ART CURATION IN VIRTUAL SPACES: THE INFLUENCE OF DIGITAL TECHNOLOGY IN REDEFINING THE AESTHETICS AND INTERPRETATION OF ART

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ABSTRACT

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The advent of the digital revolution and the ubiquitous integration of digital technology in art curation, have led to unprecedented transformations in reshaping the accessibility and engagement of art and heritage. This study delves into the intersection of digital technology and art curation, and attempts to explore the multifaceted and transformative influences of digital technology in curatorial practices in the contemporary art world. The research used a case study approach and investigated Google Arts & Culture and the Rijksmuseum's Rijksstudio as prominent examples of large-scale digitalisation and digital art curation. The study aims to establish a nuanced and comprehensive understanding of art digitalisation, and how digital practices are redefining curatorial methods in the art world. Drawing from the critical perspectives concerning digitalisation, the study deliberates on the shifting paradigms of authenticity, the digital divide and the diminishing materiality of artworks in virtual environments. The findings from the study suggest that digital transformations in curatorial practices have ushered in an era of increased accessibility, and immersive user interactions with art and heritage. However, the digital curation of art manifests the emergence of a post-custodial paradigm, which is characterised by commodification of art, and decontextualisation of art and heritage.

Keywords: Art curation; digital technology; art aesthetics; art interpretation

1. INTRODUCTION

The advent of digital technology has ushered in an era of virtual spaces, which are having a profound impact on significant transformations in arenas of art curation. These digital interventions have reshaped the practices of art preservation, presentation and consumption. In addition to this, these virtual spaces are redefining the role and identity of art curators, and altering their relationship with artworks and their consumers. The digital infrastructures are facilitating new standards and values of art curation by offering virtual spaces with innovative tools and possibilities. Virtual platforms such as online galleries, VR, and AR interfaces are enabling art consumers to have an immersive and detailed experience of the artworks. Such digital facilities are not only changing the modes of art consumption, but also expanding the canvas for redefining the ways of interpretation and aesthetics of artefacts. These virtual spaces for art curation have led to increased accessibility, and pushed for inclusivity and diversity in the creation and distribution of artworks

(Osterman, 2018). These practices of enabling artists from diverse backgrounds to participate in mainstream art practices are influencing the varied perspectives and unconventional styles in which art is curated through virtual spaces. Besides providing unprecedented user experiences through interactive digital interfaces, these virtual spaces are challenging conventional notions of art aesthetics and interpretations. It is imperative therefore to understand how such emerging curatorial trends, in the wake of digital advancement, are shaping the ways in which art is consumed and appreciated. Moreover, digital analysis is leading to data-driven practices, which are significantly influencing curatorial practices and expanding space for audience preferences. This study attempts to explore the multifaceted impact of digital technology on art curation, and the contribution of virtual spaces in redefining the aesthetics and interpretation of art. In the digital realm, the curatorial roles and responsibilities transcend the walls of their physical establishments, by embracing greater inclusion and diversity through increased adoption of digital infrastructure for facilitating dialogue and conversations among communities, allowing them to reflect on art, culture, and aesthetics (Giannini & Bowen, 2019a). The interactive and immersive technological applications in the art world, like virtual reality (VR) and augmented reality (AR), have transformed the way people have personalised interactions with art and deepened their intellectual experience with artworks. These alterations in the presentations of artworks have led to adaptable curation, which fundamentally strives for user preferences and feedback. This significantly involves using algorithms and machine learning in curating events and exhibitions, by catering to trends in individual preferences and contemporary art audiences.

The COVID-19 pandemic had a profound influence on the art world, as the consequent restrictions and preventive protocols disrupted the traditional practices of art curation and exhibitions. Government-imposed lockdowns and social distancing protocols resulted in the closure of physical spaces of art installations like galleries, museums, and exhibitions, rendering "physical collections and gallery spaces inaccessible to the public, and creating a mass exodus to digital spaces as the only means to stay present" (Noehrer et al., 2021, p. 2). The abrupt suspension of museums and art galleries during the pandemic prompted art curators to adapt to the changing dynamics, by shifting to virtual spaces like online exhibitions and virtual galleries, and establishing a presence in digital platforms. According to UNESCO (2020), by the month of April 2020, approximately 90 per cent of institutions were shut down during COVID-19, resulting in socio-economic distress, and making art curators leverage digital technologies to mark their presence in the cyber-sphere for the continuation of their museum and gallery operations. In fact, the already emerging process of digitalisation, with art galleries experimenting with advanced digital tools with an aim to reach out to art enthusiasts, clients and the general public. Besides developing digital infrastructure, art curators and gallerists initiated online interactive activities like live streams, virtual tours, 3D-exhibition views and online talks, for engaging and entertaining prospective clients and art lovers (Habelsberger & Bhansing, 2021).

