Digital Media and Sustainable Development Goals Breathe New Life Into the Artworks From the Soares Dos Reis National Museum

Rodrigo Carvalho, Universidade Lusófona do Porto,
ID+ / Unexpected Media Lab, Portugal
Cláudia Lima, Universidade Lusófona do Porto,
ID+ / Unexpected Media Lab, Portugal
Susana Barreto, Universidade do Porto,
ID+ / Unexpected Media Lab, Portugal
Eliana Penedos-Santiago, Universidade Porto,
ID+ / Unexpected Media Lab, Portugal

Abstract
This paper describes a pedagogical exercise involving students from two Universities and the Soares dos Reis National Museum, all based in Porto, Portugal. The students - from Design, Multimedia, Video Games, and Visual Art fields - were challenged to recreate and animate, through digital technologies, artworks from the museum's collection. Besides exploring animation techniques, students had another inherent task: each work had to be focused on one, or more, of the 17 United Nations' Sustainable Development Goals. These goals, which cover different but interrelated topics such as clean energy, sustainable cities, climate, or education, were used as themes for each one of the projects. This way, students apart from the creation of digital media works, were also raising awareness for different social and environmental causes. This practice, therefore, has three different, but connected anchor points: shedding light on Portuguese art history and cultural heritage by means of recreating the past; the knowledge and awareness of social and environmental issues; and the exploration of digital animation techniques. In this study, all different stages of the pedagogical practice are covered, as well as analysis and discussion of the student's process and outcomes. The project is also put into context with similar methodologic approaches to recreating artwork from the past as a pedagogical tool. The outputs of the project will be later exhibited in the Museum alongside the original artworks in a long-term exhibition of the collection, mostly paintings from the 19th and 20th centuries.

Keywords: Digital Art, Animation, Pedagogical Practices, Art and Design Education, Recreating the Past

iafor

The International Academic Forum
www.iafor.org

Introduction: Recreating the past through digital technologies

The project presented in this paper follows up on a previous one, carried out in a similar pedagogical context and led by the same researchers, where the focus was on the artworks of Francis Bacon (Lima et al., 2021, 2022). In this project held in the framework of the exhibition *Graphic Works of Francis Bacon*, at the World of Wine Museum in Vila Nova de Gaia, Portugal (from April to September 2021), students were invited to create reinterpretations of Bacon's graphic artworks with modern digital tools. The students, who shared great enthusiasm for the opportunity of presenting their work in a public exhibition, explored different digital techniques and approaches in the creation of dynamic and animated alternative reinterpretations of Bacon's artwork. Their works were later presented at the exhibition on two display screens in a dedicated space at the end of the exhibition route. This way visitors started by exploring Francis Bacon's graphic work and ended the visit with the students' digital re-interpretations of his work (Lima et al., 2022).

Figure 1: Students' works displayed at the *Graphic Works of Francis Bacon* exhibition
(photo: Rodrigo Carvalho. V.N.Gaia, 2021)

Based on the same principles and methodologies, the current project had as one of the main references the advertisement campaign made by Prado Museum & World Wide Fund for Nature named *+1,5ºC Lo Cambia Todo* (which translates to *+1.5ºC changes everything*)[1]. This campaign, presented in 2019 in Madrid on the occasion of the COP25 - World Climate Summit, intended to create awareness of climate change and specifically on the impacts of an increase in global temperatures. Their goal was to communicate that a rise of just 1.5ºC could have catastrophic consequences on the planet. Their approach consisted in taking four well-known paintings from the museum's collection and recreating alternative versions with the impact of climate change. For example, they used Velásquez's painting *Felipe IV, a Caballo* (1635), and created an alternative version where the landscape is flooded, and Filipe and his horse are struggling to keep afloat. It aimed to stress that the increase of 1.5ºC in the global temperature could lead to the rise of the sea level.

