an unprecedented power for social renewal” (Parsons, 2016, p.56)

It’s doing has evolved according to the modern and the post-modern needs of societies. According to Parsons the designer has consolidated himself as the person necessary for making decisions regarding the external part of the product; the surface of the artifacts: shape, color, interactive dynamics of an object (the way the object is used and the way it responds to use). Where the designer role is put as a conceiver of plans, rather than a builder of objects (Parsons, 2016, p.23).

As the 20th Century advanced, it was inevitable to inquire about the inherence of industrial design in the culture, as we saw the impact consumer goods have on the creation and modification of reality. Consumption even became a postmodernist characteristic. “Under postmodernity, the role of marketers and advertisers is to provide consumers with the raw materials with which consumers can construct unique identities (Kacen, 2000, p.349). Consumption is prioritised in the fragmentation of other traditional sources of meaning (Firat & Venkatesh, 1993, p.227).

We have attributed to objects a dynamic interactivity. According to Lazutina: “The design language acts as a peculiar cultural memory of mankind providing the preservation of traditions and leading to the unity of groups” (Lazutina, 2016, p. 3416). A constructivist urbanism was implemented in the conception and construction of St. Petersburg in the early 20th century: austere industrial functional design. It was influenced by Lenin’s socialism where the elimination of private property and a dedication to provide housing for all, conducted to modify the way of conceiving collective interaction in whole generations and cities.

If it has so much impact, what then is Design? According to the research “Design the Language of Innovation: A Review of the Design Studies Literature”, one of the main conclusions reached is that the “design process” depends on how the company is organized and where. Specifically the position or relevance of the designer depends on the definition of design that the institution has or needs. It varies from where the design process is put into practice: it can be in the birth of the product / service; to the aesthetic hook to improve company

sales. Nowadays there are even examples of its application in more complex structures such as citizens and government institutions executing design processes as necessary knowledge when making collective decisions.

The 27E Region calls themselves the Laboratory of Public Transformation. Their goal is:

To mobilize the capabilities of multidisciplinary teams composed of designers, idea generators and social scientists from many fields (ethnography, sociology, participant observation) and engage in ground-level action... Both these approaches prioritize the concrete experience of users, civil servants and citizens to serve as the starting point for re-examining public policy. (La 27E Région, 2020, Who we are section, para.2).

According to Parsons and his findings on What it is Design in his book Philosophy of Design. The design activity involves: problem solving; creation and modification of new artefacts and process; changing the overall view from practice to profession: has a practical / utilitarian nature; it focuses in the interactive dynamics of the object; has the designer / user point of view embedded in its conceptualization; and finally the artefact it is plan to be mass produced (Parsons, 2016, p. 18–24).

Until a couple decades ago, the industrial designer solved problems by creating, modifying or transforming artefacts. In Postmodernity, the problems surrounding artifacts and its symbolic nature have led to the questioning of the political and ethical position of the designer in the construction of the social environment.

Parsons defines that an artefact produced by design is functional, symbolic and aesthetic but that they also play a fundamental role in influencing human behaviour (Parsons, 2016, p.29). This influence is understood by Peter Paul Verbeek who affirms that “by the mediation approach of technology it makes it possible to attribute to artifacts the ability to form intentions” and “only within the relations between human beings and reality can the artifact play their “intending” mediating role” (Kroes et al, 2008, p.208). It seems to me that the discussion no longer falls on the importance of design in the construction of the social fabric, by the innovations implemented by the designer in the world; but rather on its scope, repercussions and above all the potential to build more empathic and balanced societies with each other.

Carl G. Jung notes that: “Man uses the spoken or written word to express the meaning of what he wants to convey. His language is full of symbols, but he also often employs signs or images that are not strictly descriptive” (Jung, 1964, p.3). We can wrap the previous ideas into this: Design is a communication tool for the creation and implementation of ideas. Since it solves problems to the production of a tailor made solution to the context, situation, and premises. The creator of the solution is an individual or a group of people who are subjects of certain subjectivity given their respective contexts. From local implementations in local business or local social problems to international interdisciplinary design firms generating products that impact large populations. These always subjective solutions to a greater or lesser communities have a cultural, ethic, political and environmental impact that is often unattainable for the designer or groups of designers to envision.

The Modernism vision of the 20th century “was but one facet of an entire approach to life on the “modern” era of technology and mass production” (Gropius, 1965, p.89); “it sought to break down the traditional distinctions between Design and other fields of human activities” (Parsons, 2016, p56–57), to achieve what the Historian Paul Greenhalgh call a “decompartmentalization of human experience” (Greenhalgh, 1990, p.8). Modernism aimed to achieve its vision through blending the best elements of traditional craftsmanship, modern mass production and the fine arts; generating new ways of producing material goods that made sense in the social context of contemporary life. The Modernism reinterpretation of the concept and function

of Design and Designer is to actually bring the abstract ideas of innovation into material reality.

But later on in 1964 Christopher Alexander emphasized that “more design problems are reaching insoluble levels of complexity” (Alexander, 1964, p.3.). Since the increasing complexity in the problems to solve, questions from the limits of the designer also began to emerge. How the problem is interpreted puts the designer in a political position rather to create an innovative solution to a technical problem. One of the consequences is the epistemological problem that is facing the profession of Design.

Has the Industrial Designer an Identity CRISIS?

Following Lazutina’s (2016) train of thought, it is a crisis because both the profession and the product of the profession are defined only by the limits of our imagination, which are specified in the workplace; generally associating the concepts of design and innovation. And these are defined by the subjectivity of each institution. Design has always an identity crisis, being one of the languages of innovation, it is constantly rushing to learn and adapt the next step even before finishing the first one.

We could trace part of it to Modernism. As a normative movement that formed most of the design principles and philosophies of mostly all Art and Design Schools in the world. Its key feature sought to identify what they identified as GOOD design.

According to Modernism’s precepts: aesthetics of Good Design is given through reaching the ultimate functionality of objects. The search for efficiency is the same objective found in innovation definitions. It can be seen in a purist perspective in LeCorbusier words: “a chair is no way a work of art; a chair has no soul; it is a machine for sitting in” (LeCorbusier, 1931, p. 142). Through the Modernism methodology the expression and reflection of the time would be also reached. In the words of Gropius: objects credited as Good Design are a “concrete expression of the life of our epoch” (Gropius, 1965, p-44). It was the answer Modernist point of view proposed to the middle 20th century context.

The famous Bauhaus quote “Form follows Function” is not viable anymore. Modernist solutions have become an avalanche of consumer goods. We can’t turn around anymore about the social, political, economical and environmental implications of Design in our daily lives.

For example, the consumer goods allows individuals and groups to make class distinctions, novelty is sold as a necessity by advertisement to enchant customers. According to Pierre Bordieu: “social subjects are classified by the classification and distinguish themselves by the distinctions they make, between the beautiful and the ugly, the distinguished and the vulgar, in which their position in the objective classification is expressed or betrayed” (Bordieu, 1985, p.55).

Artefacts then project the classifications associated with the representations that we form of ourselves with the objects both towards ourselves and towards the projection we make for other individuals with whom we intend to communicate. Objects can communicate according to Bordieu the indicators of a person’s “cultural capital”. For the french sociologist, it is not merely the ability to buy goods that establish social status; but the capacity to appreciate and interpret a certain “stylish” of the consumer good itself that establishes social status. As he points out: “Taste classifies, and it classifies the classifier” (Bordieu, 1986, p.55).

In summary, Design is a profession closely linked to the construction of social reality in many aspects that have been evidenced and the many that remain to be discovered. This same profession has a serious problem of identity that results in an epistemological problem. It generates a misconception both in the Academy and in the Industry of what the design profes-

sion is and directly modifies the person who embodies the design career.

It seems to me that the first step is to build channels to communicate and agree terms in a much more effective way than the last 100 years. The concept and definition of design is so broad that while these channels and conversation are being built; it is imperative to be concerned, promoted and be part of areas of design research in all levels possible: government, private, academic, industrial, public and collective institutions.

It could be one of many proposals to separate/define the multiple perspectives and needs expected of this unicorn designer embedded in the international culture. Where if the designer has a certain ambiguity about what his profession is; he or she will also be molded to the way of interpreting “design” on each institution. Besides the ethical dimension of both the designer and the institution regarding the political decisions made in the production of goods and services. The main questions to begin to answer are: what is Good Design; what Design ought to be; what is considered Popular Design and how Design has evolved culturally.

Design research as a first step, in sharing knowledge with other sciences, can also help to resolve or begin to clarify perspectives about the epistemological character of Design. It will bring endless new possibilities to the approach of the problem itself.

Since Design can be understood and disseminated as a language between an user being the designer: the receiver, the user/client and finally the object being the message to be transmitted. This dimensionality of Design is a perspective that until recently has been the object of study by other areas such as social sciences.

Design can be covered from several perspectives; how it is used, for what purpose, by whom, where, etc., in order to have a better understanding of the question: What are the implications of Design in the construction of reality. Henry Petrosky describe the nature of design as: “Designed things are the means by which we achieve desired ends” (Petrosky 2006, 48)

In conclusion we can discern then that objects are a channel of expression between individuals and societies through time; where designers have a pivotal role in the construction of the social fabric. Since the current approach that is given to Design is a tool for the materialization of an idea that is usually the search for a solution. A solution that can be tangible, virtual or discursive to a problem that can be social, economic, ecological, cultural and political.

I will venture to argue that the position of a designer should cease to be the only voice in the creation process and rather a mediator /translator of ideas. In the practice the designer must have the ability to delimit and argue from the collection of information from the parties involved, community, user, client, etc., a feasible solution through an object, system, service , visualization, etc.

Pye points out that: “Design ... has become of more pressing importance than ever before: simply because it is a greater quantity of it and fewer people ever escape from the sight of it” (Pye, 1978, p.91) Groups like La 27E Région are examples to be followed on small and large scales.

Design as a part of the innovation activity, apart from being this mediator between stakeholders, it has to define the scope and feasibility of each project, venturing out but evaluating the risk. In this position of idea translator, much more powerful cognitive or even artificial tools are needed for information analysis as problems become more complex. Since one of the consequences of Modernity in Postmodernity is the exuberant amount of useful and not so useful information that is generated everyday. The language of design has no choice but to be in a constant evolution. A constant of risk, trial and error. This being one of the paradoxical reasons for the ontological and epistemological problem of Design.

The solutions to the complex problems that designers face in the 21st century, that already involve complete societies, must have a visible and real ethical dimension.

I emphasise again that the discussion no longer falls on the importance of Design in the construction of the social fabric, but on its scope, repercussions and above all the potential to build better societies.

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Research on the Transformation of Design Education under the Background of Epidemics

Abstract

Under the context of COVID-19 influence, industries and social services are forced to be stagnated. Immediately, online communication technologies are advanced, and people’s life transforms to cyberspace. However, numerous manufacturing still relies on a practical operation, like design. This study takes design education as a perspective to inquire about the current education model, distance learning, and which suggests a more resilient approach to conduct design and design education. Based on literature and case study, the SBAC Hub concept and its ecosystem are proposed to supplement scholastic education, especially during quarantine time, and it can also be an inspiration for micro-generation in the community. Given the essential quality, SBAC Hub offering map is created, and it will be the first step to materialize this system. Through observation, field study, and interview, most stakeholders satisfy with this proposition and would like to participate in the co-working process. In the future, the researcher will carry on this study and make the Hub be an education-centred participatory platform.

Keywords: design education; community micro generation; distributed systematic thinking; SBAC Hub.

Background

Under the context of the COVID-19 epidemic spread, most of the production had stopped worldwide. During the quarantine period, people from all walks of life have been engaged in telecommuting, and most public areas closed to cut off the transmission route. However, manufacturing and related professions indeed need practical manipulation, and it cannot be assisted by artificial intelligence technology immediately, such as design. According to the Chinese Ministry of Education, cultural activities of human beings can be categorized into thirteen disciplines, in which Philosophy, Literature, and History do mainly desk research. On the other hand, Economics, Law, Education, Natural Science, Engineering, Agriculture, Medicine, Mili-

tary Science, Management Science and Arts do both desk and practical research. As an emerging secondary discipline in Arts, design endows artistic and engineering quality, of which the complex nature embodies design education more theoretical and practical diversity. Nevertheless, online teaching is limited to satisfy the theoretical section; it is urgent to make up this gap. Based on the epidemic situation, the researcher takes design education as a perspective to discuss the feasibility of transformation in the practical area. In this paper, the SBAC Hub (abbreviation Hub) concept is proposed to be a touchpoint to test the feasibility of this educational transformation.

Literature review

1. Design education online

Ji Yong Park (2011) discussed the advantages and disadvantages of operating design education online and took the interactive learning environment as a perspective in Design Education Online: Learning Delivery and Evaluation. The author involved the virtual reality learning environment, the interactive learning experience of the online studio, design learning framework based on the virtual learning environment, interactive learning structure, etc. Park claimed the limitations of information exchange technology: the dissemination of a product or technology may be limited due to bandwidth or content format. Learners are prone to lose their interest in learning in cyberspace when they encounter teachers, which means that the way teachers stimulate and interact with students will determine the effect of online learning. The key to online design education is to create a high-quality interactive learning experience and to define appropriate interactive activities among learning elements. In the end, the author suggested online design education needs to implant various educational values and functional characteristics into the system, and online learning websites should regard design learning evaluation protocols as one of the learning activities and forms of communication.

Katja Fleischmann (2019) summarized the advantages of on-line design education and teaching: 1. External experts can provide feedback; 2. Allow students to criticize online can lead to a higher degree of cooperation and participation; 3. Review the design process of student work can promote it to focus more on the process rather than the result; 4. Unrestricted exposure to peer improvement is possible; 5. Instant response is possible; 6. If teachers do not have time, students can be self-reliant when developing their works. The author then mentioned that the physical design process is not suitable for online teaching, and one of the biggest challenges is students are unwilling to participate in the feedback process and do not want to share their work online.

2. Project-based learning (PBL) mode

Rocha Hugo, Ferreira A. M., and Jefferson Manhães (2018) proposed three standards for project-based learning: 1. A curriculum-based, problem-based, knowledge-emphasizing cognitive skills; 2. A student-centred environment, small groups, active learning, and teachers as facilitators; 3. The results of projects are focused on developing student skills, motivation, and the eternal passion for learning. Besides, the authors consider the biggest obstacle for teachers is re-adapting to the teaching methods used today.

According to the current research of online learning, the technical issues have been considering the main limitation of this educational model, like the shortage of bandwidth, content format, efficiency and modes of interaction, etc. On the other, project-based learning is still regarded as a classical mode in design pedagogy. However, design education has long been influencing since quarantine time, and the condition is calling for an emerging solution.

Methodology

Given the complex context and the specific property, this study expects to integrate two methodologies, case study research, and design thinking, to figure out the research problem: Except online learning, is there another approach to conduct design education during quarantine time? On the one hand, the researcher regards case study as access to empirical inquiry to discover inspired experience, and related methods include comparative research, secondary data analysis, and visualization. On the other, design thinking provides the perspective of conducting design and solution to analyze the research problem; methods consist of observation, prototyping, field study, and interview. Moreover, to create a more user-centred community ecosystem, this study also draws lessons from product service system design tools, like persona and offering map, which will help to increase the reliability of the research.

Case study

The researcher systematically investigates four cutting-edge cases of social innovation and education, of which two locates in London and the others in Shanghai. Through comparative research, cases under different cultural contexts have been studied, and this will be utilized to contribute to the generation of a design solution.

1.The Goodlife Center, London

Located beside Tate Modern, The Goodlife Center is a maker space that provides over seventy workshops all year long to the public, which aims to empower individuals and to expand their abilities. Upcoming classified workshops will be launched on the website, with which details, goals, and cost are also attached. Along with workshops, tutors offer customized supervision to help makers to tackle technical problems and finish the objects.

2.The Remakery, London

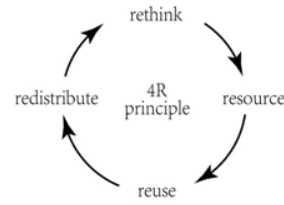


Figure 1. 4R principle diagram, created by the author

As a not-for-profit organization, The Remakery was established in 2012 and struggled to endow people with resourcefulness and community with resilience in a sustainable way. Through membership participation, makers can choose either to customize their making plan within one month or to rent a specific space for workshops and other activities for a more extended period. Varied from pay services, Remakery tends to increase things value through 4R principles, which is rethinking, resource, reuse, and redistribute (Figure 1). The 4R can operate both in a linear way and closed-loop approach. Take restoration as an example, makers recycle wasted materials from former making activities and make them materialization again by cleaning, polishing, reinforcing, and related procedures. Then, makers do ideation to initiate a systematic solution to rebirth the material; this step can also be considered as design in handicrafts and engineering area. Next, conducting the solution and tackle the accidental technique problems until realizing the object. Last, distributing the artefacts and communicating the ideas with the public. Besides, individual value and community activation can also be realized by the process mentioned above.

3. N-ICE 2035 Living Line, Shanghai

N-ICE 2035 Living Line is a community micro-generation project in Siping, which occupies a continuous space and has been attracting numerous brands to settle down. N-ICE means Neighborhood of Innovation, Creativity, and Entrepreneurship towards 2035. The core of N-ICE 2035 is not multiple economy or identities, but multiple values. Crossover and integration emerge here to make a 15-minute life circle. On the other, N-ICE 2035 is inventing the prototype of a composite future community through the “In, To, With, By” methodology, which indicates creating in the community and bring employment opportunities to the community; providing required solutions to the community; creating the community with community stakeholders; letting the community enhance the creativity by using its resources.

4.NICE Commune, Shanghai

Born in N-ICE 2035 Living Line and supported by the educational institution, NICE Commune is found during quarantine time and to be a communal platform that exchanges information between the residential community and the outer world, which can be seen as a resource integration place, idea incubator, and prototype field of future life. As the newest community micro-generation project in the Siping neighborhood, NICE Commune has been studying and embedding with novel brands, like Punchline Café, Foodlab communal kitchen, Gossip Room meeting space, Get-together communal living room, Pop up yoga classroom, Sky Light arts gallery, Haier intelligent kitchen laboratory, community crowd making space, etc. Under this condition, NICE Commune can be considered as a life hub, which provides payment services and presents new life scenarios and possibilities to residents.

The appearance of local maker spaces and community hubs provides the public with perspectives on how to conduct design education in a special period. The developed system of community governance abroad cultivates the feasibility of educational

transformation, which extends the classroom from school to community. The COVID-19 catalyzes this progress in China, and the emerging of community hubs, like NICE Commune, has taken the design area as a start point to accelerate the iteration of education.

Discussion

1. Concept of SBAC Hub

SBAC Hub is a touchpoint that embedded in the community, and it is also a physical space with accessible directors and tools to help stakeholders to achieve educational goals. Next, SBAC consists of four elements, school, business, academia, and community. On the other hand, as a platform, the community engages school resource, business, and academia, into which the four strength inspire from each other and make changes happen in SBAC Hub.

2. Ecosystem of SBAC Hub

There is a diagram interpreting the relationship and resource flow among school, business, academia, community and SBAC Hub, which cultivates a sustainable ecosystem of community micro-generation (Figure 2).

Firstly, the school provides reserve talents to business, and business offers innovation and entrepreneurship consultant service to schools. SBAC Hub strengthens the connection between school and business, which reduces the cost of corporation recruitment and also helps students get in touch with the practical challenge in advance.

Secondly, business supports academia with research funding and materials; academia offers academic resource and consultant service to the business. University-Business collaboration has been established since the 1950s, and facts proved this framework works well in the contemporary situation. SBAC Hub provides the possibility to introduce it into the community and makes it close to everyday life. Thus its transmissibility and influence will iterate.

Thirdly, academia transforms professional knowledge for community neighbourhoods, then community rewards academia with research scene, observation objects, and other firsthand materials. Frequently, daily life seldom gets in touch with advanced outputs; thus a gap emerges between them and makes resource flow not sustainable. To some degree, SBAC Hub acts as a bridge and a catalyst to close this gap, then guides new perception to the public and their life.

Fourthly, the community can be seen as a crowd making platform for school. Equally, the school provides the community with an activation opportunity. Traditionally, educational institutions are isolated from the real world by walls; that is why the ivory tower arises. However, Industry 4.0 digitalizes the practical world and spreads them on the network. Also the way of knowledge transmission has been transformed. To respond to this trend, education has been actively breaking the boundary between school and social life.

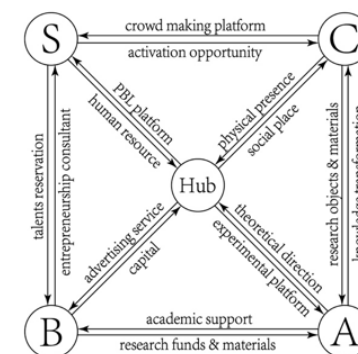


Figure 2. 4R principle diagram, created by the author

On the other hand, SBAC Hub as a touchpoint promotes collaboration among school, business, academia, and community. Schools can introduce volunteers and interns to Hub, in which they will do extracurricular practice and experience maker culture. Correspondingly, Hub offers a project-based learning platform to students and thus establishes a collaborative relationship with the school. Then, the business raises funding for Hub to maintain active, Hub serves as an advertising platform and provides events space to business. Next, academia offers a theoretical direction to Hub and receive experimental and testing opportunities from Hub. Last, the community is the physical presence basis of Hub, and to the community, Hub provides a social place to neighborhoods and a window to the outside world.

3. Quality of SBAC Hub

For different stakeholders, SBAC Hub does diverse favour, and during which Hub is endowed with corresponding qualities. There are about four main qualities that reflect the characteristics and functions of Hub.

First of all, SBAC Hub is created to be a pedagogical supplement for scholastic education, especially in the quarantine period. Take design education as an example, PBL mode is recognized as an essential pedagogy when students gain practical skills and systematic thinking. Under this condition, Hub can be an educational platform for design students to do extracurricular exercises and research.

Then, the last mile issue has been inspired by various solutions, like takeout service and cloth recycling infrastructure located in the community. After that, SBAC Hub will be another choice for businesses to engage in the community and get closer to terminal customers. Besides, SBAC Hub will not only offer temporary commercial service but also do a long-term collaboration with enterprises and help them to iterate marketing model in the community. To some degree, Hub is a community-based business to customer touchpoints.

Traditionally, the implementation of academic activities will be chosen in the corresponding institutions, laboratories, and other appointed places. SBAC Hub provides a new place for academic ideation, testing, and reflection, which also shortens the period of research and decreases experimental cost.

Last but not least, industry-university-research partnership partially covers the production circle, that is to say, leaves out the periods of original requirement finding and connecting to the demand terminal. In addition, the community as a cultivation environment of requirements is always excluded from the production system, which makes designers challenging to discover the origin of demands. The emerging SBAC Hub can close the gap among users, producers, students, and scholars, which will make the system more integrated. At the same time, the presence of Hub can help to activate neighbourhoods from an educational perspective.

4. Stakeholders of SBAC Hub

As a resource exchange and iteration platform, SBAC Hub continually attracts diverse stakeholders and makes them become members of the Hub ecosystem. According to the quality research mentioned above, four types of participants constitute the stakeholder group of Hub. Educational faculties, students, and staff are school-related stakeholders. Business people, human resource colleagues, account executives, trainers, investors, and project managers are business stakeholders. Scholars, postgraduates, and professionals belong to academic stakeholders. Finally, community stakeholders consist of pedestrians, residents, and neighbourhoods. This group and its constitution will be encouraged to stay dynamic, like the change of identification and people turnover, for continuing iteration is the essence of social and educational innovation.