In the wake of this digitalisation, art museums have merged the spaces between physical and digital, leading to a third space of mixed reality. The digital progression of curatorial practices involving software infrastructure and digital services, is enabling the creation of hybrid identities of human creativity and innovation in the art world. The curators who have embraced advancing digital infrastructure leverage the distinct links between art and technology in the effective presentation and contextualisation of the artwork they curate. Such presentations in an enhanced virtual infrastructure provide these curators with an edge in contemporary market dynamics and competitive spaces of the world. Such digital curatorial practices leading to immersive public engagements have enabled art curators to spark conversations and push narratives on art, besides inspiring artists and collectors. In the wake of the increased use of digital technology, the art curator's role has been refined from being as Lopes (2020, p. 123) points out "a figure of intellectual authority, and a custodian of cultural and artistic objects safely kept behind the glass case in a museum, to a cultural mediator who seeks new forms to engage the audience with artists and objects through museum displays and exhibitions" The art curations in virtual spaces have ushered in an era of inclusivity in exhibition and promotion of art, and such trends can potentially foster increased levels of art appreciation and cultural exchange in contemporary digital landscape. Here, it can be argued that digital intervention in curatorial practices has led to increased accessibility and inclusivity in art consumption in virtual spaces, and offered unprecedented opportunities for art preservation and user engagement through immersive interfaces. In this direction, this study explores the transformative impact of digital technology on curatorial practices in the contemporary art world, and how the emerging interactive spaces within digital curation are shaping new modes of audience interactions with art.

2. LITERATURE REVIEW

In the wake of the domineering digital infrastructure, museums and art galleries increasingly recognise the need to assimilate with digital cultures to address the compatibilities of modern audiences and fulfil their expectations (Giannini & Bowen, 2022). Through the use of digital tools, the curators tend to fulfil visitors' needs, enhance their experience, and allow them to participate in art interpretation. In current digital cultures, museum operators and gallerists are exploring new modes of attracting and engaging audiences. The fact that museum art representations and expressions resonate with public life, curators are increasingly leveraging digital modes to expand the role of art in public discourse. This evolving digital ecosystem is transforming the traditional curatorial practice by engaging digital curatorial teams in providing exciting options to enhance the visitor experience through advanced digital media displays (Giannini & Bowen, 2019a). In addition to this Contemporary digital cultures and the emergence of virtual communities necessitate the need to deliver online art experiences and visualisations to the audience, especially in the wake of influential social media use in society (Giannini & Bowen, 2022). Digital transformations are emerging as substantial areas of interest for art curators and archaeologists, and these digital developments are redefining the field of museology (Massi et al., 2020). The digital interfaces adopted by curators are improving museum engagements of visitors, thereby blurring the lines between physical and virtual spaces of art exhibitions and museum representations (Simone et al., 2021). Scholars have investigated the impact of virtual reality on contemporary art interpretation and found that user experiences involve five visual affordances: immersion, presence, empathy, embodiment and usability (Leow & Ch'ng, 2021). Virtual art spaces and digital curation are being studied by digital humanities, which aim to evaluate the operations of artworks in the digital environment (Sabharwal, 2020). The visual elements of art curation and virtual museum exhibitions are about spatial representations for enhanced meaning-making and audience interpretation (Bovcon, 2021). The incorporation of VR technology in the context of cultural heritage has been associated with shaping the novel ways audiences interact and engage in contemporary exhibitions (Leow & Ch'ng, 2021). Under the digital revolution, tech-equipped art curators are introducing interactive art demonstrations, storytelling, theatrical illustrations, virtual dance and musical art performances in museum exhibitions, thereby enhancing the educational and cultural experience among visitors (Addis, 2005). The algorithms and machine learning involved in advanced digital curatorial infrastructure have led to the emergence of evolving curation models, which have attracted scholars to examine personalised art experiences and individual user experience (O'Doherty, 2019). The democratisation in art curation is reshaping conventional power structures in the art world by facilitating the participation of diverse voices in curatorial and exhibition practices in art collection (Kwon, 2020). These digital interventions in curatorial practices have substantially 'democratised' the art world by enabling art accessibility for global audiences, through the reduction of geographical barriers (Manovich, 2018). The transformative influence of digitalisation has facilitated interactive and immersive experiences for consumers, through the application of virtual reality and augmented reality technologies, for more effective and enhanced viewer engagement and aesthetic expression (Penny, 2017). In the realm of cultural spaces, the production of digital representations of cultural heritage is increasingly shaping socio-cultural interpretations by enhancing the accessibility and familiarity among the public for art (Batista et al., 2023).