---

[1] "+1,5ºC Lo Cambia Todo". Prado Museum & WWF (World Wide Fund for Nature). Accessed 15/07/2022. <https://www.wwf.es/nuestro_trabajo/clima_y_energia/cumbres_del_clima/cop_25_chile_madrid_/locambiatodo/>

The approach of recreating the past is a widely known practice in Arts and Design education. Recreating with new digital tools unleashes the discovery of new artistic possibilities from the visual work created decades ago (Afanador-Lhach, 2021). "Recreating the past" is the name of a course taught by the artist and educator Zach Lieberman at the School for Poetic Computation[2], at the MIT Media Art & Science program[3], and in workshops in diverse events. In these courses, Lieberman uses this method to teach art students to code. Students are invited to choose and study an artist from the past decades, usually a computer or generative artist, and then recreate their artworks from scratch using modern digital tools. This practice leads students to gain technical knowledge, exercise their observation, and analysis skills, as well as to learn and appreciate computer artists from a half-century ago (Levin, 2021). Lieberman stresses the idea that the "job of every generation of designers is to remake the past" (2015) as it is vital to know our field of work and who came before us. By recreating the past, apart from learning new tools and technical approaches, we also better understand the historical era, the politics, and the social and artistic movements where the artworks were created.

The idea of recreating the art from the past is also present in ReCode, a community-driven project that aims to archive artwork from computer art pioneers by translating early computer artworks into modern programming languages. Many of these artworks were made on now obsolete computers and software, and in many cases, the only record is a low-resolution picture in publications from the 1960s and 1970s. On their website[4], ReCode holds a list of many of these early computer artworks and invites anyone to recode them, giving them this way a new life and helping the preservation of the computer art heritage.

Many artists use the approach of recreating the past as practice. One example is Kajetan Obarski who created alternative animated versions of renaissance masterpieces such as *Judith Beheading Holofernes* by Caravaggio (c. 1599) or *The Nightmare* by Henry Fuseli (1781). We can see how by the use of new digital tools Obarski triggered new artistic possibilities from artwork from the past. This is also present in *Mechanical Masterpieces* by Neil Mendonza (2022), where he created alternative and interactive versions of famous paintings for an art installation at The Children's Museum of Pittsburgh. In this installation, visitors interact through custom-made electronic physical interfaces with iconic masterpieces such as the *Laughing Cavalier* by Frans Hals (1624), *Nighthawks* by Edward Hopper (1942), or *The Son of Man* by Réne Magritte (1964). Each interface is different and made specifically for each painting in a humoristic approach. As an example on *Laughing Cavalier* visitors can move a mechanical arm, which allows them to control a digital hand on the screen, which in turn tickles the Cavalier. This approach creates a close, emotional, and playful relationship with artworks created decades or centuries ago that would not be possible without the exploration of new digital tools.

The current project presented in this paper is informed by these works. It challenges students to create interpretations of Portuguese artworks from past centuries while raising awareness of the necessity of meeting the United Nations' Sustainable Development Goals. The artworks to be interpreted are part of an exhibition to be held in 2022 at the Soares dos Reis National Museum and it is intended to include the results by students in this same exhibition.

---

[2] School for Poetic Computation. Accessed 15/07/2022. <https://sfpc.io/recreatingthepast-spring2020/>
[3] Recreating the past. MIT Media. Accessed 15/07/2022. <https://rtp.media.mit.edu/>
[4] ReCode project. Accessed 15/07/2022. <http://recodeproject.com/>

Workshop Methodology

These pedagogical practices involved undergraduate students from two universities - Escola Superior Artística do Porto (ESAP), and Universidade Lusófona do Porto (ULP) - and the Soares dos Reis National Museum (MNSR), all based in Porto.

As aforementioned, the methodology was informed by prior pedagogical practices carried out in the context of the project/exhibition *Graphic Works of Francis Bacon* (Lima et al., 2021, 2022), where we hypothesize that reinterpreting the artworks of artists from earlier generations using modern digital media would stimulate young people's interest and result in a deeper understanding of art (Lima et al., 2022). We also based the workshop methodology on strategies developed within the *Wisdom Transfer*[5] project, which aimed to enhance knowledge transfer between current art and design students and retired artists and designers who graduated from the School of Fine Arts in Porto (Barreto et al., 2021).

At ESAP the practice happened during the curricular semester, as a series of guided exercises as part of the course "Art and Multimedia Communication", which gathers students from the BAs in Communication Design, Fine Art, Visual Arts, and Cinema and Audiovisual. These exercises were carried out between October 2021 to February 2022 with a group of 17 students.

The proposals ranged from video animations, art memes, *tableau vivant* to avatars and were developed having the Museum collection as the backdrop for the exercises. The avatars were based on Portuguese artists represented at MNSR, namely Aurélia de Sousa, Henrique Pousão, Marques de Oliveira and Soares dos Reis. This encouraged a first contact of students with these artists and their artworks. In a second stage, avatar variants integrating the Sustainable Development Goals were produced.