5. SBAC Hub offerings

To respond to diverse requirements, SBAC Hub will prepare for online and offline application scenarios, which will be presented by offering map (Figure 3).

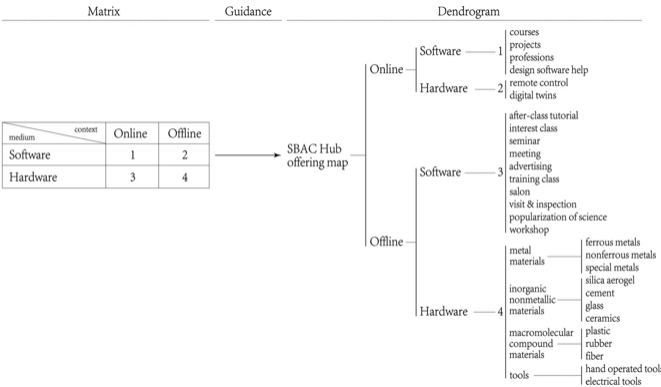


Figure 3. SBAC Hub offering map, created by the author

SBAC Hub offering map is designed by matrix thinking and presented by the dendrogram, the relationship indicates there are software and hardware offerings in online and offline scenarios respectively, and they are mainly established towards school, business, academia, and community stakeholders. Firstly, SBAC Hub online software offerings include courses, projects, professionals, and application software service, which aims to help stakeholders to conduct their works remotely. Then, online hardware asks for comparatively high-tech support, like remote control and digital twin method. This service means to assist stakeholders in being efficiently engaged in manufacturing. Next, offline software offerings consist of diverse occasions, for instance, after-class tutorial, interest class, seminar, meeting, advertising, training class, salon, visit & inspection, popularization of science, workshop, etc. Lastly, offline hardware offerings are assumed to be the most commonly used composition, for they are accessible and friendly to most stakeholders. There are four main types of offline hardware provided based on physicochemical properties: 1. metal materials, like ferrous metals, nonferrous metals, and special metals; 2. inorganic nonmetallic materials, like silica aerogel, cement, glass, and ceramics; 3. macromolecular compound materials, include plastic, rubber, and fiber; 4. tools, contain hand-operated tools and electrical tools.

All the offerings can be considered as contactors that link stakeholders with the SBAC Hub service system; they present as abstract or physical forms, through which events will be carried out practically. Besides, offering map is an ever-growing system along with technology iteration and demand change, which ensures Hub always stay renovated.

Conclusion

Accompanied by the tendency of community micro-generation, the situation is calling for a transformation of city life, which should also satisfy the general requirements of continuing education and ability extension. This study takes design education as an instance to explore the possibility of distributed education mode during the quarantine period, which aims to iterate the education system and increase its resilience. Based on the literature review and case study, the researcher proposes the first level, concept, quality, and stakeholder ecosystem of SBAC Hub, which establishes the general framework of the model. On the other level, persona, offering map, and other product service system design tools are engaged to create practical contactors to implement the concept. Then, an interview on potential stakeholders helps to suggest and revise the feasibility of SBAC Hub, which is also perceived as an ideal and rational

education place for the future society. In the future, this study will be used to support the spatial design project of Hub by the participatory design method, and this will be expected to be a classic case of the crowd making in the community.

References

A reference list should appear at the end of the paper under the heading “References”. All the references should be arranged in alphabetical order. Format the reference list so that each entry has a hanging indent of 0.5 in. Double-space the reference list, including both within and between references. For multiple works by the same author(s) in the same order, place works in chronological order. Place works with no date first, followed by works with dates in order from earliest to most recent. Please follow the examples below (cf. References).

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Natural Maintenance

Abstract

This short essay seeks to explore the spheres of influence on human creativity connoted as natural and artificial; and how these framings of ideology are an institutional construct to limit the imaginative capabilities of individuals and society as a whole, in order to maintain status quo power relationships. By assessing the relativity of perception that is core to these propositions, inevitabilities are reframed as points of friction ripe for engagement by designers seeking to craft more equitable futures through the political efficacy of design. Mindfulness and stillness are put forth as lines of flight to iterate the potential of ideology-crafting available through the processes of design thinking in order to encourage more equitable actions resulting in challenges to presented realities in the form of post-human/post-nature narratives.

Keywords: Natural; Artificial; Stillness; Equity; Design.

Natural Maintenance

What does it mean for something to be considered natural? It inevitably is an assignment coming from a human host, at least that’s the only assignment us humans could understand. I have been watching an American Robin go through the process of building her nest after the first big storm that passed through this adventing Spring. One of the first pieces she had selected to use for her assemblage was a piece of green, nylon twine, maybe twenty inches long. This human-made element—something that would qualify it as unnatural in a human’s eye—was just as natural to her as was the small maple and oak twigs, wisps of dried grass, and juniper fronds she added to the tool. Not to mention, all of this nest-building was happening underneath the front awning to my own abode, on top of a steel support, where it meets the aluminum roof. Now a human would look at this interstitial space and assign it to the realm of the unnatural. In fact, when sharing images of Robin’s nest with my human friends, there were anguished replies on the behalf

of preserving nature regarding the polyethylene snack bags she had chosen as appropriate for her task. Yet, to Robin, these constructed materials were and are like any occurring material in her warm-weather, home environment. There to be used. And who’s to say that nylon twine isn’t better suited to nest building than a twig that requires being soaked by a rainstorm to acquire the pliability necessary for beak-weaving. It would seem very natural for a being to choose the best available tools for a task.

Humans tend to utilize this logic of selecting objects/subjects as tools to prove their removal from nature, even though we understand that other “natural” beings use objects/subjects as tools. This assignment of the human as removed from nature, affords the human the right to utilize any object/subject as they see fit, as means toward their own end. And yet, even though the human is self-perceived as unnatural, this hierarchical relationship of human to non-human is self-perceived as natural. This Anglo-American, Westernized view has come to dominate a global psyche through the mask of Manifest Destiny, and has led to the systemic oppression of animals, plants, humans, and non-humans alike.

The artificial and the natural are overlapping spheres of influence, with the artificial generally being represented through the moniker of society in historical cultural analyses. Of course, there is the question of which came first, society (i.e. the artificial) or nature? Obviously the world and all its potential for contents started existing at some point in time, but in a less dense arrangement of atomic and subatomic parts. So this could be taken, in an extreme sense, as the advent of nature. Yet, if all of this planet’s known matter has, does, and always will exist, then wouldn’t that include the potential for, or the actual, artificial? Yes; and this is where it starts to become apparent that the argument putting forth any sort of division between these two distinct spheres that are self-contained in one another is from an entirely humanist perspective. As the separation of these two realms is only voiced in order to give separation to the human from the natural world. Yet, the poles can never

be separated, can never be removed from each other, for the didactic would be broken if one pole subsumed the other. Though, is this not just the forward momentum of society? The perpetual assignment and reassignment of natural and artificial—these two entities that are like the theoretical one-to-one map covering the kingdom (Eco, 1994), but being made to infinitely shift between these two identities based upon the needs of the sovereign ’du juor. This inability to trace a consistency in assigning these values of natural or artificial asserts the relativity of the assignments, and the capacity for imaginations to utilize these tools toward crafting power inevitabilities that systematically oppress the commons and maintain the status quo.

So if natural and artificial are the 1:1 map of the kingdom, with each able to take the place of object/subject on either side of the ratio interchangeably, then there are no inevitabilities. This freedom from any sort of fatalistic view is an enabling action that promotes agency in a broader spectrum of people than does a power relationship that enacts inevitabilities. A society where more voices are heard can only result in a more culturally diverse and dense expanding and overlapping of the natural and artificial spheres. This added complexity is more representative of the real, and lends itself toward lowering the threshold for engagement with culture and the added power this lends to the individual as enacted through groups. By forwarding the grayness of the real over the polarity of abstraction, cultural work broadens its audience and pool of participants in a self-enabling manner that has the theoretical revolutionary potential through repetition to engage all humanity.

Though, the issue here may seem to be that we’re still caught up in humanistic aspirations. As all of these modes toward spreading creative agency are only focusing on the spread of this power to more and more humans. But, these ideas are equally applicable to all of life—in an extended sense—be they animals, plants, rocks, territories, districts, networks, or computers. But again, even the idea of extending agency to these non-human entities is a way of exerting power from the self-deemed privileged perspective of a human. As such, any ideologizing about non-humans still remains a humanistic endeavor, as it truly serves only to remind the human of our differences from non-humans. This path is still useful to concept though, because as a side-effect of its human-serving end, the means end up resulting in more respect toward non-humans. Though this respect is, of course, garnered by humanizing non-humans by imbuing them with qualities we find mythical when they manifest in a human body. As is becoming obvious, it would seem less than useful to ascertain and assert whether post-humanistic pursuits are in actuality humanistic at their core.

Back to Robin... A few days ago I noticed Robin was out and about, hunting night-crawlers driven to the surface by the rain. So, I took the opportunity to snap another sight unseen photo of her nest, to check on the status of her brood. I carefully climbed onto a step stool and reached my camera up above the nest, while precariously balancing against the porch railing, to capture a few quick shots, before scurrying back down from my perch. When flipping backward through the photographic evidence I had gathered, I was delighted to see one of the young Robins had hatched from its egg. It was holding a pose of stillness: pressing its body down into the spaces between the eggs of its siblings, refusing movement or noise-making. I studied this little creature, and couldn’t help but think of its relationships to visualizations of dinosaurs I had seen. Regardless, I continued to scroll through my new collection of snapshots of the young bird. When I made it back to the first few photos I had taken—years of practice of rapid-thumb tapping afforded me the opportunity to take an absurd multitude of captures in such a short time—I was surprised to see Young Robin was lifted upwards, exultant with its beak opened wide, and blind eyes staring as it had leapt up demanding food from the form it had assumed to be its returning mother. The form that was my “ar-

tificial” smartphone had momentarily masqueraded as a “natural” mother, before falling short in its illusory manifestation to intensify the gorge of its uncanny valley with Young Robin. Once Young Robin realized the potentially life-ending mistake it had made, it enacted rapid stillness as a survival strategy, hoping this tactic would free it from its hunter.

This dialectic of the hunter and the hunted is a great manipulator of the psychic sense determining the perceived boundaries of the natural and the artificial. Gregoire Chamayou (2012) does an excellent job in his book *Manhunts: A Philosophical History* of describing the natural and artificial natures invoked by this relationship. This hunter and hunted narrative would seem to dovetail nicely with the overlapping, contrasting spheres of natural and artificial. Regarding predators and prey, I’m curious as well how this relates to the ideas I’ve been developing toward my concept of Accelerated Stillness. Stillness is a naturally occurring—at least as far as humans perceive its placement in the Romantic sphere of nature—action that manifests as a difference of degree, rather than of kind, in terms of direct use. The hunter utilizes stillness as a mode to maintain camouflage in order to stealthily approach its prey, practicing stillness until the moment when the predator perceives it is within a reasonable range of its target that the odds are favorable enough to encourage an intensity of direct, outward action. Of course, this hunting process allows for a wide spectrum of approaches that riff on this overall structure—but stillness is still a core tool of the hunter. Stillness also is a core camouflaging approach utilized by the hunted. Except in this action, the desired effect is to practice stillness until the perceived threat has diminished to where less still existing is considered safe, or to where the perceived threat has intensified to the point where danger-proximity has made the chance of a flight response the best gamble in terms of life persistence.

Now, I’m curious about the aesthetics surrounding an individual body’s categorizations of encountered bodies outside of what it connotes as itself, as either natural or artificial. The reason of course being that if the sensations experienced by our body via external inputs are what create our respective perceptions of the world, then these aesthetics must be the catalyst for our own relative assessment of a thing’s naturalness or artificialness. So, then what types of aesthetics denote these designations? At first glance, it might be as simple as ascertaining whether a thing is human-made or not. But then of course there are a number of hurdles encountered in that logic, e.g. trails and guideposts litter the backcountry of national parks, yet the setting is likely perceived by most to be natural; are humans themselves even able to separate wholly from nature; or a beautifully ripe tomato available on the supermarket shelf, in Chicago, in April, the result of globalization and advances in agricultural technologies. Already we can see the paradoxical overlapping of the nature and artifice spheres, particularly in our information-overwhelmed, panoptic existence, where we know how to utilize deconstruction to uncover the hidden networks resulting in a “singular” thing. And we haven’t even started to dig into the rich soil of these thing-substrates with more than our fingers.

So, maybe the more effective line of questioning is in regards to whether in the year 2020 there really is any separation between natural and artificial, and the potentiality that individual things have ceased to exist, and now only exist as network things—perhaps “net-things” is an interesting semiotic twist in its visual and sonic nearness to the word “nothing(s)” in describing these bodies that are no longer things, but instead a perceived network of thingness. So why has a shift from thing to net-thing—and probably a shift in kind rather than degree frames the radicality of the change better—occurred? It’s likely largely a result of postmodernist thinking maneuvering into common culture, coupled with the neoliberal socio-economic shifts that drove globalization and the rise of the availability of internet access, as well as its widespread adoption and utili-

zation as an information gathering and spreading tool. As such, humans have largely been keyed into the concept of network production and maintenance. This intensification in information experienced by a given individual in a lifetime has led to an increase in the likelihood and diagnoses of mental disorders in humans—in largely Westernized societies. Now, is this net-thing—or maybe Timothy Morton (2013) might say Hyperobject—natural or artificial? It’s likely a natural psychic response to our contemporary, postmodern, neoliberal condition—our bodies alerting us that something isn’t right with our situation, and we should seek an environment more conducive for survival. Yet, the artificiality of a socio-economic system based upon the oppression of bodies and the creation of excesses at the expense of environment must be questioned.

So, maybe it is a problem of imagination? Or rather, the limiting of imaginations by institution?

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Reflexive Culture in Architectural Science and Education

Abstract

The objective of the paper is to define the specifics of reflexive culture in architecture science and education. Current relevance. The need to address reflexive culture is dictated by the following reasons: first, the need to find common grounds between architectural science and architectural education, which still exist separately in Russian architectural education practice; second, the development of online technologies, which compel to reconsider the architectural design teaching process; and, third, the need to introduce the notion of «architectural pedagogy» into architectural science and higher learning pedagogy. Research methods. The paper reviews research publications on reflexive culture, project method, critical thinking and reflexive learning in architecture and art education. Conclusions. Reflexive culture is an important constituent part of architect's professional culture. The category of reflexive culture may serve as a channel for introducing the achievements of higher learning pedagogy into architectural education and architectural science. The paper appreciates the potential of reflexive culture for architectural science and architecture and art education

Keywords: reflexive culture; architectural science; architectural education.

Introduction

The category of reflexive culture could be helpful in understanding interdisciplinary relations between architectural education and higher learning pedagogy. It could provide a basis for developing advanced architectural design teaching techniques in prospect. Is there a relationship between architectural science and architecture and art education? Could the category of reflexive culture help unite architectural science and teaching practices?

General higher vocational pedagogy and architectural pedagogy as a specific domain of architectural or urban planning

education have particular features of their own. Architecture teaching methods have been honed by practicing architects empirically over the long history of the architectural profession. At the same time, general pedagogy followed its own way. Are the teaching methods elaborated by general pedagogy used in architecture teaching? What could be the role of reflexive culture in this area?

At present, architectural pedagogy as a notion and as a scholarly discipline is not clearly established in Russian architectural education. Studies in this area are conducted, as a rule, by architects who combine practice with teaching. Defending doctoral dissertations in this thematic area is a difficult and time-consuming process since the theme is not a part of either «Architecture» or «Higher School Pedagogy» from the list of fields of study compiled by the Russian Ministry of Science and Higher Education. Architectural pedagogy lacks closer relations with general pedagogy and with its specific directions. Although research into general project pedagogy began in the 1990s with studies by V.A. Zhukov, G.L. Ilyin, V.E. Radionov, V.I. Slobodchikov and others, these two areas of knowledge still suffer from poor integration.

Consideration of architectural pedagogy as an independent unit of architectural knowledge with its own structure and specifics is an important stage in understanding it at current scholarly level. An effective educational process and architectural design teaching are impossible without developing teaching and learning methods that would correspond to the contemporary thinking paradigm.

The architect's professional culture is a culture of reflexion, mature reflexion skills, and ability to handle practical design challenges using unconventional solutions. The category of reflexive culture in architectural education is associated with reflexive processes.

Various aspects of form generation, historical laws of style emergence and many other research issues are currently studied in Russia within architectural science. Putting the category

of professional reflexive culture into the domain of architectural science is a new research challenge.

The notion of reflexive culture. Criteria of reflexive culture in architectural science

Architectural science as a discipline in its own right operates various notions and categories. N.P.Ovchinnikova distinguishes nine levels (fields) in the architectural sphere and, hence, architectural activity, including architectural activity proper and activity supporting the latter and representing an area without which architects cannot realize their intents: 1) architectural science production; 2) architectural education system; 3) conceptual design; 4) detailed design; 5) construction under architect's supervision; 6) operation and maintenance, and protection of buildings and cities; 7) re-development or dismantling of buildings and structures; 8) restoration of buildings and cities; 9) architectural criticism (Ovchinnikova, 2011).

Architectural science production (or architectural science) and architectural education (or architectural pedagogy) occupy top positions in the architectural sphere.

Reflexive culture is «organization of reflexive processes in the course of analysis of activity in subordination to criteria of intellectual and axiological types» (Anisimov, 2002). An important factor in understanding reflexive culture is the establishment of criteria behind reflective process organization. A prerequisite to the development of a reflexive culture in would-be architects is the availability or reflexion skills and abilities.

Thus, the criteria of reflexive process organization in architectural science could be architectural concepts, theories, notions, categories, as well as ideals and values of this or that historical period. In addition, notions from other scholarly disciplines could become such criteria if implanted into the domain of architectural science (for instance, the notion of architectural pedagogy or the notion of architectural bionics). We can refer conceptualizing or theorizing skills to reflexive processes as well. Ability to analyze theoretical knowledge with the help of research methods from architectural science is also a reflexive process.

Criteria of reflective process organization in architectural education

Reflexive techniques in architecture student training represent, in fact, criteria of reflexive process organization in architectural education. The reflexive learning methodology includes principles of critical thinking and project-based approach. «Reflexive learning is a type of learning in which one explores his or her experiences to become more conscious, open-minded, and self-critical. The learner accepts criticism and feedback, thinks independently, and produces tangible ideas» (Afolayan, 2016).

The philosophical foundations of reflexion were considered by R. Decartes, I. Kant, J. Lock, D. Hume, M.M. Bakhtin, V.A. Lektorsky and others. The methodological aspects of reflexion are presented in the theoretical legacy of the Russian researchers G.P. Shchedrovitsky and V.V.Krayevsky. The psychological aspects of reflexion were developed by the eminent Russian psychologist S.L. Rubinstein. In the area of higher learning pedagogy, various researchers considered reflexive discourse, reflexive approaches to learning, reflexive systems and models, classification of teaching and learning methods based on the reflexive approach (I.G. Lipatnikova, E.N. Arbuzova, G.I. Davydova, S.M.Tsymbal, A. Sharov and others). It should be emphasized that reflexive learning as a scholarly category has not been considered in much detail in studies devoted to Russian architectural education.

Reflexive teaching includes reflexive questioning and statement of a reflexive cognitive problem. Reflexive learning implies taking the student through activities directed at develop-

ing reflexive abilities and skills. One of the forms of reflexive activity is self-assessment, for instance, assessment of one's term architectural design against the principles of sustainable development.

In addition to testing and assessment, reflexive teaching and learning includes an individual component. The idea of «individualization in the reflexive approach implies that reflexion is individual; therefore, an individual approach is needed to each and everyone. Individualization takes into account personality needs and personal features of students» (Usheva, 2017).

In addition to the notion of reflexive learning, there is a notion of reflexive educational environment. The latter is also a subject-matter for studies in higher learning pedagogy. The structure of the reflexive educational environment presents a set of «information, meaning, social, material, technological, activity and emotion-regulatory» components (Malakhova, 2006). The reflexive educational environment helps students become aware of their uniqueness and find their place within culture.

Within the range of reflexive learning techniques for professional thinking, we can distinguish several most significant ones for architect training, such as: reflexive discussion with polylogue as its constituent part, for instance, discussion of an architectural project by several teams of students, each of which has its own analytical task; reflexive play inversion presents the modeling of public hearings of some architectural project, in which each individual asks questions in accordance with the role assigned. The development of critical thinking skills is one of the functions of reflexive learning.

Studying the potentialities of reflexive learning in architectural education could be involve the assessment of risks and problems that reflexive techniques could bring into architectural teaching practice. However, this is a theme for a special study.

Critical thinking in reflexive techniques for architecture student training

The development of critical thinking in architecture students helps shape a professional design culture in them. The professional design culture of would-be architect includes skills of managing one's own thinking and ability to engage principles of critical thinking in architectural activity. Being systemic and critical is integral to architectural thinking. Studying thinking strategies and tactics by architecture students is a process of «intra-professional» reflexion of critical thinking and awareness of it as a special phenomenon.

The project approach in architectural education: historical outline

The project approach in architectural education is understood as the use of projects as the main tool of educational practice and as a collection of ideas about project-based activity in pedagogical science.

Interest in projects as a didactic method first emerged in the 1870s in the United States when J. Dewey and W.H. Kilpatrick developed the «21 project» idea based on the philosophy of pragmatism. Essentially it is a practice-oriented approach to teaching and learning relying on personal interest in practical application of theoretical knowledge. J. Dewey was aware of the limitations of the project method and insisted on combining it with other techniques. Knowledge acquired in the course of project-based learning is of applied technical character, devoid of fundamentality (Dewey, 1910).

These thinkers were later followed by various researchers who considered the project theme in pedagogy from various perspectives, including B. Archer, A. Collins and others. In particular, John Jones suggested that project activity is general-

ly accessible because it combines intuition, science and art. A. Collins and J. Dewey were the first to voice the idea of pedagogue as consultant (Tomina, 2011).

Project-based learning came to Russia after the 1917 revolution when school faced the challenge of educating society based on the ideas of socialism and collectivism. In the 1920s—30s, E.G. Kagarova, M.V. Krupenina, N.K. Krupskaya, A.S. Makarenko and S.T. Shatsky laid the key theoretical and methodological foundations. Other methods developed by international colleagues were also taken on board (Dalton Plan, project method). New techniques were also developed independently: method of real-life tasks, team-laboratory system and other. In using the project method, attention was paid not only to personal orientation but also to the importance of the projects for society. However, while the project approach was effective in raising creative, morally healthy and socially oriented personalities, fundamental scientific knowledge was found to be at a disadvantage. In 1932 the project method was banned (Shevchenko, 2004).

In the 1960s-70s, V.Ya. Dubrovsky, G.P.Shchedrovitsky and O.I.Genisaretsky, who worked at VNIITE (Institute of Technical Esthetics), continued research into the project approach with reference to design. Then A.V. Rozenberg developed a methodological framework of the project-based approach in design under the supervision of K.M.Kantor and presented their ideas in the publications «Philosophy of Architecture» and «Norm-Setting in Building Construction».

In the 1980s, the theory of architectural education in Russia was focused on the construction of an innovative teaching and learning model based on the ideas of the project-based, problem-solving and personality-development methods. This work resulted in research works published by A.V.Stepanov, A.P.Kudryavtsev, D.L.Melodinsky. They formed an avant-garde of the pedagogical thought and a source of inspiration for experimentalists and theoreticians among teaching staff in the sphere of architecture and city planning.