The existing scholarship at the intersection of art and digitalisation mainly focuses on the influence of digital platforms in preserving and conserving art, facilitating an interactive space for archiving and exhibiting arts and cultural heritage (Vermeeren et al., 2018). Digitalisation has ushered in an enhanced and diversified audience flow to museums, allowing visitors who were earlier not very familiar with art, to actively engage and participate in interpreting artefacts and shared heritage (Samaroudi et al., 2020). However, this has been contested by scholars for innate bias in digital representation. There has been growing concern about the underrepresentation of non-Western artworks and heritage on Google Arts & Culture, which are largely attributed to the biases that stem from aggregated digitised objects (Kizhner et al., 2021). Scholars have raised some ethical concerns around art commercialisation, copyright, and data privacy issues in virtual spaces of art curation (Wallace, 2023).

In the wake of the increased use of digital technology, the art curator's role has refined from being a custodian of cultural and artistic objects to a cultural mediator, who adopts innovative ways to engage the audience through digital interfaces and virtual exhibitions. Lopes (2020) argued that the "role of the museum curator may not be authoritative any more, but rather, selective, subliminal and thought-provoking, allowing the visitor to construct meaning based on their experience and knowledge" (p.124). The emerging trend of museum crowd-curation, in the wake of the digitalisation of museum practices, has empowered people to attain independent curatorial roles in shaping the reception and consumption attitude in the contemporary art world. Giannini and Bowen (2019b) who studied curatorial practices in digital cultures, gathered data on art exhibitions, visitor behaviour, curatorial commentaries and narratives on exhibitions. The presentation of

artworks in both physical and virtual spaces significantly influences the provenance and identity of artefacts, enhancing their aesthetic reception and socio-cultural appreciation (Giannini & Bowen, 2019c). In virtual spaces, the provenance is consolidated by the digital documentation, which facilitates contextual information and authentication for the users watching the digital representation of the artefacts. Moreover, the digitalisation of artworks transfers them from the physical confines of the museums to the virtual environments, making them accessible across the expanse of the cyber world. These cultural relics' digital representation and availability for public consumption make them part of the digital interactions on cultural heritage and exchange. Such innovations in digital curatorial practices operate through a "visitor-driven" approach, where curators focus on the needs and interests of visitors. Such practices are pushing for a holistic museum experience through personalised use of technology (Kim, 2018). Through these 'hybrid materialities,' as addressed by Galani and Kidd (2020), digital curators are developing strategies to redefine analogue artefacts in interactive and immersive digital forms. The visitors availing virtual facilities are helping digital platforms to shape future strategies for curating art through substantial use of digital data, history and feedback in real-time (Noehrer et al., 2021). The literature highlights a dynamic and evolving landscape within the digitalisation of art exhibitions, and its role in reshaping conventional paradigms of art curation. The scholarship suggests that in digital curation, the technology has significantly enhanced the viewer experience of the aesthetics and interpretation of art. The discussion on the existing literature provides fertile ground for this study to further explore the phenomenon of virtual spaces in current art curation in the digital age.