At ULP this practice was carried out in the context of an extracurricular workshop involving students from BAs in Video Games and Multimedia, Communication Design, and Audiovisual and Multimédia Communication. It was composed of four two-hour sessions, that spanned three weeks. The goals of the workshop consisted of:
1) The recreation with digital tools of a painting from the museum collection to give it "life" through digital animation. The artists and paintings were previously selected by the curatorship of the exhibition to be held — it is intended to show in the exhibition the originals of the paintings and their respective animated interpretations.
2) Recreations should have as theme one (or more) of the 17 United Nations Sustainable Development Goals, in order to raise awareness of specific social and environmental issues.

The first session was dedicated to the project overview, an introduction to the museum's history and its collection, the presentation of the 17 United Nations Sustainable Development Goals, the viewing of the outcomes from the previous project *Graphic Works of Francis Bacon* (Lima et al., 2021, 2022), as well as references by other artists using the same approach of recreating the past with digital tools. At the end of the session, students were tasked to analyze and reflect on the selection of artists and paintings from the museum collection as well as on the Sustainable Development Goals that they were interested in working on.

---

[5] Wisdom Transfer. Accessed 15/07/2022. <https://wisdomtransfer.fba.up.pt/>

In the second session, students presented their proposals to work on, the paintings that interested them the most, how they could be related to one of the Sustainable Development Goals, and how they were going to animate them in order to communicate the desired message. Each student proposal was discussed within the group, encouraging the sharing of knowledge and fostering more alternative solutions and ideas. Possible digital techniques and approaches were also discussed for each proposal.

The third session was dedicated to the presentation and discussion of the first drafts presented by the students. The concept and structure of the proposed narrative were analyzed, as well as technical issues of the digital animation. And the fourth and final session was dedicated to the presentation of the final animations and group discussion of the outcomes. In a few cases, further improvements were done after this session.

Results

We can observe a wide range of outcomes from the students' works, both in technical approaches as well as in the choice of UN Sustainable Development Goals to be worked on. Along with these goals, students explored sensitive topics within the works of art and have embedded them in the contemporary discourse, such as climate change, pay gap, racism, and cancel culture. Technically students explored different software and artistic languages borrowed from the works of art and responded to a cultural language put forward by the MNSR.

In the case of ESAP, apart from the digital animations, students developed other forms of fusion between art and digital media, namely *tableau vivant*, *memes*, and *avatars*. Figure 2 shows us two explorations of *tableau vivant*, where students recreated paintings' stagings by photographing themselves in the artworks, on the left is the recreation of Henrique Pousão's *Cecilia* (1882), and on the right Roquemont's *Cabeça da Velha* (1836). In Figure 3 we can see, on the left, an example of a *Meme* over the work *Menina a Ler* by Aurelia de Sousa where students overwrite the paintings with text with mundane jokes.
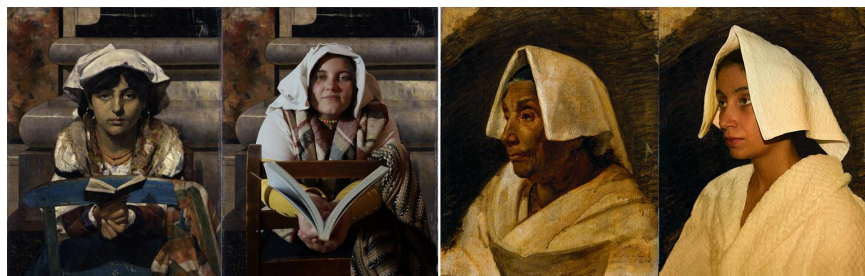

Figure 2: (left) Jorge Duarte's *tableau vivant*, interpretation of *Cecilia* (Pousão, 1882);
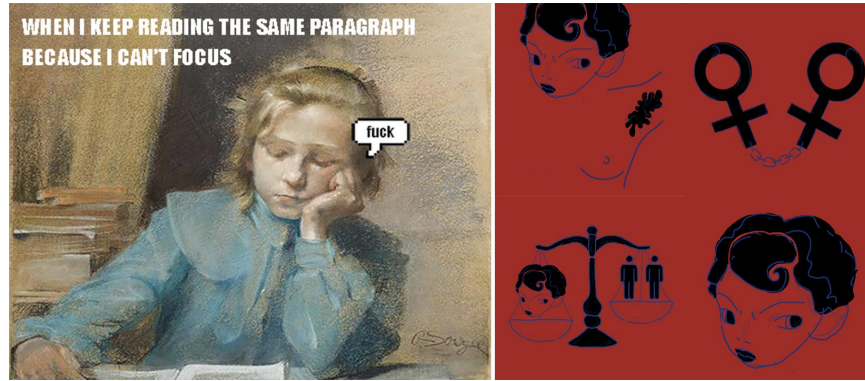(right) Cássia Pinto's *tableau vivant*, interpretation of *Cabeça da Velha* (Roquemont, 1836)