Conclusions

Russian architectural education should be up to the modern-day challenges in the rapidly changing world, particularly in relation to architectural activity and urban planning practice. Consideration of the category of reflexive culture in architectural science and education is an important stage in the emergence of a new scientific knowledge. The specifics of reflexive culture is that it unites the notions of reflexive learning, critical thinking and project approach. Reflexive culture would enable architecture students to become aware of their uniqueness and find their place in culture.

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Ideation vs Idea Generation. What Is The Difference?

Abstract

Ideation is sometimes being used interchangeably with the same meaning as ‘idea generation’, and some other times it is not. While this is not a significantly major problem, it worth noting that because of it, literature can lack clarity at times, being unclear what it is being meant. The author claims that these two terms are not synonymous, as idea generation refers to the production of ideas. In contrast, ideation refers to two concepts simultaneously, (a) the production of ideas as well as (b) evaluating and making a decision on which ideas to be processed further.

Keywords: Idea generation, design education, ideation, creativity.

Ideation vs Idea generation

Ideation and idea generation are two popular terms used by design scholars and design authors. Ideation is a phase in the design thinking approach which involves idea generation and idea evaluation. Idea generation is simply the generation (in other words, production) of ideas. Idea evaluation is making a judgement whether the ideas are good or appropriate. Despite ideation and idea generation being two different terms, they are often confused and used interchangeably with the same meaning. This type of incident is problematic as literature becomes inconsistent, making reviewing more challenging and time-consuming. This paper raises the issue, and it addresses concerns regarding the confusion caused by this.

It is undeniable that designers ought to generate ideas when they pursue design work. Envisioning solutions, improving situations, and addressing problems, is what designers do. Doing these things requires creativity, coming up with many ideas as well as testing good ideas. It is widely accepted that design professions are considered creative. No one is born as a ful-

ly-developed, professional designer (Stolterman & Nelson, 2012, p. 215). Every designer must go through a design education process, offered by various means and forms of education, typically in a university or some vocational school. Arriving to design through other fields without attending a proper design school (e.g. anthropology, marketing, advertising, or others) can also be considered indirect design education. Furthermore, learning to become a designer has been described as a process of never-ending becoming (Stolterman & Nelson, 2012, p. 237)

Design education is supposed to transform design students into professional designers. This transformation includes developing a wide range of professional skills, many of which are relevant and appropriate to the twenty-first century. Skills such as creativity, imagination, problem-solving skills and innovation skills (Mosely et al., 2020) are being cultivated and grown at design schools. In other words, design students develop a skillset (which can be described as a toolbox), and it includes a range of skills like the skills mentioned above. Idea generation can be considered one of these skills.

Idea generation is frequently attributed as a component of creativity. Creativity is often defined as novel and purposeful. Novelty typically refers to generating and evaluating ideas, whereas purposefulness typically refers to how appropriate or suitable the ideas are. Idea generation falls into the conception of novelty, as ideas are thought or suggestion of a plausible action in the future. Regarding possibilities that have not happened yet, is an action of envisioning or fantasising, which involves imagination. Imaginativeness and novelty, despite being two different concepts, they are highly relevant and can be considered as distant synonyms.

In the academia, some many scholars and designers are studying design in a scholarly manner, advancing the design field and gradually making design an increasingly more academic field. Academic in this context refers to the research

and scholarship that comes with the pursuit to discover new knowledge, i.e. academia. One of the topics being studied in design academia is design education, addressing the broad question of how do schools transform individuals into professional designers, and what happens to students during their time at the design school?

As mentioned earlier, creativity is one of the characteristics of designers and also a significant skill being trained at design schools. Creativity in design education research is gradually taking a foothold, even though (my understanding is that) creativity is mostly discussed by psychologists, and a large number of publications (academic and non-academic) is focusing on creativity for business. I admit there could be bias saying this. Even though designers are considered creative professionals, there is more research on creativity outside the scope of the design field, than within it. However, being a designer and an emerging design scholar, my academic interests are directed towards design. Despite my design-focus, by no means I disregard psychology literature or business literature. As such, this paper has a focus on design-specific literature.

Studies in idea generation are also following a trend similar to design research, with ever-increasing plentiful literature in academic and non-academic fronts (Perkins, 2014, p. 32)

. Another term relevant to idea generation is ideation. Ideation is considered one of the phases in design thinking, (the phases empathising, defining, ideating, prototyping and testing). In the context of design thinking, ideation is the phase where ideas are born and are considered, before being prototyped and tested. Idea generation is part of that phase, as it refers to the generation, or in other words, production of ideas. Nonetheless, in literature, there have been instances where idea generation and ideation are being used interchangeably to connote the same meaning.

Despite being used occasionally as synonyms, idea generation and ideation are two different concepts. Not having a clear definition of what idea generation and ideation exactly mean can cause problems. There is much relevant literature that is often unclear and problematic. Confusing these terms can be tricky when exploring the literature—misunderstandings, different interpretations.

The problem arises when scholars use both terms without clarifying what do they meaning. Therefore, more attention has to be paid on how the terms are contextually being used (especially in the case of ideation), to make sense of them and comprehend the intended meaning. The unfortunate result is that readers are left alone to interpret what the authors mean by using either term. While I do not provide an extensive list of examples on the matter in this paper, I will offer just some examples to illustrate the confusion and make my case.

Dorta et al. (2008) are discussing the tools being used to generate ideas. in 2008, (when their work was published) they were addressing the lack of literature on the augmentation of these tools in the digital realm. In their paper, they mention “*By ideation we mean the initial idea generation at the onset of the conception of a design solution*” which means they see idea generation and ideation to be synonymous. Weiguo Pang (2015) explicitly considers them to have identical meaning, by writing “*Many creativity researchers have contended that the cognitive processes involved in idea generation, or ideation, are not qualitatively different from those involved in other forms of learning*”. Another example which is perhaps more confusing is by Daly et al. (2016). In their work titled “Comparing ideation Techniques for Beginning Designers” there are numerous occasions where both terms appear throughout the text, seemingly having the same meaning. “idea generation techniques” and “ideation techniques” appear to connote the same techniques.

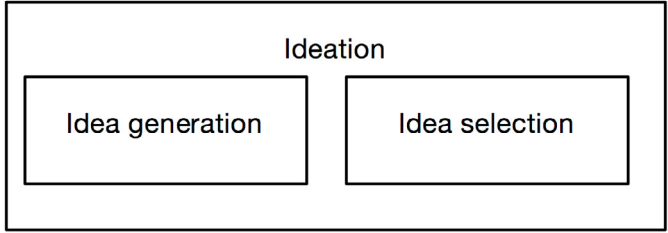
Cara Wrigley and Kara Straker (2017) have authored a paper in which they present their ‘educational design ladder pedagogy and curriculum’. They suggest it as a pedagogical tool

to plan and develop curriculums that support the teaching and assessing Design Thinking. As a ladder pedagogy, they provide pedagogical stages (steps) in the development of Design Thinking. Their suggestion is based on Bigg’s SOLO taxonomy (Structured of the Observed Learning Outcome). In their Design Thinking curriculum, they do list ‘ideation’ and ‘idea generation’ separately and in different stages. Also, there are five steps in their curriculum, and ideation is mentioned on the first, whereas idea generation appears two times, on the first and second step. Unfortunately, no explanation is provided as to what these two terms mean to them. Regardless of the lack of such an explanation, it means Wrigley and Straker have acknowledged a difference between idea generation and ideation.

Even Gavin Ambrose and Paul Harris (2009, p. 48), the authors of a very popular design thinking textbook (titled Design Thinking) use the terms as synonymous. More often than not, in design thinking literature, ideation appears as one of the five phases (empathise, define, ideate, prototype and test). The ideation phase is intended to help transition from identifying problems to start creating solutions that solve user’s problems (Hasso Plattner Institute of Design at, 2010). It is not possible to create a solution without relying on some idea; regardless, it is a novel one or not. Ideation is the phase that helps design thinkers select which idea is appropriate to pursue further. Idea generation is part of this phase, but generating ideas does not imply also evaluating them or selecting which idea is the most suitable, from a pool of ideas.

One case where ideation and idea generation are clearly defined with separate meaning is in the 2018 book ‘*This Is Service Design Doing: Applying Service Design Thinking in the Real World*’ by Stickdorn et al. (2018). They see ideation as a process where ideas are being generated and then evaluated. By evaluation, they mean ideas are being judged, resulting in the bad ideas being discarded and the good ideas being kept for their future potential.

According to a model presented by (Stickdorn et al., 2018), there are two phases in ideation. The first one being idea generation, in which the goal is to produce as many novel ideas as possible (Werner & Tang, 2017). This phase is divergent and exploratory. The second phase is idea selection, a convergent phase. In this phase, people must make decisions. Ideas are going through a vetting and elimination procedure to select the seemingly better ideas.



As such, by using the definition mentioned by Stickdorn et al., idea generation does not involve evaluating ideas, it is only concerned with producing a high volume of ideas, that may or may not include such unworthy ideas. Ideation is the more extensive process where idea generation belongs to, and it also includes making decisions such as which ideas to keep and which ideas to abandon. Adikari et al. (2016) also make a clear distinction between the two terms. They offer a model they call “Ideation Governance Process” which it has three phases, the first one of which is “idea generation and collection” (collection meaning gathering ideas). The other two phases are “idea selection” in which the best ideas survive, followed by “idea lab” in which ideas are either further developed or prototyped.

These are only a few examples from the vast literature on design thinking, design education and creativity. The lack of consistency and standard agreement to what these terms

mean can be problematic when pursuing a literature review on the subject, especially for new readers and early scholars. There are more (indirect) concerns due to inconsistent terminology, besides the confusion. One example that I can provide is that it becomes troublesome to identify the relevant literature without carefully reading and examining each paper or manuscript that mentions either of the terms. Possibly this may result in time spent poorly and inefficiently, potentially reading the wrong material. In a way, this is a weakness of the design industry, offering at times many terms to describe nearly identical concepts, causing confusion non-designers. For example, graphic design is also called visual design and visual communication. Despite having many names, they all tend to more or less connote the same concept without any significant difference to non-designers. This type of phenomena results in a difficulty to create a professional body or public opinion/notion of the profession when there is no universal agreement on what the title of the profession is. Similarly, in the academic design literature, it becomes challenging to comprehend the intended meaning and avoid any possibility of confusion.

The confusion between idea generation and ideation is not a significant concern or a problem that needs to be urgently resolved. The good news (relatively speaking) is that it seems this phenomenon occurs due to negligence and lack of awareness of clear definitions. The chances of malicious misuse or perhaps equivocations are fairly low, possibly non-existent. Nonetheless, it is vital to be addressed and critically examined, in order to progress and advance the field in an organised manner, especially for the growth of the public discourse on both idea generation and ideation. Having clear definitions is essential to promote consistency and coherency.

This paper does not provide a solution to this problem, nor it claims that such a problem has had disastrous effects. It only acknowledges that the lack of clear and concise language on what ideation and idea generation mean, make the academic design literature perhaps more challenging to review. Such challenge though may result in professionals using the same terminology and meaning different things, which can have a negative impact on how other professional bodies view design scholars. In closing this paper, I want to point out that debating purely about definitions might be useful and can serve a specific purpose. However, it can also be pointless, if it is done only for the same of the debate. It is also somewhat ‘normal’, as key terms and word meanings are not always static or consistent, especially when these terms are in their infancy or conception stage. As language evolves, different words and terms are being suggested and competing with each other. Eventually, some terms survive, and some do not. Quite possibly, idea generation and ideation have a similar fate, as academia only recently started discussing these terms.

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Design in the Digital Era: the Balance Between Technology, Creativity and Culture

Abstract

The contribution aims to reflect on the impact of digital transformation in the production of cultural and creative content. Design assumes a significant role within this scenario, as it has always been a link between technology, market and society. Precisely, the Made in Italy sector embodies the synthesis of culture, creativity and technology, in which design unfolds an articulated system of values deeply rooted in the economic, social and cultural values.

The paper will address the role of design in the ecosystem that sees the production of culture and creativity borrowed from technological development, considering that, if the cultural and creative industries traditionally operate according to a concentric circular model (Throsby, 2006), technology introduces a third dimension of depth: within a multi-dimensional space, design assumes the role of connector and catalyst of economic-managerial, technological, socio-cultural and aesthetic-communicative knowledge.

Keywords: cultural and creative industries; design culture; digital revolution; Made in Italy manufacturing; digital transformation.

Introduction: the culture-creativity interplay and the role of technology

In recent years, the theme of the relationship between cultural and creative industries (ICC) has assumed great importance in the international theoretical debate (Flew, 2002; Pratt, 2009; Flew, Cunningham, 2013). Studies show that the boundaries between Cultural Heritage and creative industries are to be understood as blurred and permeable since they seem to allow the passage of a cultural product from one aggregate to another.

Therefore, when we study the theme of the creative industry, it is evident that this cannot ignore the involvement of the cultur-

al sphere as well. In this regard, the result of the 2006 EU / KEA Report can be significant, highlighting the instrumental correlation between the cultural and creative industries (KEA, 2006). The report brings out the notion of culture-based creativity: “creativity does not happen inside people’s heads but in the interaction between a person’s thoughts and a socio-cultural context. It is a systemic rather than an individual phenomenon” (KEA, 2006). Hence, following a systemic perspective, technological means contribute to shaping the languages and models of contemporary society, as well as its creative productions. Technology expands the individual’s faculties remodelling the conditions of the world at practical, cognitive and even emotional level.

The technological means available today seem to facilitate these operations of modelling reality, thanks to a pervasive availability and accessibility. The “aesthetic society” (Manovich, 2019) is the product of seamless and complex interactions between media and tools, whose “use” in this context results not only in the production of contents but also in their promotion and communication. Specifically, the production and presentation of creative contents are the basis of the economic and cultural functioning of the aesthetic society, in which design plays a central role. Positioning itself as a means of cultural production (Manovich, 2019), the media feed the creative industries and vice versa, triggering a continuous cycle of identity and expression of contemporary cultures.

Indeed, the creative industries operate through a process whereby the cultural resources available in any medium are recombined in new ways (Burgess, 2006). Design, as a creative industry, works by combining and digesting what the cultural world offers through its stimuli, which it “continuously feeds on and which function like enzymes” (Ciuccarelli, 2006). Technological evolution and digitization have thus favoured the exponential growth of the tools available, expanding the types of support with which cultural resources can be both produced

and transmitted, with the same resulting mutations also for creative products. We live in a digital culture (Gere, 2009), that generates digital content; digital is also the support and tools, as well as the digital cultural heritage (Kalay, et al., 2007) resulting from these processes. Digital, therefore, leads to a new paradigm that changes the production, definition, enhancement, research and conservation of cultural and creative products (Spampinato, 2018).

The contribution proposes a reflection on the impact of digital transformation in the production of contents, which today participate strategically in the cultural and economic functioning of society. The role that the design culture assumes within this scenario is significant, as it has always been a link between technology, market and society. Specifically, the Made in Italy context offers a meaningful reflection for the contribution, embodying the synthesis of culture, creativity and technology, due to its rooting in the economic, social and therefore cultural fabric of the places where it stems. Here new technologies will produce a disruptive impact, as they tend to merge the physical and digital world seamlessly. Yet digital culture cannot ignore material culture, which acts as a portal between the physical world and cyber hyperspace: material culture will be playing a fundamental role, in which design crystallizes the “forms of making”, translating them into the “shapes of living” in a new, automated world.

In fact, as software has been eating the world in the past decade (Andressen, 2011), automation is now taking stage, establishing a new generation of integrated systems, filled with machine-to-machine interactions: mankind will soon be immersed in a new ecology of man-machine relations, which will soon require a rethinking of the different socio-cultural categories: subject, action, intention, responsibility, cognition, work. In this scenario, design would play the role of catalyst of new meanings among the creative industries, as it moves from making stuff to making something (Sanders & Stappers, 2013): design traditionally inscribes its interventions in a broad socio-economic and strategic discourse, committing now to search for new values while the relationships of the future unfold.

The paper will therefore address the role of design in the ecosystem that sees the production of culture and creativity borrowed from technological development, taking into account that, if the cultural and creative industries traditionally operate according to a concentric circular model (Throsby, 2008), technology introduces a third dimension of depth: within a multi-dimensional space, design assumes the role of connector and catalyst of economic-managerial, technological, socio-cultural and aesthetic-communicative knowledge.

From Critical Theory to further interpretations

Design assumes a vaguely paradoxical role in the ongoing technological revolution. If on the one hand it can be understood in all respects as a creative industry and, therefore, recognizable as a driving force of social, cultural and economic development, compared to other ICs it retains crucial peculiarities. These features already emerged from the first document of the British government (1998), which introduced the concept of the creative industry, favouring the growth of the international debate on the subject. The report states that assessing the total value of design activity in the UK is difficult, since:

- “1) design consultancies are engaged in much non-design activity;
- 2) much of its value is hidden within the value of other industries;
- 3) within companies, the design function cannot be consistently bounded, and different sectors or even organizations within sectors have their own definitions of design;
- 4) definitive statistics are not collected “. (DCMS, 1998)

The cultural industry paradigm has ancient roots to be traced in the Critical Theory of the Frankfurt School: it was introduced

by Max Horkheimer and Theodor Adorno (1947) to highlight the effects of economic dynamics extended to cultural products becoming “consumer goods”. The authors attribute to the cultural industry the nature of an ideological tool used to manipulate consciences and do not trace, in the rise of mass culture, the role of the development of the means of communication.

Walter Benjamin wrote about technical reproducibility as an element of democratization. Although, on the one hand, he supports the Adornian vision, pointing out a process according to which “the technique of reproduction [...] removes the reproduced from the sphere of tradition”; on the other Benjamin underlines that reproducibility “with the help of certain procedures, can also introduce the reproduction of the original in situations that are not accessible to the original itself. [...] And allowing the reproduction to meet the one who benefits from it in his particular situation, he actualizes the reproduced” (Benjamin, 1935).

Furthermore, it is interesting in this regard the position of Edgar Morin who in *L'Esprit du temps* (1962), argues that the cultural industry is not only an ideological instrument of manipulation but an enormous workshop for the elaboration of collective desires and expectations. Morin wrote about the “industry of the imaginary”, an industry that stages collective dreams in a mixture of reality and desire, production aimed at consumption and unconscious expectations, is intended as the result of the collaboration between those who produce and those who enjoy.

Moreover, Alberto Abruzzese offers a reinterpretation that overturns the thesis of the Francofortesi, arguing that representations of mass culture have contributed to producing “new worlds of experience” (Abruzzese, 2013).

This type of reflection which, starting from the Critical Theory goes beyond, helps us to understand that the development of the cultural industry has allowed the social construction of a “new world” of representation. A world in which design has been able to place itself and evolve as a hinge between other disciplines and systems of knowledge that are much more specialized and structured. “Not in antithesis but as a catalyst of contents and synthesizer of effects, it makes design [...] extraordinarily adequate to pontificate the relationship between theory and practice, between possible and achievable “(Celaschi, 2008).

Hence, the instrumental relationship between cultural and creative industries is expressed in the main characteristic of the creative industries, and therefore also of design, that is the ability to use culture and creativity as a background for the creation of other types of products or services, which incorporate and enhance this cultural contribution (KEA, 2006; Sacco, 2017).

Culture and creativity, therefore, coexist in the same ecosystem within which culture generates creativity and the latter, in turn, generates a new culture. The creative element derives from the cultural substrate from which it draws the stimuli to be recombined to intuit or imagine new associations, new ideas and new processes.

It is what Richard Sennett called “open ended knowledge system” (Sennett, 2008), a system composed of forms, processes and cultural contents to be used both as tools to build a “collective memory” (Halbwachs, 1992) (as traditionally occurs), and above all as resources for the production of new cultural contents. According to this interpretation, the design culture feeds on the cultural sphere. It brings out the stimuli for the creation of the new through the connection, combination and above all, the interpretation of different elements.

The circular movement between these two dimensions belonging to the same ecosystem generates spontaneously and continuously over time numerous ideas and reflections of a crit-

ical nature. Cultural and creative synthesis requires a transversal and inquisitive reading that lies in their symbiotic relationship that inevitably exchanges ontological questions fundamental for identifying the overall evolution and future developments.

Design in this ecosystem

Within this system design assumes a dual and controversial role. On the one hand, Design action is consolidated in the elaboration of strategies and proposals aimed at bringing people together to the cultural world (as evidenced by the area of design for cultural heritage). On the other hand, the product of design, being part of the cultural and creative industries, is itself recognizable in the contemporary definition of heritage. It follows that design is both an active actor and a result of this process of continuous creation; it contributes to producing the culture of the future by interpreting the present and the past and at the same time designs the relationships that can allow this construction. Product of design is a testimony of the material culture capable of influencing the culture of the future. As “product”, in this case, we mean the result of the design action, therefore it can refer to the physical or intangible component of the product as a physical or intangible product, services and experiences.

Moreover, it is possible to trace this paradoxical aspect in the disciplinary evolution of the design itself. If initially design was conceived as an activity exclusively aimed at the industrial production of objects of use (Simon, 1969), the design of the new millennium shifts its interest from the domain of technique to creative thinking, laying the foundations for what is now known as design thinking (Brown, 2008; Kelley & Kelley 2013).

The root of the change is to be found in some substantial differences in the social, economic and cultural implications of the emerging reality that have raised essential questions for design in the face of a further and increasingly intrusive “new-new-new landscape” (Maldonado, 1961). During this evolutionary path, design shifts its disciplinary domains on the purpose of the design activity rather than on the object of the project: in fact, we move from the distinction between product design, interior design, visual design, etc. to “experience design”, service design, etc. (Sanders & Stappers, 2008, 2013). Design thus takes on the characteristics of a process of making sense (Krippendorff, 1989; Manzini, 2015) which can add other values to the product. Today design can be understood as an activity — design-driven innovation process —, as a result of this activity (a product, service, communication, strategy), and as an organized system of actors — the design system — (Maffei et al., 2015).

This process is characterized by an ever-stronger attraction towards the cultural dimension to be reused to reinvent the concept of the product (Calcagno, Cavriani, 2014), service or experience. Design thus becomes the “middle ground” between the cultural domain and the world of innovation, translating technological progress into ever new products and services. As Bonsiepe writes “design is the last element in the chain useful for introducing scientific and technological innovations into the practice of everyday life” (1995). Therefore, it has the essential task of collecting and coordinating the various paths of innovation, transforming them into shared values and meanings, introducing new forms and expressions of culture into social structures that flow into cognitive capital. Design thus becomes a vector of the precise moment of “now”, in which the past is handed over to the future.

In the current socio-economic context, culture, knowledge and cognitive skills have become the main generators of value not only to improve the productivity of an economic system that is proving to be increasingly complex and competitive but above all as sources of creative energy for sustainable growth solutions. Understanding functions and impacts of the production processes of the (new) culture and creativity are, therefore,

necessary so that the reference to these new forms of capital is not only ornamental. With this aim, the paper will examine the Made in Italy system as a case study and development ground for an Italian design that draws the reasons for its specificities from the relationship between culture, creativity and technology. In this terrain of design-driven innovation, economic value is produced by generating meaningful content (Verganti, 2009). Indeed, Made in Italy proves to be a system in which innovative dynamism exists precisely due to the ability to produce and absorb content from cultural and creative supply chains.

Culture and creativity in the new technological horizon: Made in Italy as a testing ground

In the Italian context, one of the most significant areas of contamination between culture, creativity and technology is the Made in Italy manufacturing system. Here culture and creativity are a driving force for the economy and feed the soft power of territories. The Made in Italy manufacturing system is a specific sector that draws value from the generation of “innovative knowledge” transforming them into “new utilities” (Rulani, 2008); with its close relationship with the cultural heritage, helps to strengthen the link between culture and creativity. This relationship is the basis of the Italian production context and strongly affects the value and competitive advantage of manufacturing companies (Cianfanelli, 2018; Goretti, 2016; Baia Curioni, 2005; Segre 2005).

Italian manufacturing system is mostly composed of Small and Medium Enterprises (SMEs) that hold a significant know-how in high-end production, based on profound knowledge about different technical and theoretical fields and artisanal processes. On one hand, SMEs need to safeguard and enhance their “Saper fare” (know-how) related to the history of the production district in which they are located. On the other, these companies need innovation programs both in design and production processes. Then, through Manufacturing 4.0 guidelines, some leading companies developed improvements and significant transformations in different steps of the supply-chain, connecting innovative technology applications and artisanship to traditional processes.

It is crucial in this context to highlight that the European evolution of Industry 4.0 was conceived from economically more prosperous macro-industrial systems compared to the Italian one, characterized by relatively larger companies. This scenario is significant as well as the man-technology binomial, which could probably strengthen the business models of Italian SMEs but reforming technological and cultural paradigms.

The spread of new generation technologies and the advancement of digitization have produced a significant impact on the economy of the creative industries (Made in Italy too), as they act directly on the languages and information from which representations of reality arise. Culture proves capable of indicating new development paths for traditional sectors by incorporating new creative or symbolic contents. An emblematic case is design, which stands out for its ability to find transversal applications to different industries, combining effectively with new technologies to add dynamism to manufacturing sectors and districts. Going hand in hand with technology, design has refined research and practice tools and processes, developing an interdisciplinary sensitivity. In this way, the discipline has progressively extended towards a humanistic-cultural dimension, in which it has introduced new paradigms of design-led innovation. Companies that have introduced digital systems in their processes have intervened primarily in those business sectors that generate the highest value in the final product, such as communication, design, production, internal and external logistics, after-sales services and maintenance (Goretti et al, 2020).

Yet nowadays it seems that technology is dictating the rules of change: the extent of technological advancement will entail a complex underlying cultural manoeuvre, since industrial products, both in appearance and in performance, will be placed in contexts in which technology will offer new social, environmental and cultural values. This will lead to think *ex novo* the forms of making, living and dwelling, which call for new subject-object interactions within ever more complex systems. It is fundamental, in a context such as the Italian one, dominated by ‘know-how’, to be able to integrate new tools offered by technological progress in a design and production process that preserves the value of traditions and that manages to involve culture and creativity towards new visions. In this sense, digital technologies represent immense tools for emancipation and evolution, if they are consciously integrated with traditional production processes in the form of “capsules” (Cianfanelli et al. 2018).

The result of these tendencies is an increase in the use of digital systems in design and management tools to develop and optimize the manufacturing process. Examples of these practices can be found in the introduction of the reverse engineering design process as tools for managing production and project paths (Fry et. al. 2017); in the introduction of robotic systems in the artisanal supply chain (Goretti, 2020); and in the widespread use of digital modeling and digital prototyping systems recently aided with experimentation on generative design processes (Cianfanelli, 2019). Moreover, in the use of data analysis and artificial intelligence for trend forecasting or customer analysis.

As an example, Generative design algorithms calculate thousands of possible solutions for a product, following criteria and objectives set by the designer, who at this point “only” has to make a choice.

As automated processes are increasingly managing the verification and optimization processes, the design process itself undergoes a significant acceleration: thanks to sophisticated algorithms automation goes to the DNA of design culture, directly affecting the development of morphology and aesthetics. Artificial intelligence, cloud computing and robotics offer new coordinates for creativity, in which design moves without patterns, configuring itself from time to time with the design problem.

The Italian design and production dynamics are to be understood as a form of cultural production and therefore as a non-static and immutable but cumulative and generative process, based on creativity and subject to innovation processes, including technological ones. It is here that design has intervened in the processes of companies with a high Made in Italy artisan component, to accompany them on the path towards technological innovation, preserving the know-how and the root of excellence that characterizes it.

Conclusions

The Italian manufacturing systems brings meaningful arguments to the discussion, thanks to a designing tradition deeply rooted within the cultural context where it stems, as the result of both local memory and site-specific features.

The Italian production culture has its roots in Art history and traditional craftsmanship from the ancient workshops. Therefore, made in Italy is not only a productive and economic phenomenon, but also a cultural phenomenon, an element that has its origins in the product-territory-society synergy. Each new technology is configured as an agent of change, building a dialogue with culture. The effects of this phenomenon manifest themselves in new visions and new practices that take on a concrete structure only when they spread in society. These technologies also find application in creative industries where there are emerging new tools aimed at au-

tomation to facilitate human actions. Where will the path of automation of creative and design processes lead us? And most of all, what is the role of culture in the face of the digital mutation challenge?

Technology operates directly on the way we know the world, offering new cognitive paradigms from which new internal approaches emerge to the design culture, which is now called to achieve a symbiotic balance between design intelligence and artificial intelligence.

The adoption of new generation technologies within the design process raises a series of critical questions for the future. The field of generative design offers significant space for reflection in this sense, as it places the processes within software environments, in charge of elaborating the design inputs, directly entrusted to the algorithms. Thus artificial intelligence supports (or frees?) Human creativity in the conception of artefacts, bringing out new spaces for post-algorithm design (Cianfanelli et al., 2019).

Such contamination has long been a matter of discussion since every technological advance is historically paired with the evolution of design approaches, theories and practices. Victor Papanek (Papanek, 1973 in Scodeller, 2019) already envisioned a condition of autonomy of computer systems within design, as they would facilitate the operations and therefore reduce its output to an assembly of pre-packaged components.

The growing relationship between designers and generative algorithms produces new outputs, reaching higher levels of complexity: products are now multi-functional, multi-technology, multi-interaction, lying in a multi-domain reality, in which emerge new critical issues as they undergo a progressive dematerialization process.

However, even if it appears that the material dimension of products — their formal aspects — risks to be left out, it embodies the first touchpoint with the “cultural” component inherent in human artefacts: in a world constantly shaped through and by technology, symbolic values become more relevant than ever before, especially in the Italian context. In fact, the study — and therefore the culture — of “form” has vital importance in Made in Italy design, as it triggers daily rituals and conveys identities. The material dimension is the place where designers enact a synthesis between the syntax of advanced technologies and the metaphors from “humanistic” culture: here designers are asked to imagine the world and how it could be lived, translating their intuitions through the “forms of making”.

Digital tools enhance innovation as a matter of horizontal combinations throughout the supply chain network, rather than vertical capital disposal. This paradigm calls for a dynamic ecosystem made of small and medium-sized companies, more likely to respond to change quickly. This is well represented by the Italian manufacturing system, where design has an increasing role not only in materializing ideas but also in guiding and managing innovation.

Design-driven innovation goes along with a “smart” productive economy, where its adaptive dynamics entwine with synaesthetic experience and tacit knowledge: this results with the setting of an “artist economy” (Lipovetsky, 2013), proving the growing intervention of immaterial culture in the establishment of new levers for value creation.

Made in Italy seems to fit correctly in this scenario as its cultural tradition is the result of a dialectic play between the transmission of lasting values and the absorption of technology-led change. This may lead to the conclusion that future times will call more often for combinatorial spaces, where knowledge and information-computational processes merge, generating multi-

dimensional dynamics that alter the design processes and the very genesis of value. The physical world merges with the virtual one, and the knowledge generated by the relationship between creativity and culture assumes a primary role for the management and cooperation between human actors and machines.

The future of the creative industries is thus linked with the diffusion and adoption of new digital technologies, which will have increasingly disruptive functional implications not limited to the artistic and cultural sectors. In this sense, the depth and breadth of the practices and knowledge of the design culture itself will find more and more interest in the study of contemporary society, in its implications and new cultural paradigms, but also its critical approaches towards the future.

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Design and Māori Values: a Rebrand Project for the Social Enterprise Sector

Abstract

This paper details a rebrand design project developed for a non-profitable organization called Te Roopu Waiora (TRW), which is currently located in Auckland, Aotearoa New Zealand. This social enterprise is dedicated to supporting the Māori community living with sensorial, physical and intellectual disabilities (*whānau hauā*). As part of a year three bachelor design brief, the rebrand project enabled students to reflect on Kaupapa Māori principles and appropriately address the values of the organisation. As such, the methodology used a pragmatic paradigm approach and mixed methods design practices involving a human-centred design to problem solving. As result, the student project culminated in a range of cohesive design artefacts, aiming to improve the rentability and perception of the brand with the audience and stakeholders.

Keywords: Design in Aotearoa New Zealand, Kaupapa Māori, branding, design education, human-centered design.

Introduction

Te Roopu Waiora (TRW) is a non-governmental organisation (NGO) located in Auckland, New Zealand. It is a unique Māori organisation that has implemented several social projects to improve equity for people with a range of impairments outside and within the Māori community, the native people of New Zealand who arrived in the country between approximately 1320 and 1350. TRW's current focus is the project *Te Tohu Whakawaiaora*, which provides health learning materials for healthcare providers working alongside people with disabilities. TRW follows the values of *Āta* (with care), *He Wā* (in rhythm), *Hihiri* (with energy) and *Hāora* (breathing life). TRW describe themselves as creative problem-solvers who are leaders in Māori health awareness. However, like many NGOs, their governmental funding is neither stable nor sustainable enough to allow them to upgrade their resources for whanau (community) support.

The design brief acknowledged the inequitable employment reality of people with disabilities in New Zealand and it asked designers for a communication strategy to reposition the brand under a social enterprise sector. Making a transition to this sector is an attractive prospect for this organization, as it provides certain independence and opportunities and impact the future of their *whānau* and community. The transition to a social enterprise allows TRW to maintain their social status as a charitable non-profit organisation while becoming financially free through various business endeavours.

Under these parameters, TRW could offer disability training services to businesses and companies, allowing them an income rather than dependence on public donations and governmental support. A brand repositioning could positively influence public perception of the brand, improving funding, employment opportunities, independence and support for the *whānau hauā* (Māori with a disability). However, the project required an appreciation of *Kaupapa Māori* and a knowledge of design for accessibility in response to the social and cultural position of the organization. *Kaupapa* is a Māori concept that considers a group of ideas, principles and philosophies that functions as aspirations for a community. The goal was to create a brand to reflect the identity and values of the organisation, and to encourage a sense of belonging and participation of *whānau hauā* in the wider society.

Whānau hauā (Māori with disability)

Whānau hauā is an alternative indigenous approach to disability and introduces a Māori perspective to disability. *Whānau hauā* is used as an umbrella term to represent and refer to the people who are and relate to Māori living with disabilities. Metaphorically, *whānau hauā* means “the wind that propels whānau with members who have a disability” (Hickey & Wilson, 2017, p. 82). Here the Māori word *whānau* refers to the extended family network they are living with or outside of the home. It is also

used in English in New Zealand, particularly in official publications. In Māori society, whānau is also a political unity, below the levels of *hapū* (clans or descent groups) and *iwi* (tribe), and the word itself has other meanings: like a verb means *to be born* or *to give birth*.

Māori and indigenous people living with disabilities have experiences and challenges such as discrimination, which primarily stems from colonisation (King, Brough & Knox, 2014; Stienstra & Nyerere, 2016). King, Brough and Knox (ibid.), and Hollinsworth (2013) argue that at the time of colonisation, ‘disability’ did not exist. For this project, statistics provided insights of Māori experience and their disadvantages in health, social, wellbeing and economic outcomes compared to non-Māori in New Zealand. In addition to this, the experience of identification as a Māori with a disability comes with further physical challenges and the weight of societal prejudice towards self-worth. Researching prevalent statistics surrounding Māori disability employment outcomes indicate the prominent findings:

- In New Zealand, 26% of the Māori population were identified as disabled in the year 2013. Māori experienced a 33% higher prevalence of disability than other ethnic groups at 24% (Stats NZ, 2013). Physical impairment is the most common and prominent limitation for Māori with disabilities.
- For an estimated 404,000 people (43% of the disabled population), a physical limitation was either their only impairment or was more limiting than the other impairments with which they were living (Stats NZ, 2013). The prevalence of having unmet needs to see a healthcare professional were higher for Māori with a disability than non-Māori with a disability for all age groups except over 65 years (Ministry of Health, 2018).
- The prevalence of having unmet needs for special equipment was higher for Māori with a disability than non-Māori with a disability for all age groups except children under 14 years (Ministry of Health, 2018). This data shows that non-Māori are receiving more support for their disabilities, while Māori face inequalities when receiving health rights.

Approximately one third of Māori experience some form of disability, and the majority have problems acquiring the support they need. These statistics indicate the urgency to improve the ways that supportive organisations reach *whānau hauā*. Experiences such as these have called attention to the medical model used in healthcare when caring for people with disabilities.

Both Māori and non-Māori have exclusionary attitudes and practices embedded in their cultural traditions. For instance, some *whānau hauā* may experience access restrictions to marae if their guide or mobility dogs are prohibited (Bevan-Brown, 2013).¹ Barriers to daily living do not originate from the disabled person but are those perpetuated by society.

Compared to other healthcare organisations working with disability, the fundamental idea that a disability does not define a person makes *whānau hauā* different from those who employ a framework that is informed predominantly by the Northern Hemisphere (Hickey & Wilson, 2017). As TRW shifts to a social enterprise sector, they must continue to grow the capabilities of *whānau* and improve wellbeing. They will need to shift views on *whānau hauā* so that they are visible as contributing members of society and are capable of employment given the support, according to their needs, and to feel included in workplaces. As an existing and operating organization, we departure from a point that reflects in how people perceive TRW’s current

brand and their new services in order to uncover opportunities for new brand perception.

Social entrepreneurship and brand perception

TRW’s positioning as a social enterprise requires a method of entrepreneurship appropriate to the context of a Māori health-service organization. Instead of external funding, TRW would rely on support by securing contracts and *trading* disability training services to businesses for profit. According to Besharov and Smith (2014), a determinant of whether a non-profit can transition successfully to a social enterprise depends upon the hybrid of social and commercial elements. By blending the two elements, the organisation would become a socially innovative *mix*, attaining the intrinsic value of financial independence, whilst maintaining the much necessary social vision of addressing equitable access and employment within the *whānau hauā* community.

Peredo and McLean (2006) argue that revenue in such organisations generates benefits for the community as opposed to being invested in the organisation itself. The employment model of the social enterprise provides job opportunities and training to its target populations or *clients*, with social barriers. In this sense, creating employment opportunities empowers individuals and also creates a positive message for the *whānau hauā* community.

A rebranding strategy means investigating the most effective ways of reflecting TRW’s new aspirations to stakeholders and audience. Aldrich and Fiol (1994) state that the main reason organisations fail to acquire resources is due to mistrust. Accordingly, storytelling can be a powerful brand strategy to increase brand equity and confidence as people are invited into the organization’s journey through their emotions. Stories can articulate the long-term effectiveness of a brand. Coulter, Gummerus, Liljander, Weman & Pihlström (2012) explain that a brand story should be able to answer questions about who is involved behind the brand and present a clear distinction of a character that the audience can sensitively connect with. By these means, the story should focus on a singular message that reflects the organisation’s values (Lundqvist, Liliander, Gummerus & Van Riel, 2013) and should take the audience on a *hero’s journey*, generating a positive impression or perception of the brand. As consumers become emotionally invested, they are more likely to relate to it even if there is a lack of further knowledge surrounding the brand.

A compelling visual identity and brand story has considered a strategy that outlines the stakeholders’ and audiences’ journey in an interconnected way. The design message aimed to encourage investors to shift their perspectives towards *whānau hauā* as powerful protagonists pursuing their independence through employment. Henceforth, the story provides a *heroic* (Tavares & Ings, 2018) lens of the brand, that is more likely to positively engage companies into an united goal with the services that TRW have to offer. Moreover, companies assume the role of becoming partners of the organization through a collective and authentic mission, with the intention to help *whānau hauā* towards their independence and rentability, acknowledging the particularities of the Kaupapa Māori.

Methods and data collection

Research is commonly based on some underlying assumptions related to what constitutes as acceptable and which re-

search method(s) and methodology(ies) are appropriate, for the development of new knowledge in a particular field. For this project, a *human-centred* design approach for problem solving was considered a suitable pragmatic approach that built a deeper connection and empathy with the people we were designing for. The following qualitative and quantitative research methods was developed as phases of enquire and data collection in which students engaged with in studio activities where “practice is used as a vehicle for reforming, critiquing and advancing the research question” (Steagall & Ings, 2018).

Interviews and focus groups

Survey is a quantitative research method conventionally used to gather specific data or information from an audience. This method was used during the research journey to measure the current perception and effectiveness of TRW’s brand. Questions were designed to gauge the audience’s level of interest in the organisation, based on people’s ability to perceive the values and traits of competence, modernity, independence and professionalism, on TRW’s logo (symbolic representation) and other visual designs, such brochure and website.

To collect open-answered responses about the brand, students facilitated a specialised focus-group feedback session with five professional designers. In order to consider a redesign or adaptation of the current logo, they asked participants to review TRW’s original logo so to gain an understanding (from a designer’s perspective) of which design elements reflected the organisation’s purpose as such as the care for *whānau hauā* and the Kaupapa Māori cultural and community values.

Empathy map and personas

The use of empathy maps allowed students to generate two fictionalised personas as the main audiences for the brand: the *whānau hauā* and TRW’s prospective business clients. This method intended to employ mapping techniques in which to engage with the audience through their imagining thoughts, feelings, actions and words. This visualization techniques encompassed different stages of the user experience for the design outcomes, in order to simulate personal experiences. This process of *immersion* gave an overview of how the users would interact with the design outcomes and to rationalise the design decisions.

SWOT analysis

During this phase, SWOT analysis mapped both the strengths and weaknesses of organisation and explored how it could provide effective services. External factors identified during analysis (and areas that require development) were that TRW’s competitors are well-established experts in their areas of disability. Because of this, it can be assumed that funding will likely continue to be allocated to these existing organisations. The opportunity for TRW is to fill a potential gap in the disability support. Underlining themselves as a social enterprise and the only Kaupapa Māori organisation to serve all types of disability differentiates their work from the competitors.

Journey map

The *journey map* was used as a step-by-step visualisation process of a customer with the website. It provided fundamental insight into how the general audience may use the design outcomes by mapping considerations of their thoughts, emotions, and purposes. When paired with the two established personas, this method gave an overview of how the audiences may interact with the design outcomes for their specific goals, the type of information each outcome should possess, and what role each outcome should play when being interacted with.

Wireframes

Wireframes served as another primary tool in conjunction with personas. Where journey maps revealed the types of information required, wireframes explored how this content should be best navigated and displayed, focusing on user experience and usability. The persona of Bradd Sanders (a hypothetical person) was considered an example journey of a potential business partners or sponsor for TRW. His journey was considered from his initial discovery of TRW, until signing up as a client base, booking upskilling sessions for his employees. Observing Bradd’s interactions with the interface allowed an overview of his behaviour and also giving insights about the overall readability and functionality of the website and other outcomes.

Ideation, symbolism and design elements

In the old days before written language, Māori used many symbols to tell stories. There are six main Māori symbols used today, and each of them has representations, and meanings.

TRW’s original brand included the use of Māori design elements, specifically the *koru* (figure 1), and therefore their symbolic meaning provided in-depth understanding of TRW’s values and their identity.



Fig. 1 An example of the *koru* symbol. Source: New Zealand Intellectual Property Office. The *koru* is often used by Māori as a symbol of creation and based on the shape of a fern frond as it unfurls. Its circular shape gives the idea of perpetual movement, with the inward coil suggesting a return to one’s point of origin. The combination of these ideas also symbolizes how life both changes and stays the same (Royal, 2005).

As the research progressed, other graphic elements also emerged, in specific to the concept of *raranga*, a traditional Māori practice of flax weaving. Aligned with TRW’s four core values (Āta, He Wā, Hihiri, and Hāora), the concept of weaving or intertwining seemed to be an appropriate graphic complement, due to its representation of connection (Petit, 2017). Petit (ibid.) presents the concept of *tāniko*: a unique Māori way of weaving with a number of original patterns with various meanings. Two patterns drawn from *tāniko* that guide and inspire the TRW design element are *waharua kopito* and *aronui*. In a very simplistic view, *waharua kopito* creates a diamond shape and translates to a point of connection and represents a place where change can occur. *Aronui* refers to the knowledge people seek about the natural world and is also a triangular pattern.

As the primary colour of TRW, Green was inspired by *pounamu* (a precious stone also known as greenstone) valued for its practical strength, durability and beauty. Its value to Māori runs much deeper with its symbolic link to chieftains and peace-making, and considered to have *mana* (status) and is *tapu* (sacred). *Pounamu* artefacts serve as a physical connection, through *whakapapa* (genealogy), to venerated ancestors and the battles and events that they have lived through (Keane, 2006).

Design outcomes

TRW’s original proposal was to design an update of the website and brochure envisioning the transition of the organization

¹ However, some criticism has been offered to this simplistic view of the term. Dr Jani Wilson [8], a knowledgeable Māori scholar expressed the following: I’m not entirely in agreement with this passage when relating it to Te Ao Māori (Māori universe) because I know that tikanga and kawa (Māori protocols and diplomacies) have the capacity to be flexible if in consultation with the kahui kaumatua (Māori leaders). For example, I was in the Auckland University wharehau (focal point of a marae) and a man walked in wearing his shoes. We were all aghast because this is seen to bring in the dust of Tūmataurangi (God of War) into the domain of Rongomatāne (God of food and offspring). However, the man stood as a speaker for a manuhiri (non-Māori person) and explained that he had spoken to King Tūheitia (current Māori king) to excuse him [for] wearing his shoes in all where in the Tainui region because the shoes are attached to two removable legs. The removal of them meant timing was an issue as was the whakamā (a Māori construct for shame and inadequacy) having to shuffle into an important gathering potentially in front of hundreds of people, the latter of which is a most important element Māori seek to avoid. So, I think it’s really important not to imply that the marae or Te Ao Māori are the creators of obstacles.

to the social enterprise sector. Nevertheless, intensive research was carried out through qualitative and quantitative data into brand perception and contextual cultural understanding to identify suitable design strategies to achieve this goal.

Using the SWOT analysis, design outcomes turned weakness into strengths, to fulfil the needs of TRW. Each design outcome intended to keep the integrity of Kaupapa Māori, *tikanga* and *kawa* values, aligned with the needs and the future of TRW. The dual sense of professionalism and approachability were conveyed through minimalist shapes and rounded edges, referring to the concepts of the *koru* and *weaving*. TRW brand extensions intended to bring a sense of personality to their workplace and design materials and integrate colours and patterns representing the four main TRW’s values. Following the brand vision, the following has been designed and briefly described:

- *Main collaterals* designed in the brand guideline applied Māori concepts to patterns, icons and extended applications. The *logo* utilised the *koru* as a reference to the TRW’s cultural heritage and expanded the original logo, symbols and embodied forms to the concepts of *unification* and *expansion* reflecting community practices and the spreading of knowledge about Māori disability. Four weaving patterns were created for each of the four TRW’s values and intended to establish of *waharua kopito* and *aronu* as graphic elements for reframing disability outcomes for Māori.
- The *website* and the *brochure* displayed community projects and characterised TRW as a social enterprise. They were developed as information hubs to attract and connect New Zealand businesses with Māori disability experts. Designed features in the website offered businesses the ability to create individual profiles and to book online meetings or training workshops. Brochures informed prospective clients and promoted the organization and their projects.
- *Secondary design outcomes* (collection of posters and branding extensions including t-shirts, lanyards, stationery, mugs and handicap-sign hangers) were designed for community and health workshops. *Posters* aimed to promote disability training workshops and recruit businesses wanting to develop their skills in partnership with TRW. *T-shirts* were designed for *whānau* members who host disability training workshops.