Figure 3: (left) Meme, *Menina a ler* (de Sousa, 1890/1950);
(right) Sara Tacão's avatar based on Aurélia de Sousa

The *avatar*'s exercise was intended to get the students to explore a specific artist and create their online graphic representation. These graphics representations should visually communicate the artist's persona and characteristics and also address a chosen Sustainable Development Goal. In Figure 3 (right) the student explored the avatars of Aurélia de Sousa addressing the goal of gender equality. In Figure 4 we can see a series of different avatars from the sculptor Soares dos Reis based on his portrait painted by João Marques de Oliveira (1881). In this case, the student chose to address goal number 3 - Good Health and Well-Being - so each one of the avatars holds a graphic element that symbolizes a specific target related to health. The first one (from the left) targets the improvement of risky patients' life chances; the second one aims to improve the quantity and quality of medical equipment; and the last one is focused on the improvement of access to a career in medicine.

Figure 4: (left) *Retrato de Soares dos Reis* (de Oliveira, 1881);
Jorge Duarte's avatar based on Soares dos Reis.

In Figure 5 we can see some of the outcomes from digital animations focused on goal thirteen "Climate Action". In one of the works the student chose the painting "Aspecto de Pompeia Vesuvio" by Henrique Pousão (1882), and created an alternative version where all the landscape is flooded with water by the rise of sea level, so the Pompeia Vulcano was turned into an island (first row). Also based on a painting by Henrique Pousão, "Girl Resting on a Tree" (1883), another student approached the climate change topic showing the effects of desertification by drying the painting's landscape to the point that the tree dies and breaks (second row). In the third row, we see the painting "Ilha dos Amores" by José Malhoa (1908) where a couple is sitting in nature, but gradually the landscape is being destroyed and the couple ends up surrounded by garbage.

Figure 5: Stills from students' animations.
First row: Sofia Silva, interpretation of *Aspecto de Pompeia Vesuvio* (Pousão, 1882);
Second row: Melissa Cébola, interpretation of *Girl Resting On A Tree* (Pousão, 1883);
Third row: Sara Tacão, interpretation of *Ilha dos Amores* (Malhoa, 1908)

Another Sustainable Development Goal highly addressed by the students was goal number five related to gender equality. In Figure 6 we have a still from a work focused on the pay gap issue. The student chose two paintings, *Senhora Vestida de preto* by Henrique Pousão (1882) and *Retrato do Dr. Joaquim Madureira* by Artur Loureiro (1920), and each portrait is placed on one of the plates of a scale. Along the animation, we see gold coins being dropped on each one of the plates, at the beginning the division is clearly unfair as we see the man's plate with many more coins than the lady's. As the animation progresses, more coins begin to fall on the women's plate in a way that the pay gap becomes balanced between both.
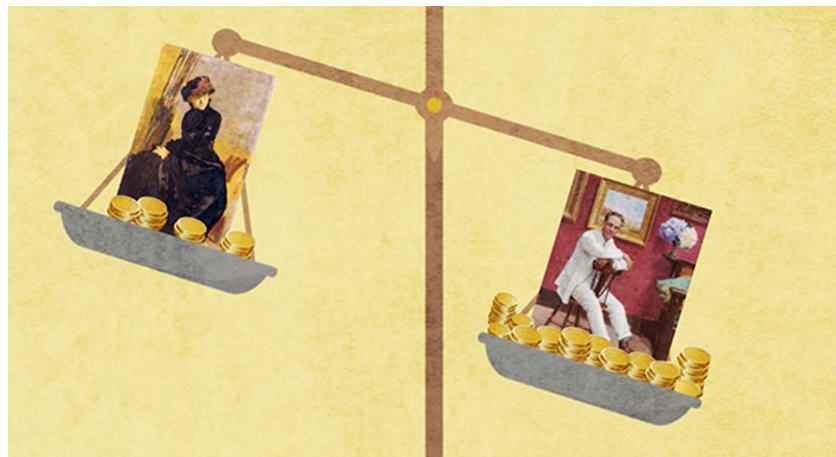