Conclusion

This communication design project (employed as an educational design brief) comprised a rebrand strategy exercise of a Māori non-governmental organisation shifting to social enterprise. The brief employed a *human-centred* design framework using a mixed-methods approach to problem solving, ensuring that user’s worldview was central to the design process. Studio-driven activities demanded a range of skills that went beyond aesthetics and sought new forms of problem-solving and interdisciplinary knowledge in strategy, planning, prototyping and testing. The student—designer—researchers required to immerse themselves into a non-Western cultural framework, while considering aspects of entrepreneurship and social responsibility.

As result, the design artefacts produced for this project indicated the potential to improve the positioning of the organization as they increased the sense of professionalism, independence and belonging through an integrated design system using Kaupapa Māori values. Participants from the surveys evaluated the new brand identity as more appealing than the original and emphasises the core values of TRW. This new communication strategy positioned TRW as a social enterprise constructed under the employability model, providing an innovative solution to the inequitable statistics of unemployment for Māori with disabilities. This solution allowed TRW to utilise the resources and knowledge they already possess and provided more

sustainable employment and funding opportunities for *whānau hauā*. Also, this design journey brought a better understanding of the importance of the appreciation and acceptance of cultural and ethnic diversity from *Kaupapa* Māori, while also providing a platform for understanding process and the importance of social design and design for disability under *whānau hauā* community framework.

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AI as a Co-creation Partner: A study of Image-based design projects using Generative Adversarial Networks

Abstract

Recently, the use of Artificial Intelligence in creative disciplines, such as art and design, has increased notably over the last decade. This approach has facilitated processes that can be tedious and time-consuming for the designer, such as automatic image adjustment or automatic colorization. This project, however, focuses on the use of artificial intelligence as an assistant or coworker for the designer, with not only repetitive activities being transferred from the human to the machine but also decision-making processes at various stages of the design process. For this project, a workshop was held at Chiba University, Japan, during which a group of design students and designers worked jointly with an intelligent assistant on diverse design projects based on image generation using Generative Adversarial Networks (GAN). The objectives of this workshop were to transmit basic knowledge of machine learning in a practical way to designers with no previous knowledge of the artificial intelligence field, to explore the generative design of images using GAN, and to integrate an artificial co-worker into the design process to explore new possibilities.

Keywords: Generative Design, Generative Adversarial Networks, Artificial Intelligence, Machine learning, Design Workshop.

Introduction

Nowadays, the incorporation of artificial intelligence in the design process has changed the way it is practiced. Even though it does not affect the basic principles of Design Thinking, it has helped to overcome certain limitations that were previously present, such as scale, scope as well as the learning process. It has also influenced the way of resolving problems creatively, making the designer not only to produce an idea of a certain product to be marketed but also to be able to design a system or a “problem-solving loop” that will generate the solution for a selected user (Verganti, 2020). However, for the designer

to achieve this problem-solving loop requires certain knowledge and skills, which has currently generated several projects and tools to facilitate and reduce this gap between the designer and artificial intelligence. This project aims to experiment with tools that may help to reduce the gap between the current requirements for the use of artificial intelligence and its application within the design process. The aim is to explore the benefits of artificial intelligence by working as a co-worker of the designer.

The number of projects that have benefited from artificial intelligence, or AI, as a design tool has increased considerably in recent years. The area of machine learning in particular has had a great influence on various disciplines, such as business, engineering, and agriculture, among others.

AI has also influenced creative disciplines, such as art and design, which were previously considered exclusive to humans (German, 2019). Due to advances in technology, we have been able to build machines that can create artistic works with a certain style, write paragraphs with a proper structure, compose music that is pleasant to humans, and create complex strategies. According to David Foster, this is only the beginning of a generative revolution that will prompt us to question certain assumptions about human creativity (Foster, 2019).

Through the use of AI—specifically machine learning—tools have been created that make work easier for humans, such as automatic voice translations, automated image generation, and so forth. As Wölfel states, AI has facilitated processes that have gradually been transferred from humans to devices; these include, for example, automatic machines to which the human transfers information and artificial assistants that are able to make a series of decisions usually made by the human (Wölfel. 2018). Within the field of design, we see various projects in which the designer uses AI as an automatic machine, applying it to facilitate tedious, manual, time-consuming, and uncreative tasks, such as the automatic removal of elements in images (Jin, X., 2020) or the colorization of images (Nguyen, 2016).

However, the designer can also use AI as an assistant, with the designer and the machine making decisions together to expand and improve the results. One example of this approach is the ChAIr Project (Schmitt, 2018), which uses AI to generate chair shapes that designers can reinterpret and then build. Another example is the data-driven approach for design ideation, where Liu-qing Chen and Pan Wan propose the use of different tools, including generative adversarial networks, to create design concepts by implementing Koesther’s biosociation (Chen et al., 2019). The DesING project, as a final example, explores the use of algorithms for creative inspiration in the area of fashion design (Sbai, 2019).

However, to be able to use this approach, a high knowledge of and skills in the use of technology are needed. Daniel Wikstrom observes that many designers who are not familiar with the technology may perceive it as magic (Wikstrom 2018). This may prevent the designer from exploiting the full potential of AI tools. Hughes suggests that the development of technological skills and knowledge is necessary for new generations to understand and design the future world (Hughes,2019).

This workshop aims to address many design students’ lack of skills in AI and, specifically, machine learning technology. It introduces a group of design students to the use of generative design through the use of generative adversarial networks without the need for previous skills in programming or technological development. This online workshop is an initiative of the system planning laboratory. Its purpose is to provide students with an opportunity to learn AI concepts in relation to different applications and areas of design.

Generative design with Generative Adversarial Networks

For this particular project, the use of the generative adversarial networks (GANs) was selected because the main focus is on image generation. This approach offers great flexibility for generative design due to the ability of GANs to transfer and assign image features to a target domain (Choi et al., 2017). Several studies have demonstrated that GANs can be applied in different situations related to images, as well as in style transfer, image synthesis, semantic image editing, classification, and resolution increase (Creswell, 2018).

A GAN is a form of semi-supervised and unsupervised learning that trains two models—a generative model and a discriminative model—simultaneously (Banerjee & Kollias, 2019). The generative model can generate new data by sampling the model that describes how a dataset is generated, while the discriminative model can estimate the probability that the data belong to a particular category (Foster, 2019). As, Antonia Creswell

states, “GANs allow us to synthesize novel data samples from random noise, but they are considered difficult to train due partially to vanishing gradients” (Creswell, 2018). GANs can also build their own representation of the data with which they were trained and, by doing so, produce results by mixing different domains. This feature is shared with other neural models, such as the linguistic word2vec. For this reason, the use of GANs in the creative area has attracted attention due to the networks’ ability to use a large amount of unlinked data. Discovering new applications for adversarial networks is currently a very active area of research.

Design by AI Workshop

Methods

This workshop was conducted at the initiative of the system planning laboratory of Chiba University during the semester period. It was divided into 13 sessions, which were formulated in the following five main stages: 1) project selection and background research; 2) dataset creation; 3) dataset testing; 4) results evaluation; and 5) documentation. These five stages are fundamental, and they complement the design process with the use of GANs. The objective of this project is to provide a practical understanding of the process and operation of GANs to develop designers’ capacity for ideation of future AI generative design applications.

Tool

To facilitate the process, we developed an internal tool called GAN Station (GANSta) (Chacón, 2020). This is a tool created to assist the user in the design and training of GANs in a graphical environment. A node-based interface was adopted due to the students’ familiarity with design tools such as Grasshopper or TouchDesigner. These interfaces also present programming logic in a convenient way, specifically through the use of blocks, which facilitates the learning of related concepts. Through the use of blocks in the GANSta interface, it is easy to visualize the complete structure and elements necessary for the use of the GANs. This was a particularly important feature for users and participants who did not have any previous knowledge of the subject. To develop the tool, Python 3.7 and Anaconda were used to generate the environment, and PyQt was used for the interface. This interface is composed of two main sections, a work area, and a side menu (see Fig. 1). Within the work area, users can drag and drop the nodes needed to build their GAN.

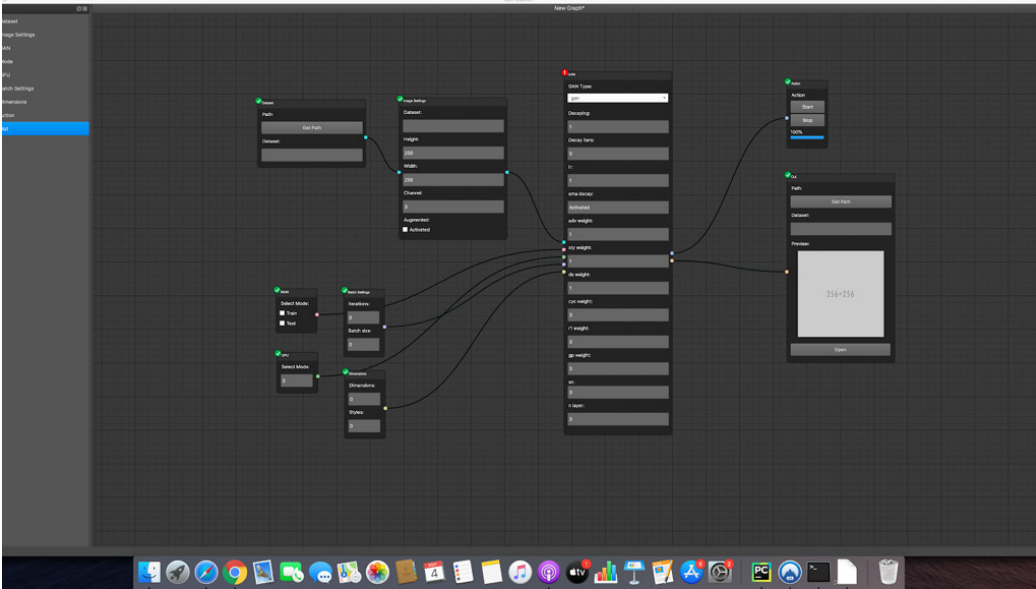


Figure 1. GANstation interface

Dataset node: Its function is to select the location where the dataset is stored. This dataset is formed by a series of images that should be divided into two different folders, one called “Training,” where the images to be used during the training process are located, and the other called “Test,” for the images to be used during the test process. This node must be connected to the image node.

Image node: This node has the function to define parameters such as the dimensions and type of images. It allows the user to increase the parameters during the training and to distort or rotate the images to avoid errors in the dataset. The output of this node should be connected to the GAN node.

Mode node: This node allows the user to select whether to deliver the model or to test its results. This node must be connected to the GAN node.

GPU node: The selection of this node is optional. This node allows users to select if they want to use a GPU (Graphic Processing Unit) for the model’s delivery process. It also shows the number of GPUs available for use. The output of this node must be connected to the GAN node.

Batch node: This node has the function to determine the number of batches and epochs needed for the training process. This node must be connected to the GAN node.

GAN node: This node has the function of stopping parameters for the generator and discriminator and checking that all the parameters are valid. The output of this node should be connected to the action node.

Output node: This node has the function of defining the format and location of the results generated during the training. It has an internal window that displays a preview of the training, allowing the user to visually verify the process. This node is the last in the structure, and its output is not connected to any other node.

Action node: The function of this node is to train and test the model under the conditions previously selected in the connected nodes. This node also shows the percentage of process completion, and its output is not connected to any other node.

Participants and Topic Selection

A group of design students from different creative areas, including graphic design, industrial design, product design, and interactive design, participated in this workshop. The participants were divided into five teams based on their skills and interests. The topics chosen for generation in this workshop iteration were Japanese kanji design, font design, emotions applied in character design, character animation, and icon generation.

During the workshop, students had the freedom to choose the topic and method to develop the project, using their personal interests as a vehicle for learning. According to Seeley Brown and Adler (2018), the incorporation of passion-based learning projects into modern education can encourage students to reach a deeper understanding of a subject. This approach allows students to learn about the subject and practice that knowledge in the field through productive and peer-based learning. Peer-based learning is an approach used in technology education in which students learn new processes as practitioners instead of learning about the software. In this way, participants learn new techniques by observing their peers, defending their own work, and participating in community discussions about emerging problems (Brown, 2018).

Another advantage of using passion-based projects for this workshop was that the students, who were already familiar with the topics they chose and their related process, were able to find new ways to incorporate the intelligent assistant or tool even with little knowledge of deep learning, generative design, or engineering processes.

Throughout this workshop, different methods and tools from other disciplines were incorporated into each team’s creative

process. Tools such as design thinking, persona profiling, and other design methods complemented the process, making it easy for the students to interact with the tool in their own way. However, decisions regarding management, evaluation of the quality of the results, and the number of iterations in the process were made by the participants based on their preference and experience.

Dataset Creation and Results

Each team designed their dataset based on the specific requirements of their project. From the perspective of generative design, the characteristics of the chosen dataset or set of images were used as parameters to generate new domains or “designs” based on the mixture of characteristics between the components of each dataset. At the conclusion of the model training, when a new domain was introduced arbitrarily, the inclusion of new parameters allowed characteristics to be transferred from the dataset to the new domain. This resulted in the generation of new variants outside the parameters initially established by the initial dataset, which generated new design variants. Once the training process was finished and its operation verified, the learning evaluation continued through the generation of images derived from transversal latent walks within the same model, without the introduction or use of other images as input or guiding parameters (Figure 2). The learning evaluation also continued through the generation of images derived from the mixture of characteristics and parameters identified as relevant through the visual evaluation of the images resulting from the process (Figure 3). At the end of the evaluation, the students continued to generate a proposal for the possible use or application of the resulting models for the development of future services or tools. They also made a personal evaluation of the knowledge acquired and methodology followed during the project, which led to the generation of observations and recommendations on how to simplify and improve the steps followed for a future iteration of the workshop.

Conclusions

By providing a prepared environment with the necessary instructions to design and train generative adversarial networks and utilizing machine learning models to generate graphical elements, participants in the Workshop have proved that designers without prior knowledge of programming or artificial intelligence can identify advantages and make of these resources in their design process.

The team carefully analyzed the students’ comments on the process, especially the comments of students without a background in generating or implementing programming or new technologies in their process. In doing so, the team identified some uncertainty about the possible negative impact of this type of derived method of machine learning on the traditional human-led processes currently established for the design of graphic elements. The feeling of uncertainty may be due the novelty of these techniques, as well as the learning curve necessary to achieve an in-depth understanding of the processes.

However, there are still many limitations beyond the technical requirements of this type of tool that may hinder its widespread adoption, such as the cost of the computer equipment, the number of graphic processing units required to execute the training process of the GANs, and the time that the training process takes. This lengthy process may make a tool such as the one developed for this study unattractive for activities that go beyond experiments or explorations. Nevertheless, the fact that designers such as the participants in the workshop could successfully utilize this type of tool shows that it is only a matter of time until artificial intelligence is widely employed widely in the design process.



Figure 2. Dataset input samples

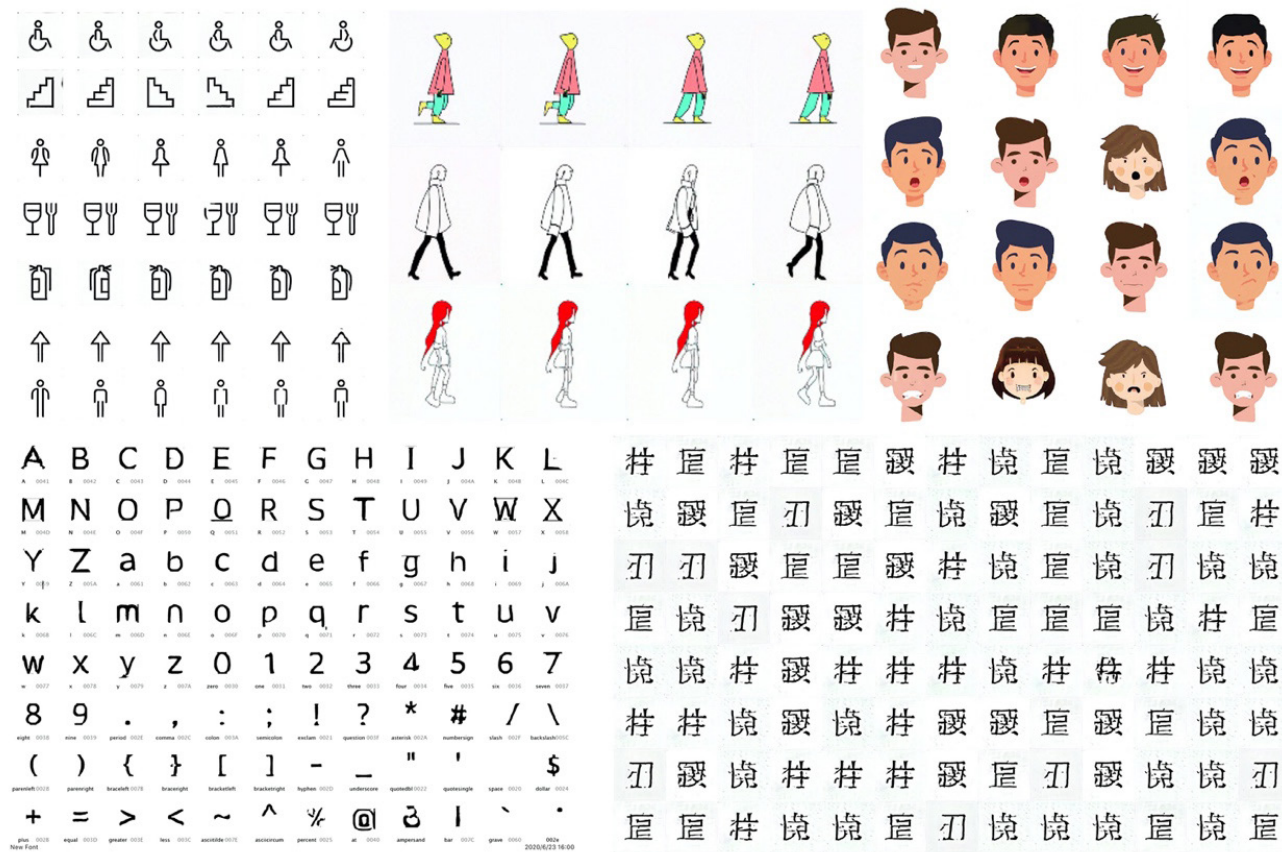


Figure 3. Training Results Samples

Regarding the improvements of the project for its next iteration, the team aims to simplify the tool used during the workshop. In particular, we seek to facilitate the automation of the generation of services based on the models that result from the training process. Providing designers with the possibility of outputting generators, web services or applications as their final result.

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Towards Interactive Approaches for Information Searching in Mixed Reality

Abstract

Mixed reality (MR) devices blur the boundaries between the virtual world and reality, reshaping the way people work with assistive information. However, there are still strong limitations such as a limited field of view (FOV) and challenges for information searching tasks in MR glasses. Added capabilities of HoloLens 2, a recently released MR device, bring new possibilities to deal with these issues. Interactive approaches are proposed in this study, including body/hand-locked components, view-locked navigation components, and view-sensitive information layout. Prototypes were developed with and without these interactive approaches, and user studies were conducted to measure the task performance, usability, and presence. Results show that interactive approaches have positive effects on usability and presence, but no significant enhancement in terms of task completion time. Different cognitive and behavioral styles may lead to distinct preferences for different interactive approaches.

Keywords: Mixed reality, Information searching, Usability, HoloLens, Field of view.

Introduction

Mixed reality (MR) is an emerging field that merges virtual assets with the physical world. MR reshapes the way information is presented as it allows direct information interaction in the real-world environment (Tatzgern et al., 2016). MR glasses, such as Microsoft HoloLens, have shown great value in situations where the use of both hands at times is required (Dey et al., 2018). Previous systems (Henderson & Feiner, 2011; Lorenz et al., 2018; Perla et al., 2016) have already shown the potentials of MR application in industrial scenarios, e.g. maintenance, inspection, and repair operations.

However, limited field of view (FOV) of MR glasses brings many barriers to visual tasks(Kruijff et al., 2010). As typical MR glasses only support a FOV of 20 to 60 degrees(Cakmak-

ci & Rolland, 2006, p.), e.g. 52 degrees in HoloLens 2, 34 degrees in HoloLens 1, compared to the full FOV of a normal human with about 180 degrees, it creates an unnatural situation where even though there is virtual content distributed within the users view of the real world, only some of it is visible inside the devices FOV. A series of experiments (Kruijff et al., 2019) indicate that search performance will be severely limited by the narrow FOV, though alleviated by proper arrangement of labels or indicators within the view.

Another challenge in industrial MR scenarios is information clutter. Due to the increasing number of IoT devices and various tasks, maintenance workers need to deal with a lot of data to make decisions. Information clutter makes it difficult to access target information(Rosenholtz et al., 2005), and decreases noticeability of new items(Rosenholtz et al., 2007).

Prior MR studies suggest different approaches. Arrows visualizing off-screen information in the scene to counter narrow FOV show improvement in both task completion time and accuracy (Schinke et al., 2010). A recent work on HoloLens 1 demonstrates the spatial UI redesign of a MR museum system, considering four categories of factors including task, user, environment and system. To solve visual clutter, different information filtering systems (Julier & Baillot, 2002) and view management techniques (Tatzgern et al., 2016) are introduced. In walking related MR scenarios, design and usage patterns of adaptive interfaces have been developed(Lages & Bowman, 2019). These prior works provide insights on dealing with information clutter in MR, but due to the limitations of the device, interactive approaches are still under explored.

In this paper, we explore how interactive information presentation approaches in MR glasses (HoloLens 2) will influence the task performance, usability and user experience with narrow FOV, especially in close ranges. We explore approaches to overcome FOV limitations and information clutter by utilizing the emerging capabilities, namely Hand tracking and Eye Tracking. Prototypes were built for user evaluation to demon-

strate how these approaches could enhance the performance, usability and user experience in MR IoT data assisted tasks, utilizing an industrial scenario.

Method

Our approach aims to utilize the latest capabilities of HoloLens 2 to deal with the FOV restrictions in close ranges. In order to adopt our approach, workable prototypes were developed for industrial maintenance assistance. In the industry 4.0 era, IoT data becomes ubiquitous in industrial scenarios, providing real-time and on-site information to relevant personnel. As shown in Figure 1.a, in common cases, world-locked information annotations are placed statically near the corresponding machine parts. However, as users need to work on the machine, they can only see limited information near the machine, especially when the machine is too large. Thus, we designed an interactive approach, aiming at optimize the information annotation arrangements and interactions to better fit the user's actions.

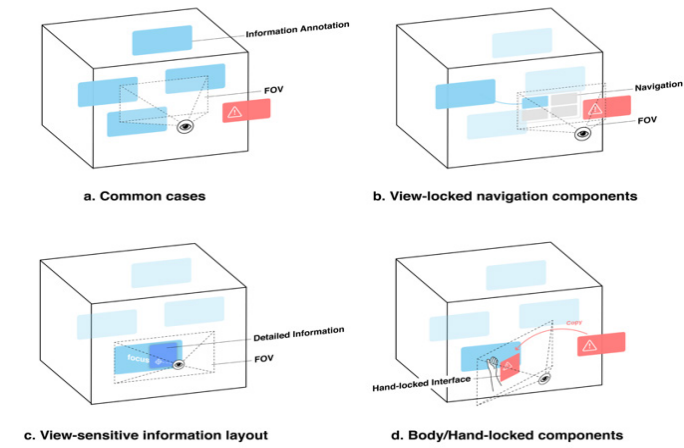


Figure 1. Illustrations of Interactive Approaches

Interactive approaches

The main functions achieved in this interactive prototype are as follows:

View-locked navigation components. Users can get an overview of the entire information collection in a view-locked brief manner. Navigation components can be triggered manually, and a spatial leading line will guide the user to the corresponding annotation. Information searching and locating are expected to be more efficient in MR with this function (See Figure 1.b).

View-sensitive information layout. Information annotations can adjust their level of details on response to the gaze behavior of users. With this function, users are expected to focus on items of interest and get more detailed information, and the information clutter in limited FOV may be mitigated (See Figure 1.c).

Body/hand-locked components. Unlike the view-locked components, body-locked components refer to those binding to part of user's body, such as user's hands in this case. When the user taps on the "Fetch" button of a specific component, it will be duplicated and bond to the user's hands. This function is supposed to achieve a more natural way to provide assistive information (See Figure 1.d).

Implementation

Unity 2019 and Mixed Reality Toolkit (an SDK for building mixed reality experience) were used to develop prototypes

in HoloLens 2. Human-aware capabilities, including eye tracking and full hand tracking, were utilized to achieve interactive approaches, presenting as follows:

Setting the position and orientation of hand-locked component according to the palm up gesture and hand position.

Implement immediate interaction with view-locked navigation component.

Computing the user's current focused information annotation target according to eye-tracking data.

To monitor and measure the task performance, we use Holographic Remoting to connect HoloLens with our computer. With this application, we can deploy and switch the design cases conveniently, synchronize views in HoloLens device on the PC screen, and get video recordings for data analysis. Furthermore, as HoloLens 2 supports eye tracking data recording, we can get AOI heatmaps from the HoloLens to measure the visual behaviors of participants.

User Evaluation

Scenario and environment

In order to evaluate our approach, we simulated an industrial scenario in a large office. The virtual assets include a hologram of CNC machine, which is duplicated from a real CNC machine in our engineering training center, as well as IoT data on information annotation panels. Normal IoT data consists of realtime data and historical data, which were annotated near the corresponding machine part. Alert information was shown with on one part, describing the reason and solutions of the fault in text. Participants were required to identify the alert information, locate the abnormal part and check the condition of the historical data.

Two design cases were constructed in this scenario. One is the flat design case, in which all the information annotations are displayed statically in the space with no interactions. The other is the interactive design case, which integrates all the aforementioned three approaches.

Procedure

Participants. Ten subjects (7 males and 3 females) were recruited in this study, ranging in age from 23 to 30 (Mean: 25.1, SD: 2.64). All the participants experienced VR devices, like HTC Vive and Oculus Rift before and are at least somewhat familiar with mobile AR. Three of them used HoloLens 1 before, and none of them experienced HoloLens 2.

Training sessions. When participants arrived at the testing area, they were first informed about the purpose and challenges of the testing, and given a brief questionnaire collecting their personal information as well as their previous experience with AR/VR devices. Then they entered a training session to get familiar with the HoloLens 2 device and the task. Participants put on the HoloLens 2 device, conducted vision calibration and adjusted to get comfortable physically with the help of the experimenter. Following the Tips APP in HoloLens 2, participants were allowed to learn basic interactions and operations in HoloLens 2 (e.g. gestures like tap, air tap, move, zoom, rotate, and speech). After the participants can interact with the device smoothly, they were shown the testing scenario and introduced how to perform the tasks. Worthy to clarify that the tasks in training session were in correspondence with those in task execution session in terms of procedure, but different in target information to avoid learning effect. All the participants were exposed to the same environment, scenario and test procedures, and they reported that they had gotten sufficient training to perform the task on their own. After the training session, there was a short break for participants, because long-time usage of the device still causes fatigue.

Task execution. At this stage, participants were instructed to execute the tasks in our designed scenario following certain steps. Each participant took two rounds of tasks, one with the flat approach and the other with the interactive approach. The sequence of two rounds was arranged randomly. At the beginning of each round, the experimenter started and adjusted the scenario to ensure it works well. Then the device was handed over to the participant and put on properly. The participant was asked to identify the textual alert messages from the CNC system, and then try to locate the abnormal machine part. Fault reasons usually lies in historical data, so participants were required to find the specific historical data panel. Once they found the right information panel, they can go back to the CNC system and tap on the “Finish” button to confirm that they have finished the information searching task. While the participant was performing the tasks, experimenters can monitor the participant’s view through PC, and provide aid for non-task related problems if necessary (see Figure 2). Between the two rounds of tests there was a 5-minutes break. After each round of test, the participant was asked to conduct a standard System Usability Scale (SUS)(Brooke, n.d.) to measure the usability, and a modified Presence Questionnaire (PQ) (Usoh et al., 2000) to measure the presence in MR of each design case. And a brief interview was conducted to know the feelings or opinions of the participant.

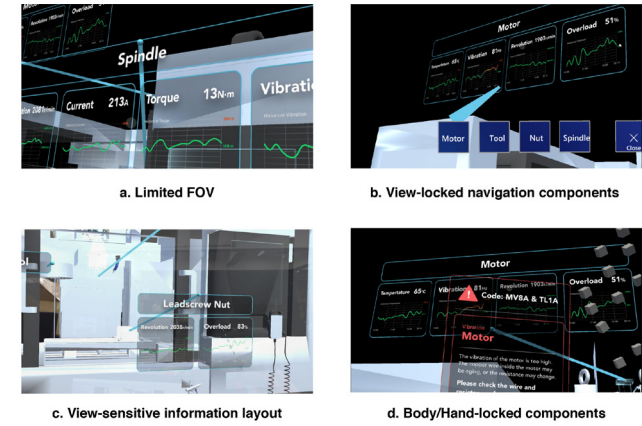


Figure 2. User Perspective from the PC Monitor Screenshots

Data collection. Data were collected both subjectively and objectively in this study. Objective data were mainly task completion time and count of function used extracted from video recordings, and eye tracking heatmaps from systems. Subjective data were collected from questionnaires including SUS and PQ in form of subjective scores.

Results and discussion

Task Performance. Nine performances with valid data sets were collected in this test. As shown in Figure 3, there was a tendency that the completion time of the interactive design case was longer than the flat design case. But according to the paired sample T-test, the completion time had no significant difference between those two design cases ($p=0.199$). Through the video playback and interviews after the test, we found that the reason may be that the amount of information in the scenario was not complex enough, participants could still locate the data by simply glancing around. We further analyzed the visual search behaviors qualitatively by comparing eye tracking heatmap patterns of different design cases. Area of interest (AOI) intuitively shows user’s visual focuses in information searching tasks. Figure 4 shows that participants’ AOIs distributed throughout the space in the flat design case, indicating a wide range of visual searching areas. Participants were more focusing on certain areas in the interactive design case, reflecting the guiding effect of our interactive approaches.

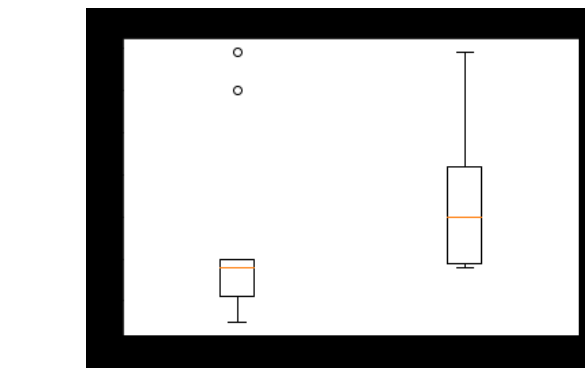


Figure 3. Whisker Box Plots of Task Completion Time

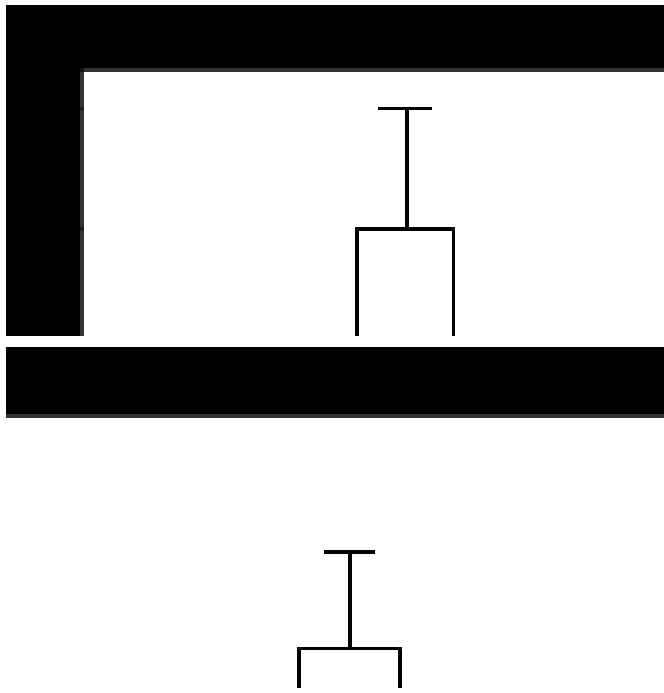


Figure 4. Comparison of Eye Tracking Heatmap Examples (Left: Flat Design Case. Right: Interactive Design Case)

Usability. Usability of design cases was measured by SUS total scores. Figure 5 shows a tendency that the interactive design case (mean=29.0, $SD=5.29$) was more usable than the flat design case (mean=26.3, $SD=10.58$). This is also consistent with our observation. One interesting thing is that nearly all the participants used the hand-locked interface, but only 5 of 10 participants used the view-locked navigation components. Participants reported different preferences towards different functions, which may relate to their cognitive or behavioral styles. Most participants agreed that interactive approaches enable them to search for information in MR with better guidance or assistance, especially when they feel overloaded.

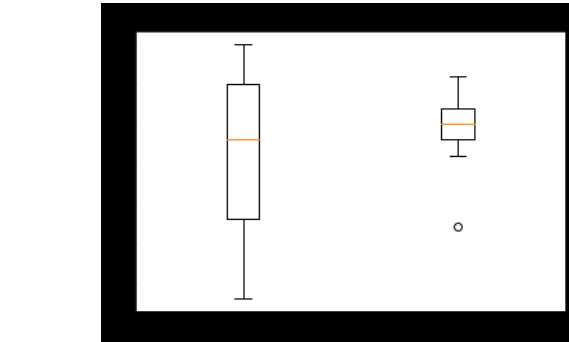


Figure 5. Whisker Box Plots of SUS Total Score

Presence. Questions in Presence Questionnaire were adjusted to better fit our prototypes in mixed reality. As shown in Figure 6, there was a significant difference between the two design cases in terms of presence score ($p=0.08$). Participants experienced better presence in the interactive design case (mean=33.6, $SD=4.33$) than that in the flat design case (mean=28.6, $SD=8.13$). Post-test interviews reflected positive feedbacks from participants, indicating that they felt more engaged in the scenarios and tasks.

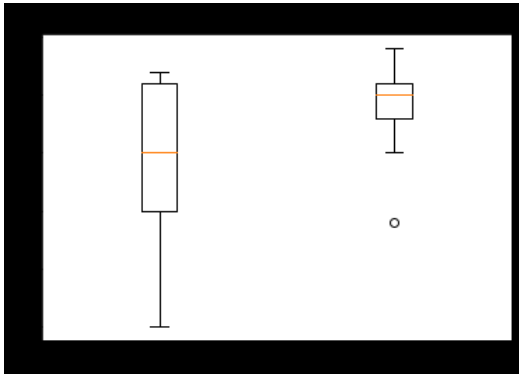


Figure 5. Whisker Box Plots of PQ Score

Conclusion and future work

In this paper, we proposed interactive approaches for information searching tasks dealing with the limited FOV and information clutter in mixed reality glasses. By developing prototypes in HoloLens 2 and evaluating with users, we compared the design cases with and without interactive approaches. Our evaluation shows that interactive approaches provide better guidance and assistance to information searching tasks in HoloLens 2, but the enhancement effects vary within users. We will further look into different cognitive and behavioral styles of humans, especially professional users, and study how different interactive approaches can support different types of users. As we excavate more capabilities of the new MR device, our prototype will also be refined to integrate more functions, e.g. multi-modal approaches, human-aware techniques. Finally, we will develop practical applications to augment users in factories as well as other contexts.

Acknowledgements

Express here your appreciation for the contributions made by your colleagues, partners, volunteers, etc.

References

A reference list should appear at the end of the paper under the heading “References”. All the references should be arranged in alphabetical order. Format the reference list so that each entry has a hanging indent of 0.5 in. Double-space the reference list, including both within and between references. For multiple works by the same author(s) in the same order, place works in chronological order. Place works with no date first, followed by works with dates in order from earliest to most recent. Please follow the examples below (cf. References).

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Redesigning a Workshop from Physical to Digital: Principles for Designing Distributed Co-design Approaches

Abstract

This paper presents a case study of a redesign of a physical workshop into a virtual one to illustrate the application of a set of principles for designing and running co-design online events. Such workshops require a different co-design approach to overcome the challenges of working in spatially distributed settings, such as the lack of audiovisual cues, digital skills and physical presence. This approach involves developing a new design ‘language’ that a community can understand and use in engagement projects. In this paper, we present a set of principles for planning and facilitating online events, and designing interactive resources, and the application of such principles in a redesign process of a conference workshop. The findings from the case study suggest that short-term activities and active facilitation assisted by a technical producer can support the delivery of effective online workshops, enabling participants to achieve desired outcomes in a timely manner.

Keywords: Distributed co-design, online workshops, virtual events, creative engagement, design principles.

Introduction

In co-design, anyone interested in doing more creative consultations can design collaborative spaces and facilitate events to include communities in decision-making processes, where professional designers may or may not be involved in the engagement project (Zamenopoulos & Alexiou, 2018). In this open design perspective, people use methods, techniques, and tools to engage with those involved in co-design projects to produce new knowledge around a matter of concern. In face-to-face interactions, people communicate through a conscious or unconscious paralanguage, which includes facial expressions, body language, pitch, volume, and speech intonation (Clubb, 2007). In physical workshops, these interactions happen in a specific time and space and can be assisted by tools that enable creative exchange between participants that goes

beyond paralanguage. However, due to the covid-19 outbreak, there has been a shift from in-person workshops toward online approaches that uses platforms and tools to support community engagement in the era of physical distancing. Designing these types of Human-to-Computer-to-Human Interactions requires a different co-design approach, where people work in a process that can be spatially and temporally distributed over the Internet. This does not mean a translation or replication of physical workshops (Näkki & Antikainen, 2008), but rather an understanding of a new design ‘language’ that participants can understand and use for exchanging knowledge among themselves.

Although video conferencing technologies are increasingly available (e.g. Zoom, Google meet), understanding the grammar of technologies, loss of part of paralanguage, and absence physical presence remain the main challenges of working in online settings. Designing engaging interactions is a way to support mutual learning processes of people involved in co-design projects through the support of mediating technologies. This can involve designing engagement activities, creative facilitation approaches and appropriation of existing technologies to enable participants to exchange ideas, expertise, and experiences to achieve desired outcomes. In this paper, we propose a set of principles for designing and running workshops in digital environments and test it in practice through a redesign of a physical workshop to address the research question: **How can physical workshops be conducted in online settings?** This paper describes a case study, where we used the set of principles to redesign and deliver a conference workshop to DRS2020 delegates. The workshop ‘Designing Research Ecosystems’ aimed at enhancing the understanding of research ecosystems, where participants agreed on criteria for successful ecosystems, identified contacts, created a visualisation of their networks, and drew insights and discuss how to activate sustain these insights. This study provides insights into the role of an expert in creative interactions, the

skills required for facilitation in virtual environments, and future research on distributed co-design.

Our Distributed Co-design approach

This project called DisCo (Distributed Co-design) is part of a £13.2 million 3-year project that will provide fresh perspectives on real-world challenges. As part of our co-design and practice-based research philosophy, we work closely with design practitioners and communities in devising desired outcomes. However, to ensure completion of existing research projects in a timely manner during the covid-19 pandemic, we designed and ran pilot studies to develop principles to work collaboratively in virtual environments. These principles draw on design theories and practices, including creative facilitation (Tassoul, 2009), open design (Cruickshank, 2014), participatory design (Simonsen & Robertson, 2013), co-design (Zamenopoulos & Alexiou, 2018), and interaction design principles, such as employing short-term activities to reduce information overload, keeping things simple, and providing clear instructions. In the following section, we present a set of principles for distributed co-design, where we adapted our improvement framework used for redesigning engagement tools (Galabo & Cruickshank, 2019) to cluster the principles in three co-design layers of practice: Planning and Facilitating online events, and Designing interactive resources.

PLANNING ONLINE EVENTS

Planning engagement events involves considering the audience, platform, aims and objectives, and actions used for engaging with a community of experts, potential users or beneficiaries of co-design outputs. The role of designers in planning an open design space is to frame contextual challenges into a co-design process, enabling participants to exchange ideas and expertise in order to achieve an agreed objective.

Define the appropriate co-design approach.

The first stage involves thinking about the people attending an online event (the number of participants), their technical limitations (e.g. access to internet, levels of digital literacy, familiarity to the platforms used), and setting requirements beforehand (e.g. smart phone or computer). The analysis of these factors will determine the platforms to be used and the level of adaptation or appropriation of the technologies. For instance, if participants have issues to access Internet, the co-design approach could involve the use of phone call and text or voice messages. In this way the event could go ‘low-tech’ avoiding broadband issues. Another option is to work in different times by using a combination of interactions in asynchronous events. A digital platform and a set of interactions should remind participants about their earlier experiences to enable them to work in an appropriate way. This approach involves a pragmatic participatory design theory that features Wittgenstein philosophy (1922), where a specific design language game resembles professionals’ practice is applied in design-by-doing processes.

Plan short-term activities to reduce information overload.

The attention span of participants and skills required in online workshops are not the same as in physical workshops. When participants attend physical workshops, they can focus on a hands-on task using basic analogue tools (e.g. pen and paper) with fewer distractions around the activity and in the environment. In online workshops, participants with different digital literacy have to use tools that might not be familiar to them, and also have potential distractions of incoming texts, notification sounds and pop-ups, and external stimuli of participants’ environment during an interactive activity.

Planning short-term activities can make participants feel more comfortable about the virtual environment and less worried, concerned and pressured to achieve similar outcomes as in physical workshops. Devising a distributed multiple light touch over a day or week could enable a better way to keep participants engaged in a workshop, such as designing a series of five 1-hour online events. This change in process requires not only reducing the workshop duration, but also the time spent in each interactive task.

Get beyond the screen.

Designing activities that make people move around can introduce physical activities and provide fun. Icebreakers are often used to start a session and get people to talk, providing a more human connection in an online event. For example, facilitators can ask participants to find objects related to the topic of the workshop to warm them up for further activities, encourage people to talk and learn basic interactions, such as turning on/off microphones and video.

DESIGNING INTERACTIVE RESOURCES

Designing interactive resources is similar to creating tools to assist participants and facilitators to run physical workshops, such as proformas, worksheets or templates. Tools support techniques and skills (e.g. discuss, type, react, drag and drop), enabling participants to share knowledge and ideas through telling, making and enacting activities (Brandt et al., 2012). In online workshops, these tools can be a set of icons, boxes and emojis on a virtual whiteboard or platform.

Think about what interactions are needed to enable creative exchange.

The type of interactions affects the flow of the event. Introducing many new techniques in online events can overwhelm participants, requiring extra time to allow them to familiarise with the platform and respond to tasks. Breaking down engaging interactions into small tasks in different windows/spaces can help participants in making sense of activities. Another suggestion is to assign participants into small groups to reduce the number of interactions on their screen. For example, facilitators could instruct participants to use video only for discussion and ask the group to agree on who will do what when generating inputs to avoid confusion.

Design simple activities with tools for remote teams (e.g. google docs, Miro).

Limiting instructions simple actions, such as listing, sorting, and highlighting help participants to respond to interactive tasks. Make sure these instructions are visible to participants when they are responding to a task, such as a bold heading or a programme guide. A programme guide helps to reduce anxiety towards the completion of the task and use of technology. For instance, Miro and Mural have a sidebar showing the steps to be taken on a task. A facilitator in each breakout room might be required to assure participants are doing right.

FACILITATING ONLINE EVENTS

Facilitating engagement events involves implementing the plan within an open design space, where a team of facilitators make sure everyone can contribute to a co-design event, enabling participants to share their experiences and ideas in a creative way. In virtual environments, the role of facilitator is to draw participants into design processes where online mechanisms (e.g. reactions, prompts, tools) are often adopted to assist the delivery of engaging interactive activities.

Assign co-facilitator roles to team members (Wing person and technical producer).

In physical workshops, a wing person is the one who gives support to the main facilitator, making sure participants understand a task and do it right. They might also be taking pictures, handing over proformas, and observe the session as an outsider. In online workshops, a technical producer or director is the one who creates interactive mechanisms to support virtual sessions, making sure all the digital infrastructure and materials are ready to deploy and assist the main facilitator. They can plan events to work over a day or a week to support participants in co-designing desired outputs that might not require an active facilitation. For instance, a wing person could keep the flow and engagement of participants between transitions, such as between icebreakers and tasks, whilst a technical producer prepares the stage for facilitation. A backup messenger group can support the communication between the main facilitator and co-facilitators.

Role-play the planned ideas

This process is similar to designing a creative facilitation approach for an in-person workshop, where an iterative process of planning, prototyping and testing a session would support the improvement of the overall workshop (Cruickshank, 2014). Running through the session helps to identify the technical nuances and issues that might happen during the event. When testing an online event, inviting participants with the appropriate level of digital literacy can help identifying things that could go wrong. For example, ask your colleagues to do the workshop tasks and

We tested these principles through an interactive workshop at the DRS2020, where we redesigned a physical workshop to be delivered into a virtual platform. The workshop was originally planned to be conducted at Griffith University in Brisbane Australia, but it had to be moved to a virtual space. The following section details a case study, presenting our approach to rede-

sign online approaches that engage participants through a distributed co-design event.

Case study: Designing Research Ecosystems at the DRS2020

Researchers, just like business enterprises (Adner & Feiler, 2019; Iansiti, 2004), are faced with challenges of understanding interrelationships with their diverse ecosystem actors. Consequently, identifying key factors and actors shaping ecosystems is paramount, this is buttressed in (Pankov et al., 2019), who identify how contextual factors may influence interconnections i.e. exchange of resources between ecosystem stakeholders. Since researchers are all increasingly becoming part of a complex interconnected research milieu, having a deep sense of positions and roles within this complex may aid better understanding of research ecosystem opportunities. Designing ‘researcher’ ecosystems workshop aimed to enhance the understanding of ecosystem configurations, in order to influence the shape of their ecosystems which often evolve organically (Nthubu et al., 2019). This was achieved using a co-design framework developed and tested for mapping innovation ecosystems.