Figure 6: Still from Joana Pinho's animation, interpretation of *Senhora Vestida de preto* (Pousão, 1882) and *Retrato do Dr. Joaquim Madureira* (Loureiro, 1920)

In Figure 7 we have a work also focusing on gender equality, this time addressing equal career opportunities, where the student chose a self-portrait by Aurelia de Sousa (1900), a painter known for feminist activism. Throughout the animation, we see Aurelia's original clothes being replaced by uniforms from professions normally associated with men, such as chefs or military

commanders. The animated mouth in conjunction with a voice-over simulates the painter's speech which is declaiming the text by Paula Graça (1715) where she addresses the gender equality topic in the 18th century: she asks what kind of jobs are given to women since all the kingdom is given to male children.

Figure 7: Stills Gustavo Maldonado's animation. Interpretation of
Auto-retrato de Aurélia de Sousa (de Sousa, 1900)

The exhibition on the MNSR putting together the students' works alongside the original paintings is yet to be realized. Further documentation of this practice will then emerge from the outcomes of the exhibition and the subsequent analysis and reflection by students, curator, lecturers, and the exhibition visitors to be surveyed for this purpose.

Conclusion

The clash of cultures between digital media and Portuguese old masters was not an easy one. Students at first reacted unsympathetically towards an artistic language that meant little to them. The memes exercise was crucial in defying this divergence. It bridged both languages and created a third meaning that made sense to students and helped them to tackle the coming exercises. "Old" works of art, from a bygone era that was far away from contemporaneity, suddenly through humor and satire, made sense and story, a visual story.

The practice of revisiting artworks from past generations by creating new versions with modern digital tools increased the interest of young students in learning about our art history. This practice led students to establish a very close relationship with the author and artwork, as they immerse themselves in the small details of the pieces and the author's techniques, color palettes, stroke style, and so on. It also gave them a better perception of the historical era in which they were created. At the same time, this process was used as a catalyst for learning new tools and technical approaches.

This bringing together of both distant worlds feeds directly into a field of research embraced by the museum (MNSR) that aims to create a link with local secondary schools too, through their works of art, teach the subject of history to students.

References

Afanor-Llach, C. (2021). Recreating the Past: Concrete Poems and Motion Design. Proceedings of *Re-Connect: 2021 Motion Design Education Summit.*

Barreto, S., Alvelos, H., Penedos-Santiago, E., Lima, C., Amado, P., Santos, R., Martins, N. and Pereira, J., ed. (2021). *Threads of a Legacy: Towards a Peda-gogical Heritage in Art and Design: the Porto School of Fine Arts, 1956–1984*. Porto: ID+ Instituto de Investigação em Design, Media e Cultura.

Graça, P. (1715). *Bondade das mulheres vindicada e malícia dos homens manifesta*

Lieberman, Z. (2015). *Lessons for students*. Medium. Accessed on 15/07/2021 <https://zachlieberman.medium.com/lessons-for-students-cf1acf200ee>

Lima, C., Barreto, S., & Carvalho, R. (2021) *Da materialidade da obra à imaterialidade da representação digital: uma reinterpretação das obrasde Francis Bacon em um contexto pedagógico.* Rotura - Revista de Comunicação, Cultura e Artes. n.2 (2021): Processos De Criação. https://doi.org/10.34623/4t9q-ye88

Lima, C., Barreto, S., & Carvalho, R. (2022). *Interpreting Francis Bacon's Work through Contemporary Digital Media: Pedagogical Practices in University Contexts.* In: Daniel Raposo, Nuno Martins and Daniel Brandão (eds) Human Dynamics and Design for the Development of Contemporary Societies. AHFE (2022) International Conference. AHFE Open Access, vol 25. AHFE International, USA. http://doi.org/10.54941/ahfe1001420

Levin, G. (2021). *Drawing with Machines:Vera Molnár Re-Code* [syllabus]. Integrative Design, Arts, and Technology.Carnegie Mellon School of Art. Accessed on 15/07/2021 <https://courses.ideate.cmu.edu/60-428/f2021/offerings/2-generating-svgs/>

Levin, G., & Brain, T. (2021). *Code as Creative Medium. A Handbook for Computational Art and Design*. The MIT Press. ISBN: 978-0262542043