We adopted the ecosystem design framework (Figure 1), developed through engaging with manufacturing SMEs in both the UK and Botswana. We further reviewed the framework with a group of design researchers with vast experience in co-designing tools at a pilot workshop to ensure the design framework was appropriate for a meaningful application with non-expert designers. Based on the feedback received, the tool was redesigned before use in workshops with 100 participants from a wide range of African organisations e.g. manufacturing SMEs, policymakers, NGOs, researchers and university administrators held in Botswana in February 2020. The visualisation outputs from these workshops formed scaffolds for dialogic design, reflection and decision making, thus according participants a platform to reimagine and shape future forms of innovation ecosystems.

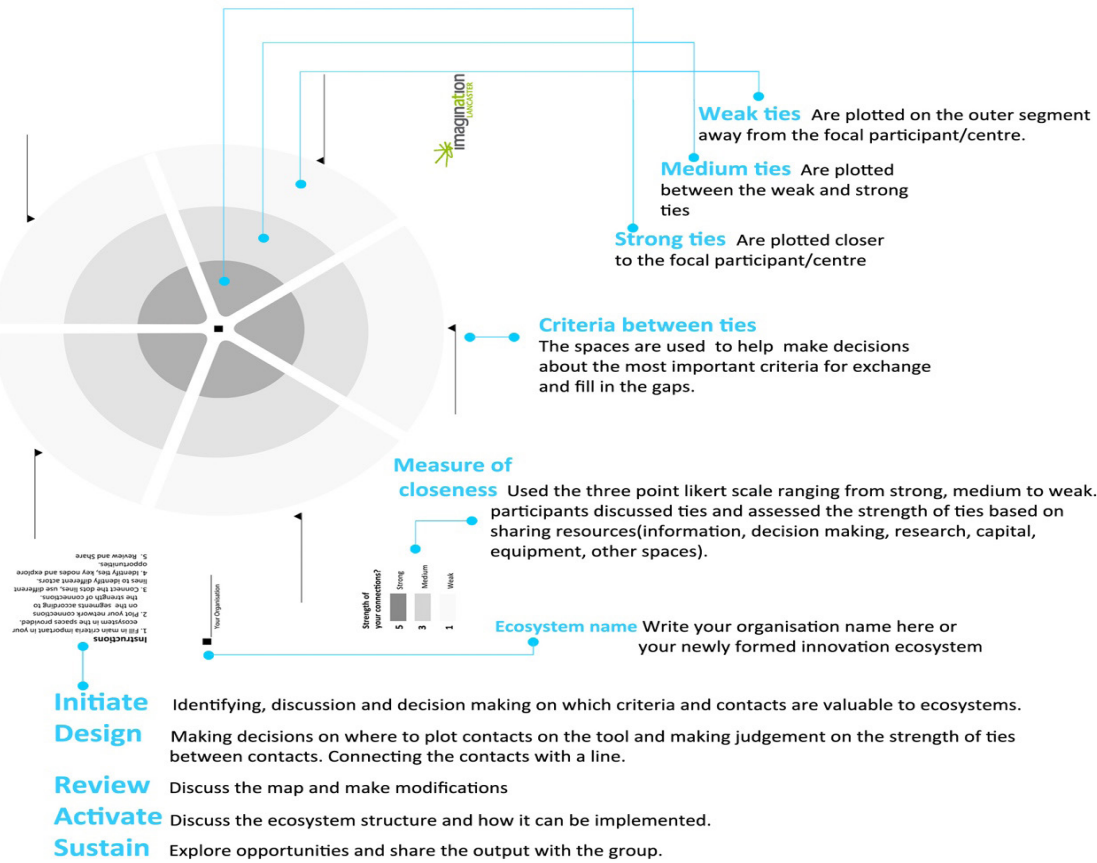


Figure 1. Co-design ecosystem mapping tool

We designed the DRS2020 workshop around the co-design mapping framework to enable participants to initiate, design, review, activate and sustain innovation ecosystems. Initially, we planned the workshop to happen in a physical workshop environment, but it had to be delivered in an online environment due to the new conference requirements. This case study documents the workshop plans (physical and virtual), the redesign process, and the outcomes, which are described in the following sections.

The physical workshop plan and materials

The initial plan was to conduct the workshop in two parts for 105 minutes, starting with each participant mapping their ecosystems and then later working in groups to combine individual visualisation outputs. We planned to use A3 and A5 paper-based tools for mapping and representing participants in network structures. The workshop materials and plan are described as follows.

- Part 1: Individual work**
 - Address ethical issues:** Explain the workshop aim and consent form
 - Icebreaker:** Using a design tool (Figure 2: left), participants draw themselves in their network and explain it in 5 seconds to the rest of the group.
 - Discussing innovation ecosystem value:** Presentation and discussions lead by the facilitator
 - Identifying criteria for ecosystems:** Participants list many criteria for ecosystems and select 5 most important to use on the tool.
 - Visualising roles and ties and meaning:** Plot roles and ties on the tool according to the strength of connections. Connect all the points with a line to reveal insights
 - Dialogue with other actors:** Share insights about the visualisation outputs through presentations

- Part 2: Group work**
 - Identifying criteria for ecosystems:** Participants list many criteria for ecosystems and select 5 most important to use on the tool (Figure 2: right).
 - Visualising network roles, ties and meaning:** Using different colours to represent each participant, plot ties on the tool according to the strength of connections.
 - Dialogue with other groups:** Share insights about the visualisations through presentations
 - Evaluate the tools:** Participants to complete an evaluation form about the tools used, and share suggestions for modifications

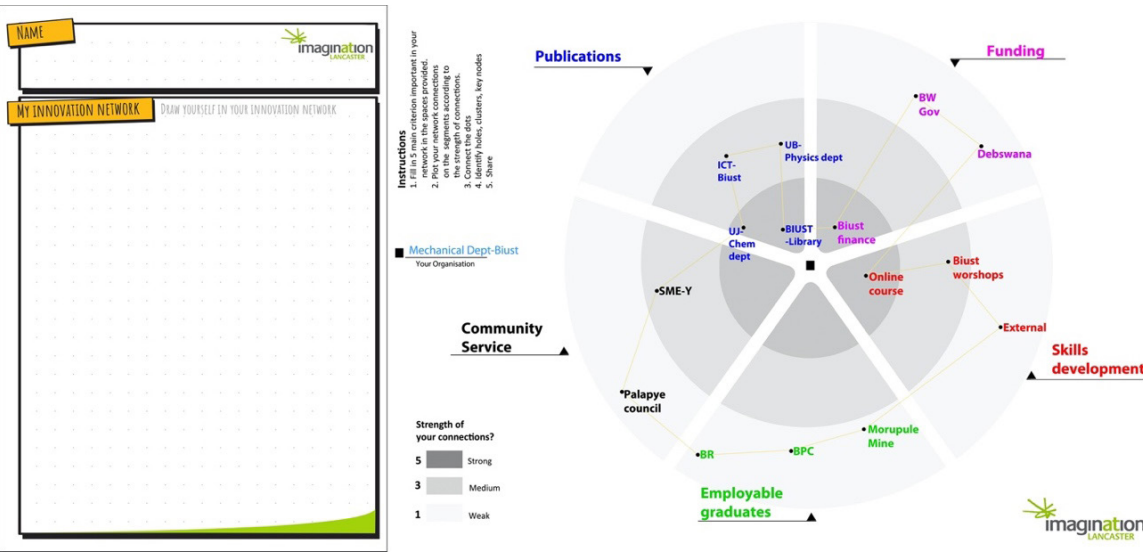


Figure 2 . Paper-based tools for representing participants in innovation networks (Left) and mapping group networks (Right)

Applying the DisCo principles

This section presents how we applied the proposed principles in the redesign of the physical workshops into an online version.

PLANNING THE ONLINE SESSION

The change in the amount of time allocated to a virtual session was reduced to 60 minutes from the initial 105 minutes, thus affecting the workshop design from the initial two sessions to one. Although the change in time duration was a conference requirement, it was also a way to reduce information overload as the workshop was part of a full-day virtual conference.

We chose to use the MIRO whiteboard to support our online workshop as a popular tool currently used by professional designers and researchers. As other workshops held during the conference also used the platform to exchange knowledge with other participants, it seemed to be an appropriate choice to support our workshop.

Regarding the icebreaker, which normally introduces the concept of ecosystems, we changed it to a virtual activity, where participants were expected to pick any object or ‘thing’ laying in their physical spaces and talk about that in 10 seconds, and nominate another participant to do the same with the aim to find connections between these things.

FACILITATING THE ONLINE SESSION

Another disruptive change to the physical workshop was the introduction of a pre-recorded video presentation, where we had to show it at the start of the workshop session as a virtual conference requirement. This requirement added another layer of challenges in redesigning the virtual workshop because it required the mastery of new digital recording skills in a short period. The support of a technical producer, who knew how the mediating technologies operate, made it easier to blend the facilitation skills and technical layer into the co-design process.

Explaining the use of MIRO and Microsoft teams during pre-recording meant that we had to explicitly elaborate the technical language of a virtual environment in a 10 minutes video presentation. This included how participants are expected to navigate between the main session and breakout rooms, explaining the layout of MIRO as a platform i.e. where to find frames to navigate through the design process, where to click and type or copy and paste information, which toolbar to use.

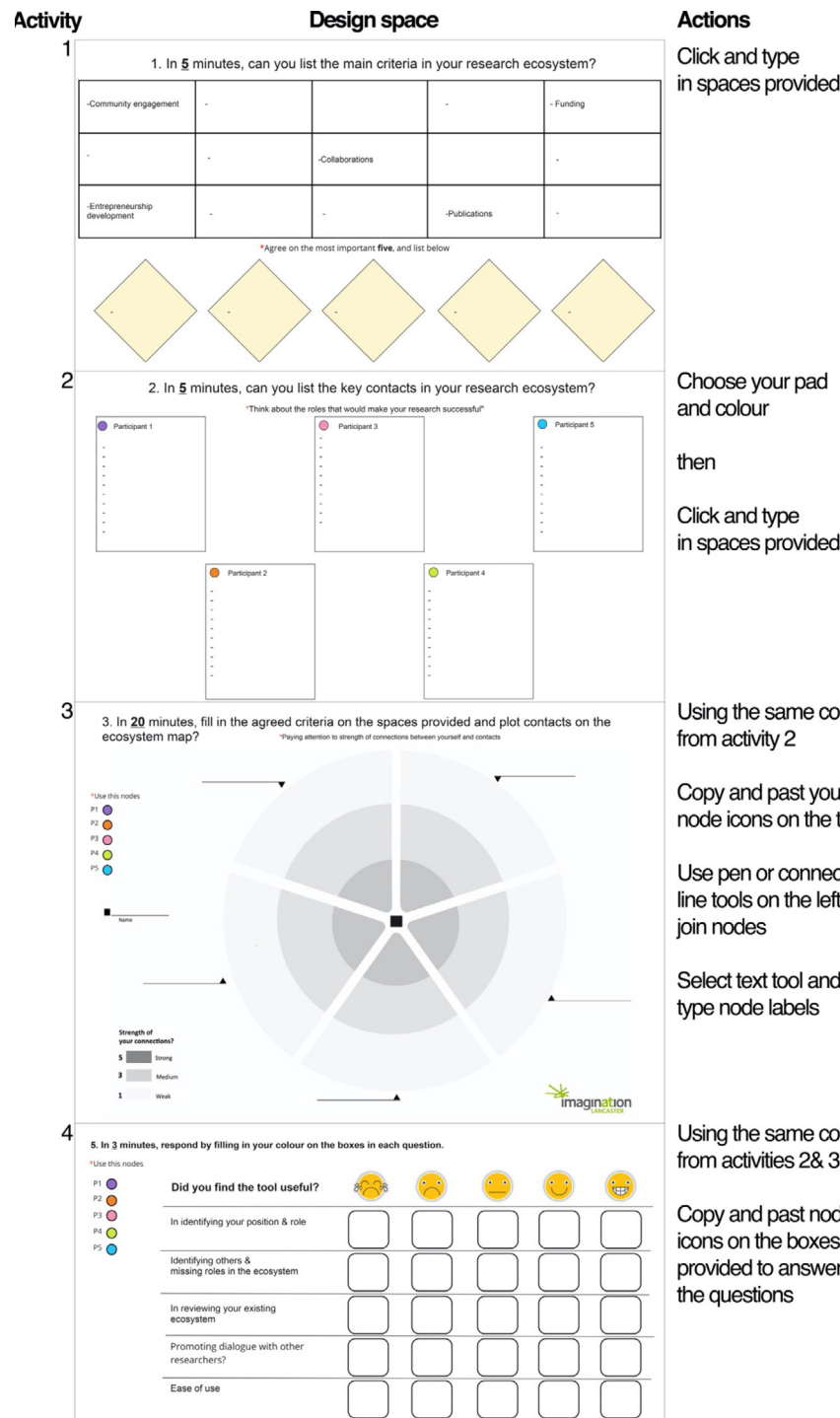


Figure 3. Virtual workshop design spaces

The iterative process of planning, prototyping and running through the session helped to refine the redesigned online workshop. Having the support of a technical producer helped to identify technical issues and things that could go wrong when facilitating an online workshop.

DESIGNING INTERACTIVE RESOURCES

Unlike in-person workshops where the planning of design activities involves procuring well-established tools e.g. sticky notes, whiteboards, printed mapping tools, in virtual workshop planning, a lot of time is spent on honing virtual design spaces to lessen the difficulty in using virtual whiteboards and make participants with low digital literacy less worried about learning new skills during interactions.

We broke down the interactions into different spaces to help participants in making sense of activities. The workshop was

limited to four design spaces, with customised icons and tools to ease the co-design activities and lessen the need for high digital literacy (Figure 3). We designed a table with fifteen spaces for participants to fill in their own criteria which include five boxes for participants to agree on five main criteria and fill in the boxes. Participants actions were to click and type in spaces provided as shown in Figure 3(1). We designed Activity-2 in the form of a virtual notepad, again the participants only needed to click and type in their key contacts in the spaces provided. Activity-3 was the main mapping tool space, we provided participants with node icons to copy and paste on the co-design tool, connection line tools to connect nodes, and a text tool on the left to type in their labels. They also had an option to use sticky notes to add reviews. In Activity-4, we use a combination of questions, node icons, boxes and emojis, since people are much familiar with emojis from the realm of the social media, we thought it would be more interesting to use them. Partici-

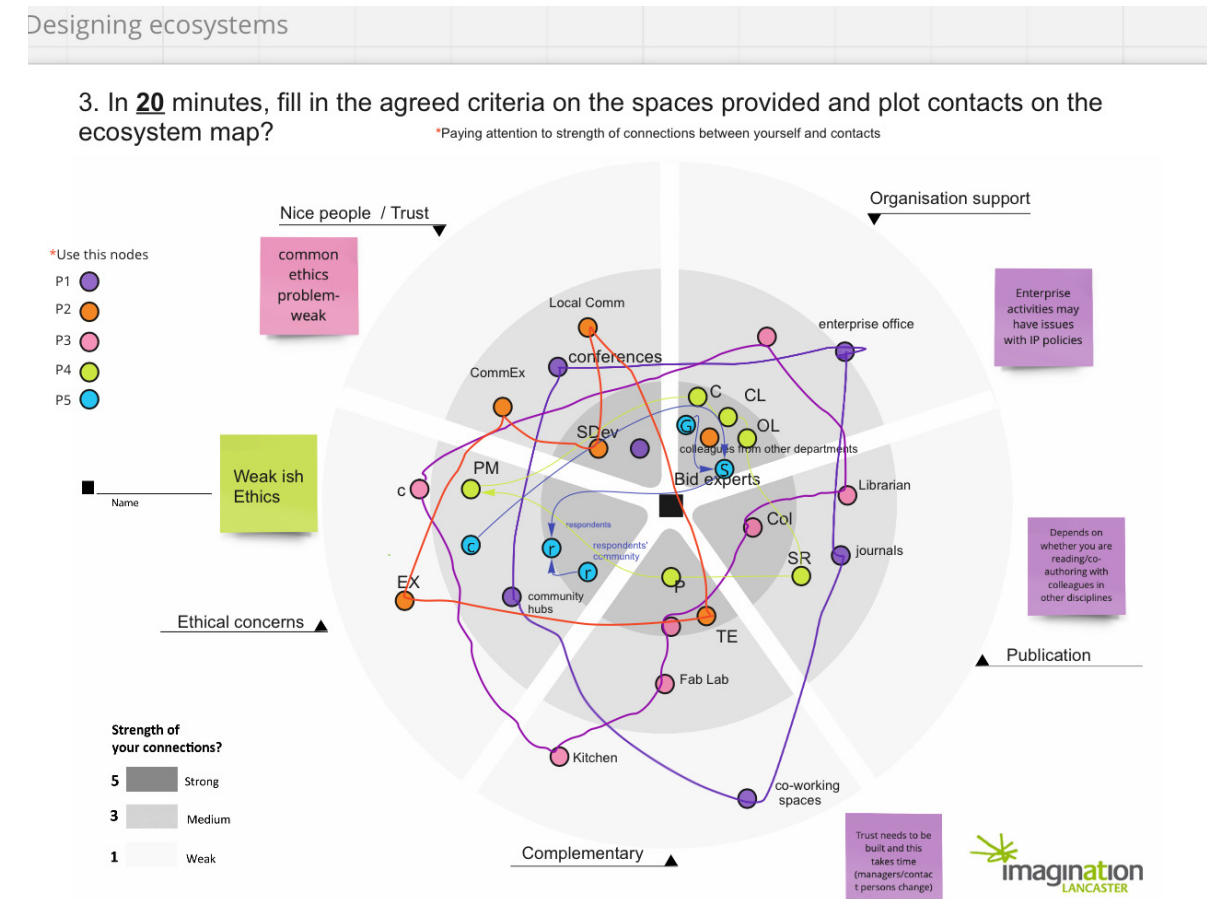


Figure 4. Workshop output

part's actions were to copy their node icons and paste in their preferred boxes to answer the questions.

The 1-hour virtual workshop plan is described as follows.

Introduction: a 10-minute pre-recorded video presenting a step by step design framework in MIRO whiteboard (virtual environment) followed by a 2-minute Q&A.

Icebreaker: picking up something from the desk and sharing how it relates with previous participant's 'thing'.

Assign participants to breakout rooms and agree on criteria needed for a research ecosystem: Listing criteria for ecosystems and choosing five common ones to use in the design process

Identifying key contacts in your individual ecosystems:
List your contacts necessary for conducting successful research

Plotting strength of ties between contacts: Decide on the strength of your ties using the design mapping tool

Analysing visualisation outputs and discussing how to activate and sustain new ties: Looking at the combined visualisation of your networks in the tool: (1) identify research network insights and (2) decide on how you will activate and sustain these insights

Evaluate the tool: Participants complete an evaluation table by responding to questions on the tool usability

Presentation and feedback: Return to the main session and present insights

Workshop outcomes

During our virtual expedition, we had a low attendance of participants than expected, this was observed across other conference workshops. One of the reasons why participants who signed up for the workshop did not attend was related to technical issues of finding workshop links and challenges associated with different time zones. The low attendance meant that we had to adjust the plan to one main session, where 4 par-

ticipants were all doing the design together in a single MIRO whiteboard instead of the initially planned three whiteboards. This reduced the complexity of navigating between breakout rooms and whiteboards, thus making the facilitation much easier. Operating in one session enabled us to address all design questions promptly by doing e.g. copying and pasting contacts on the tool. Deciding and mapping criteria, contacts, and the strength of ties were a challenge for some participants, we resolved this by demonstrating the process on the same design space, thus providing design hints to guide participants. They creatively engaged with the mapping tool through MIRO without issues (Figure 4).

Although the virtual workshop was the first of its kind, participants developed mental images to represent how their research ecosystem networks are configured, and these combined networks scaffolded a dialogue on future trends of research ecosystem configurations, to maximise the research output. This contributes to the question of how future ecosystems might be designed, taking an active role to visualise and engage potential collaborators in designing future reconfiguration of ecosystem networks. Finally, participants thought the tool was handy in aiding engagement with new actors, providing them new understandings in designing innovation ecosystems. This project also revealed interesting insights into designing and running online workshops.

Conclusion

This research addressed current challenges of co-designing in virtual environments through a set of principles to work collaboratively with participants geographically distributed around the world. The case study presented here demonstrates the application of this set of principles for designing and running online workshops clustered in three co-design layers of practice. We have presented a redesign process of a conference workshop that was delivered in a virtual environment using MIRO

and Microsoft Teams platforms as analogous to the location of the physical workshop.

Based on the outcomes, our redesign approach has shown how conference workshops can be delivered in virtual environments in a timely manner. The introduction of a pre-recorded video seems to be a new requirement in online workshops and conferences. Videos enable facilitators to keep control of the timing and content, and to rehearse many times before sending a good presentation version. Although achieving same outcomes as physical workshops are not feasible, designing short-term activities and resources can reduce the information workload, enabling desired outcomes through interactive mutual learning of those involved in the co-design process. The technical producer, a person who knows how to manage mediating technologies, plays an essential role in designing appropriate interactions, ensuring that everything goes well during online sessions. A more active support during the delivery of the virtual workshop has presented an effective way to make sure participants complete the tasks in the right way. This may require co-facilitators to develop their digital language skills and blend them into their facilitation approach to keep a good flow of online sessions and provide support to small groups of participants.

The proposed set of principles offers an approach to plan, design and deliver distributed co-design sessions to engage with stakeholders and external partners in existing and new projects. The proposal presented here has profound implications for those designing online events as it supports an emerging co-design practice that might remain up to date as part of the ‘new normal’ in the post-covid-19 world. There are different routes that the knowledge generated in this paper can be expanded, refined and disseminated. As this paper reports a single-case study, further research is needed with other contexts to enhance the transferability of the design principles, such as people with lack of access to high-tech equipment and fast broadband as well as homebound, i.e., those ones who are unable to leave their houses, typically due to chronic illness or old age. Another suggestion involves refining the principles with groups of non-designers to guide them to create their own DisCo approaches.

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Hybrid Housing: Reimagining Shared Urban Living

Abstract

Architecture has been associated with permanence for a long time. Construction methods and materials are designed to create an architectural object that is durable, while the limited selection of housing typologies remain the same. The exercise of inhabiting is dynamic and complex, and it becomes more evident nowadays. In the era of globalization, changes reflect a society where mobility and flexibility are highly relevant factors. With high demand for housing, an undeniable need for redefinition and a high index of wasted properties, it is necessary to rethink the way we live. What could the housing of the future be like in urbanized areas? This project is an invitation to reinterpret the most intimate nucleus of the human being, to understand housing as determining pieces in the shaping of the urban environment, where the type of house that is designed is directly related to the type of city that is built.

Keywords: urban density; housing; circular economy; pre-fabricated architecture; sustainability; flexible spaces; contemporary nomadism; temporality; coliving.

Introduction

Global population in urban areas is predicted to increase from 3.9 billion today to nearly 7 billion by 2050 (United Nations. 2014). Yet with developable area becoming scarcer and the cost of housing rising in almost every major city, billions of people could struggle to find an adequate and affordable place to inhabit. The problem is approached as a great challenge, where much of the housing debate narrowly focuses on finding ways to increase the number of homes built and make them more efficient. However, forms and sustainable lifestyles must be rethought.

From this perspective, a widening gap is recognized between the cost of housing and income levels, meaning that young adults find it increasingly difficult to access the housing ladder, as seen in Figure 1. Thus, it is not only the lack of af-

fordable housing that should inspire us to rethink how to live, but also the changes in lifestyles in our current society. Today, the condition of change and development is manifested within the framework of five macro trends: first, the acceleration of urbanization; second, demographic change; third, political and economic changes; fourth, technological advances; and fifth, the scarcity of natural resources, all of which will pose enormous challenges to the daily life of man today and in the future.

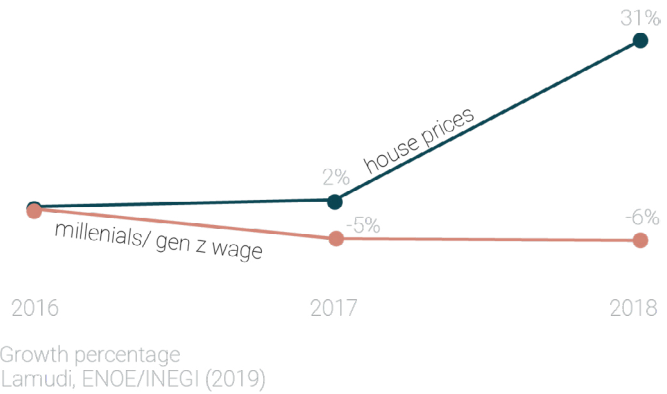


Figure 1. Growth percentage

In the context of these pressing issues and as concerned architecture students, some questions have been raised regarding the future of housing: its functionality, aesthetics, and related lifestyles.

Background

Sustainable urbanization is key to successful development of future cities. Both economically and ecologically, it will be impossible to meet the housing demand with today’s architectural and urbanistic forms and methods. However, how could

future housing be designed and developed in urban areas and in a world that is so rapidly changing in every aspect? To consider new approaches and understand how architecture can, in fact, be in tune with all these changes, it is necessary to analyze how life, change, and evolution have been perceived over time.

For instance, there is no doubt that time is a substantial part of human life. Time, like space, is an important component of our living experience. But even though it governs everything around us, defining it is a complex task.

Furthermore, tradition considers time as a “linear series of measurable points of the now” (Alweiss. 2002:119). It is interpreted as a modification of the present. Past is what is no longer present, and future is what is not yet present. As Calanchini mentions, “time sets the tone: it brings changes and measures everything that is done”. (2017:19)

Notably, in a lecture given in 1924, Heidegger argued that the phenomenon of time can only be understood from the mortal or finite point of view of the human being. What defines humans is finitude, the fact that we all have a limited time of existence (Alweiss. 2002:119). Human life is temporary, and the proper awareness of this has given architecture a fundamental task: to articulate the human experience of time and space (Pallasmaa. 1998).

Experiencing time has a fundamental and psychological importance as a consequence of the unconscious fear of death. In this way, the temporal limits of human existence are expanded through architecture and thus architectural constructions are a defense against the anxiety of nonexistence.

Architecture is responsible for structuring the environment. It provides stability and a sense of existential continuity. Alvar Aalto, an important Finnish architect, states that «architecture has come to be nothing more than a concentrated human desire for eternal life on earth» (Pallasmaa. 1998). More than any other form of art, architecture is an instrument for slowing down and stopping time. It allows man to see, understand and participate in cycles of time that exceed the scope of an individual life. Time accompanies architecture at all times through cycles and temporal processes. But buildings, just like human beings, age.

In addition, Pallasmaa understands architecture fundamentally as an art of permanence. (Pallasmaa. 1998). Throughout history, the selection of materials and shape have encouraged the immobile and durable characteristics of buildings. The intrinsic nature of most architectural expressions is durability (Bet-sky. 2016), but should it be?

Despite the changes in lifestyles, social rituals, economic conditions, and the needs of society, architecture remains pretty much immobile (Maak. 2015:16). Actual housing typologies and the market around them do not favor the big trends occurring today regarding mobility and globalization. A change of job or school, social configurations, or life plans are all happening inside the same architectural shells, and these do not respond to the mutable needs. People’s lifestyle is imposed by an architectural form, instead of the other way around.

Moreover, housing needs are not static. The configuration of the interpersonal relationships of those who live in a community also undergo continuous changes: in a family, children grow up and become independent; couples join or separate. A home should be thought of as a flexible setting that can adapt to different atmospheres or situations (Maak. 2015:216).

Overall, housing should not be understood as a static physical construction, because it always implies a social dimension and is restructured as users change and develop. Considering housing as a process implies understanding it as something more than a physical space, as an act that takes place in time and not at a specific moment, that is, that understands the act of living (Morales Soler cited in Zapata. 2017:328).

Ephemeral architecture was without doubt the first form of man’s construction. Since the Paleolithic period, the initial stage of the Stone Age, humanity has been in constant motion

and change. Archaeologists have found enough evidence about the nature of early constructions, enabling them to understand the essential role that ephemeral housing played in the survival of homo sapiens as a species (Kronenburg. 2002:16).

In the early days, nomadic groups used caves and other natural refuges for shelter and protection. When there was no opportunity to inhabit natural refuges, the first examples of nomadic architecture started emerging, responding to the needs of each group and location. Different types of nomads began to use local materials to build their temporary homes. These civilizations manufactured different types of ephemeral housing that could be disassembled and transported as they moved to new locations (Cribb. 1991).

Nomads expressed a sophisticated awareness of the sense of place and the importance of the concept “home”. The relationship that existed between nomadic groups and geographical places where they temporarily settled is relevant to understanding the meaning of inhabiting. They used the land sensitively as a resource, allowing it to renew itself whenever they had to leave. The yurts, the teepees, and the fulani huts, are all clear examples that a home and the sense of place do not need to be in a fixed and immobile (geographic) space (Kronenburg. 2002:7).

As man developed the knowledge to pursue agriculture and subsequently establish permanent settlements, ephemeral architecture became the forerunner of permanent structures.

However, as Etienne Bou mentions in his thesis “Contemporary Nomadism”, “in this rapidly changing world, you can no longer be connected to a fixed location. Humans today are returning to their nomadic origins” (Bou. 2016).

Today’s generations, especially younger ones, are starting to live more nomadic lifestyles, and these are the people who will represent most of the housing market’s demand in the upcoming years. The fixed reality of past generations, such as owning a sole living place and a steady lifelong job, have today disappeared.

Clearly, many different problematic factors are coming together today and are pressing for new approaches to design. Population, housing demand, globalization, different lifestyles and changes are on the rise. While on the other hand, developable areas and natural resources are diminishing.

The way man lives in today’s world has changed. Technological advances and globalization have transformed our culture into a fast-paced society, revolving around obsolescence and temporality (Armada. 2012), and the way buildings are being designed and constructed is increasingly damaging the environment. Urban sprawl and the construction of buildings cause severe environmental damage by soil depletion — the scarcest resource on the planet — at a rate that the earth cannot even compensate.

The housing typology most definitely needs to be transformed: we must change how we plan, develop and think about housing, and be able to design and adapt it socially, technologically, and ecologically. How would cities look like if architecture was designed as a temporary experience that adapts to constantly changing factors such as technology, environment and society? What if design could easily allow architecture to grow, change, and evolve alongside us and the planet?

Aiming to address the way people will live in the future, we explored everything from rapid urbanization and the scarcity of natural resources, to food security and the lack of affordable housing, as well as how technological breakthroughs, such as mixed reality, artificial intelligence and digital fabrication tools could empower people in new ways.

Conceptualization and Design

The present project considers a new housing typology that could adapt to users and their lifestyles, to future cities and

future ways of living in them. As seen in Figure 2, a modular building system is designed that can adapt over time and can be placed on unused surfaces that already exist in the city: rooftops, which until now are considered urban voids.

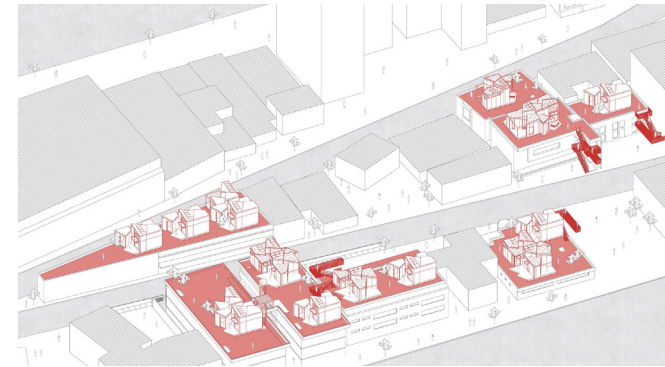


Figure 2. Rooftops as recurring available surfaces that can host new housing models

It is known that every act of architecture is also an act of urban planning. As the United Nations states, “providing public transportation, as well as housing, electricity, water and sanitation for a densely settled urban population is cheaper and less environmentally damaging than providing a similar level of services to a dispersed city” (United Nations. 2014).

That is why densifying city areas that already have services in them is undeniably important for future development. Therefore, this project seeks to take advantage of existing buildings for the development of new housing models, promoting the use of available surfaces in the city.

It is important to identify an area with great potential to offer diverse and accessible housing to different social strata. For example, new housing models could benefit from an area that stands out for having mixed-use developments oriented to commerce and services, or one that hosts restaurants, shops, boutiques, bars. These neighborhoods could offer a wide variation of activities to the users, when located in a 150-meter radius, the optimal walking distance.

Furthermore: why choose rooftops as possible developable places? An adaptive reuse of surfaces in existing buildings can reactivate their value. It is an opportunity to revive obsolete buildings as well as a catalyst for urban regeneration. This strategy would not only potentiate a process of coexistence of the built environment, but also of the vibrant social fabric, avoiding the segregation and gentrification of consolidated neighborhoods, as seen in Figure 3.



Figure 3. Temporary dwelling on rooftops revives obsolete buildings and creates vibrant communities.

Temporary use of urban voids can be an opportunity, both for nomadic residents and for owners with a disused urban asset, positively transforming the urban image and the available

resources, on a path to a circular and changing real estate economy.

By inserting new living spaces in a specific area, the density will increase accordingly. The proximity of housing with workplaces, commerce or any other place that involves day to day activities, as well as the coexistence of inhabitants within different income groups, will create a city in which sustainability and wellness contribute to economic, cultural and community enrichment.

Mobility and a lack of accessible housing for young populations in many cities are reasons to support housing densification strategies and solutions. This is why Hybrid Housing seeks to offer a housing model focused on Millennial and Z Generations, a population group that pressingly needs it.

Construction system

An analogy of desired characteristics for the project was found in the eagle, its way of living and its nest. Studying this species’ habitat was the starting point to an interpretation of it into architecture.

It makes sense to study nature and the way in which animals and other Homo Sapiens inhabit, as they are natural models that have emerged through the process of evolution, subjected to a variety of conditions. Juri Lebedew stated that “in nature, the principle of the integration of function + form + structure is effective, and it adapts to its existence and interrelation with the environment”. (Lebedew. J.S: Architektur and Bionik, 1983, p.55 in Gruber, 2011)

The same way that the animal’s habitat is interrelated with its context, Hybrid Housing must do so with the context in which it is placed. From this approach, an initial conceptualization of the modular system for the project emerged.

The system would be prefabricated, and quickly assembled on site. A transition structure consisting of structural beams will be anchored to the host building’s rooftop, aligning with its existing construction grid to distribute the load of the new model (Figure 4). A base structure, like the analogy of a tree, will work like a skeleton or frame that will provide users a contained liberty to design and accommodate their housing modules.

Then, prefabricated wall panels -components- are assembled to create each module. With these components, the user can customize the system to suit his or her needs, taste, and lifestyle. That which remains constant is the base structure, while modules respond both to contextual conditions and to user demands and preferences. The whole system can be disassembled and can change its location with ease.

As mentioned in the nature analogy, just like an eagle chooses the location of the tree that best suits its needs, it then constructs its nest while using the tree as a base structure. When it no longer needs it, the nest’s materials return to the earth, thus the eagle’s home becomes finite and generates no waste.

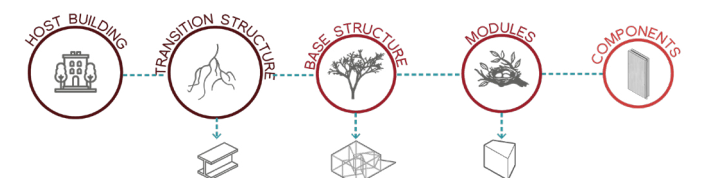


Figure 4. System analogy

Materials

Hybrid Housing seeks to generate a coherent project, aligned with contemporary material flows, design tools, manufacturing technologies and assembly processes. An analysis of materials,

through a selection process, was made to determine those that best respond to the system and its parts (Figure 5).

An W beam structure was chosen for the transition structure and square steel profiles for the base structure. The prefabricated components are made out of pine wood and OSB panels, with a wood stud interior structure, and have recycled textiles as insulation, a big waste of local industries. All the system is then covered with white perforated steel sheets, and plain steel sheets for the roofs.

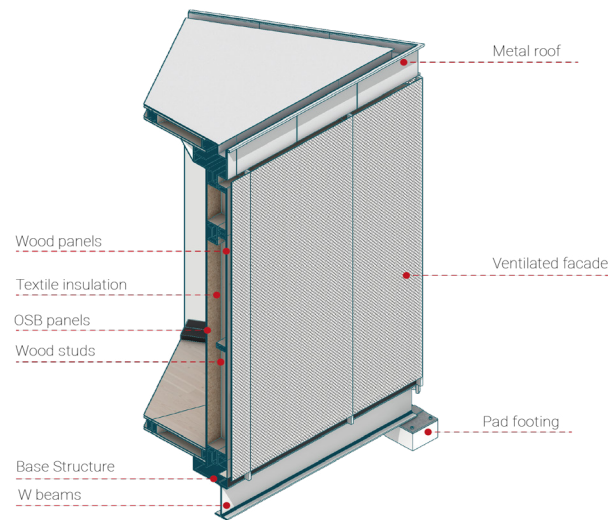


Figure 5. Materials

Through a digital platform, users will be able to design, customize and order their own housing kit. Based on size, costs or individual wishes, the platform will give the users a quick idea of how their new home could look like, and how it can be transformed and adapted throughout time.

They will receive the flat packed building components, and will need only some basic tools to assemble the pieces together into the modular structure. It is almost like a DIY project, enabling the initial anchored structure as a raw space and then engaging people to finalize parts of the design and construction themselves (Figure 6). This will reduce construction costs and offer the chance to creatively customize the design.

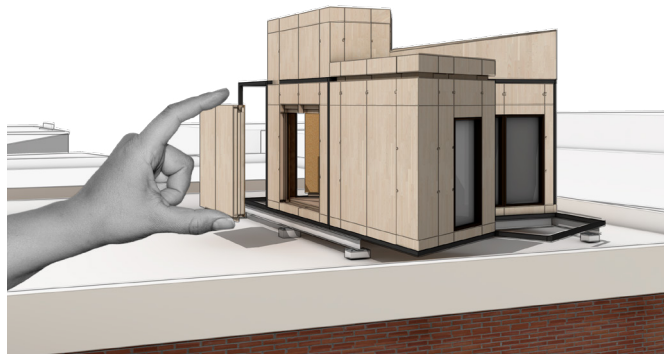


Figure 6. Plug and play components

The digital platform will accompany the user through each step of the process, from initial design to delivery on site, and will also give support during the building process, including follow-up assistance for the possible definitive disassembly or safe change of location.

Just as the software tools require periodic updates to improve services, the model proposed may also assume this condition. Accessories and components can be updated, allowing the creation of new pieces that respond to emerging demands.

There is also an undeniable global need to greatly decrease waste production. According to the United Nations Environment

Program, 40% (2 billion tons per year) of the global waste production is due to construction alone, and housing itself represents a big part of this problem (UN Environment Programme, 2020). Seeking to work towards solving this problem as well, all building components and materials of the project are designed to be disassembled and replaced, reused and recycled over the lifespan of the building. Hence, a circular approach is considered in the management and life cycle of the system.

The project is essentially a bank of materials (Figure 7). Once the system is dismantled, every material and each of its parts can be used for the construction of a new home, transformed into new materials or they can return to the ground. This approach will help homeowners generate a greater economic value, improve their health and reduce the negative impact on the environment by a minimized use of resources.

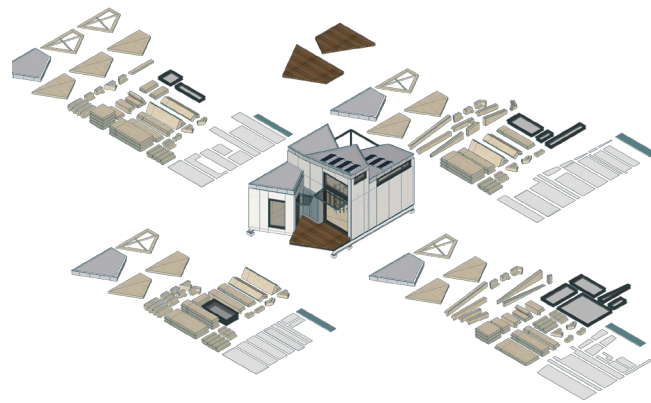


Figure 7. With a "Design for disassembly" method, the project's materials work in a circular economy.

Not only would this benefit the planet by minimizing waste, but it would also align with nomadic trends and the rapidly changing society and lifestyles. The model gives people more freedom and flexibility. Users would be able to add or remove parts and edit their home as they see fit. Thus, homes would be able to change, evolve, grow, and come to an end such as human life does.

The need to design housing that can easily respond to changes throughout its useful life is evident. The benefits of this are considerable: it remains in use longer, it is better suited to its purpose, it adapts to user experience and intervention, it takes advantage of technological innovation more easily, and it is economically and ecologically more viable. Furthermore, the potential to remain relevant to social and cultural trends is greater.

Many global cities no longer have space in which they can expand to, but they do have an opportunity to rebuild existing areas. Hybrid Housing, located on rooftops, is a simple scheme for introducing low-cost housing in urban areas with little space for new development. It becomes a form of "urban filling", a strategy of intervention and densification, benefiting from the existing infrastructure. It is an ecological and economical solution to create livable spaces and also a way to discover new perspectives of the city.

Shared living

Today, people are sharing more goods and services than ever before, and many use the sharing economy in day-to-day lives — from ordering a taxi to finding a room for the night. Subscription models like Spotify, Netflix and SnappCar have also had a massive impact on traditional models of ownership (SPACE10, 2018).

Urban life as such is also about sharing: streets, restaurants, parks, waste handling and energy systems are all shared. Be-

yond the practical and economic reasons, the rise of the sharing economy reflects the craving for human connection. People are brought together through these services, turning digital connections into real meetings and new ways of living together.

Living together is about more than inhabiting the same physical space. It is necessary for everything in everyday life to be more efficient, and to use resources more sensitively. That is why the project also aims to encourage community, within residents on the rooftops and everyone in the neighborhood.

The rise of the sharing economy, together with the depletion of the planet's resources and the exponential growth of the population, forces us to rethink the concept of ownership and housing. We may have to get used to living with other people in the future, but what opportunities might living together offer? And what is it about shared life that could persuade us to give up our privacy and redefine what we mean by home?

Considering the projected growth of the shared economy and technological advances influencing the behavior of young people (where many now value property experiences), the sharing economy could lead to a drastically different real estate market. Redefining a home could be a good exercise: sharing food, energy, mobility, digital devices and media to help reduce costs through scaled economies.

Well-designed spaces where people love to be, create a safe, affordable, vibrant, active and healthy community. Space is a strategic tool that can foster interactions. However, we cannot design interactions, but we can create spaces that facilitate them by thinking about the context in which they arise.

Remaining rooftop spaces are considered as a public shared space between new residents and people who currently live or work in the host building (Figure 8–9). We asked ourselves: how to connect people? And we found 5 ways to achieve this:

The first strategy is to share mealtimes. Food and the ritual of sharing it is fundamental for communities and one of the most important ways in which people come together (SPACE10, 2018, 139). The second way to create community is by encouraging outdoor activities and recreation, where people can interact and play together. Third, by sharing common spaces and services. This includes green roof spaces, renewable energy, a recycling center, community compost, and a laundry facility. The fourth strategy is to share utensils. Sharing things can make a community self-sufficient in terms of energy, food and mobility. The last strategy is to provide democratic vertical access. Stairs are essentially "collision spaces", high-traffic areas that increase the chances of spontaneous interaction and conversation.

The solutions of water harvesting, renewable energy, local food production, and localized composting can be shared by users living on the same rooftop or urban block. Besides housing modules, additional structures would be able to be added as sharing features — from a module that could house a small gym or a shared laundry space, to a playspace for kids or a communal dining area. The digital platform technology would allow for such shared features to be personalized and anchored nearby.

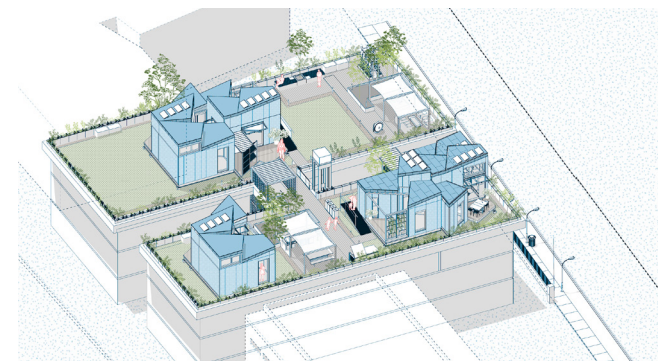


Figure 8. Public space on rooftops



Figure 9. Public space on rooftops

Urban regeneration

It is necessary to think about the project in relation to its urban contribution. It is a key aspect to understand houses as units that build a city, and not as isolated elements that have no relation and connection with its context. This is the scenario where the project unfolds, an urban context in the process of densification, where the challenge of building in an already urbanized city is clear; and where the type of housing that is designed is directly related to the type of city that is built.

The new dwelling models become essential pieces in the regeneration of the urban environment, they attend to the basic need to reinvent living spaces. The importance of the project does not only lie in the change of traditional construction systems, but in the way each house defines living spaces in accordance with contemporary cities that require new actions and ideas from architecture.

Conclusion

It is undeniable that people want to live in a more pedestrian, sustainable, heterogeneous and equitable city, and this research project is a small step into achieving it. It seeks to create a city in which, in a respectful and ecological way, each user has the opportunity to choose where and how they want to live.

We aim to understand housing as a temporary, reconfigurable and adaptable space, and visualize these new housing units as tools that transform and respond to the different phases, stages and needs of any individual or family.

Aware of the negative environmental impact that architecture and construction have, it is clear that action needs to be taken to transform and improve current construction methods. Hybrid Housing is a project that emerges from a single thought: how can we create architecture that contributes to the planet?

We need to start questioning traditional systems, typologies, materials and processes and create architecture that has a positive impact on society, the city and the environment. Hybrid Housing is nothing more than a product of our honest concern for the future: our future, our generations, for the city and for the planet.

This research paper is about sparking ideas, driving a conversation, encouraging a critical eye on the options that exist today and provoking thoughts on what can and should come next. We need to start asking ourselves questions such as: How do we want to live in the future? Are we satisfied with what is available or accessible? How are we going to protect our natural resources? How can we manage our temporality in this world more efficiently?

No one can predict the future, but anyone can shape it. Today’s challenges are a great opportunity to re-imagine how we might live tomorrow.

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We'll meet again! 'Design: Vertical & Horizontal Growth' was a precursor to the official annual Cumulus Conference. Postponed due to COVID-19, this will now take place in Moscow and St.Petersburg in June 2022. If you have any comments or questions, please do not hesitate to contact us by email cumulusrussia@gmail.com