3. THEORETICAL FRAMEWORK

This current study focuses on the integration of digital tools in refining curatorial practices, and reshaping art presentation and consumption in the current era. The conceptual framework identified for the study involves looking at the intersection of the transformative potential of digital technology in redefining art curation, and reshaping audience engagement and enhanced aesthetic experience. In the realm of digital presentation in the art world, the study draws upon the concept of cultural mediation to understand the mediatory role of digital technology in the creative cultural production and consumption of art. The technology as a cultural mediator here manifests the role of virtual spaces in influencing socio-cultural dynamics, by allowing for a more substantial reception and interpretation of the heritage art. The framework links the digital reproduction of artefacts with the concepts of hyperreality, proposed by French sociologist Jean Baudrillard's (2020) concept of 'Simulation'. This concept of theorisation on simulation and simulacra, Baudrillard argued that representations defines reality, and here it can be argued that virtual representations of art through digital curation lead to the creation of hyperreal experiences, distorting the boundaries between physical and virtual forms of art. This phenomenon is imperative for assessing the digital impact on art aesthetics and interpretation. From the perspective of art aesthetics, the study engages in unravelling the influence of digital curation in providing additional layers to the contextualisation of art. This significantly involves the role of virtual representations in shaping the perspective on culture, history and style aesthetics of artworks.

The digital curatorial practices in museums and galleries manifest the fusion of materiality and virtuality, the study draws on the critical perspectives on digitalisation, including digital divide, commodification and diminishing tangible materiality in art and heritage. This necessarily involves challenges to physical curation, leading to the decontextualisation of art and heritage. By integrating the above theoretical perspectives, the study aims to provide a comprehensive understanding of the impact of the digital revolution on art curation, and how virtual spaces are reshaping the exhibition of art and audience interaction with artworks in the digital realm. The research objectives adopted for this study are provided below:

RO1: To explore the transformations within art curation in the digital revolution.
RO2: To examine the impact of digital curation on the audience's interactions with art.

4. METHODOLOGY

This study uses a case study approach for a nuanced and comprehensive understanding of digitalisation in the realm of the art world in redefining curatorial practices. The case study is a time-tested social research method that has been frequently used for understanding digital cultures (Li et al., 2020). Case studies are quite efficient in generating a contextual understanding of complex socio-technological issues shaping human behaviour and decision-making. In examining a particular phenomenon, this method fundamentally seeks to explore the issues by using multiple sources of evidence for a significant understanding in a natural context (Yin, 2013). Two prominent cases of digital curation were selected for in-depth examination, namely Google Arts & Culture and Rijksstudio. These two cases are among the most influential

and important virtual spaces, which involve large-scale digitalisation. Google Arts & Culture is a digital platform that was launched as Google Art Project in 2011 as an interactive platform, which has been fostering the accessibility of art and culture for people globally through advanced integration of digital technology. The Rijksstudio is the web platform of the iconic Rijksmuseum located in Amsterdam. As of 2021, the Rijksstudio featured 700,000 copyright-free and royalty-free works virtually. The platform uses advanced technology in curation and exhibition of art, which facilitates immersive and interactive experiences for the users. These two cases are distinctive and characterise the emergence of technology-driven art collection and preservation, which are significant for a rich contextual understanding. These cases provide an opportunity to delve into the intersection of technology and art curation, providing ample space for understanding the emerging dynamics in reimaging the user engagement with culture.
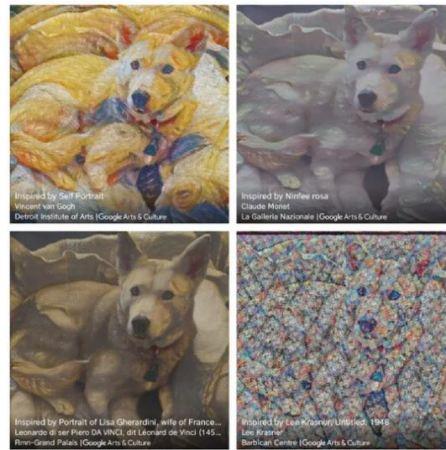
5. CASE 1: GOOGLE ARTS & CULTURE

Google Arts & Culture is a digital platform launched in 2011 as an initiative to enhance the accessibility of art and culture for people globally, with the use of digital technology. The platform is powered by the technological capabilities and network on Google, to enable users to avail immersive and engaging experiences of art, history and cultural heritage through virtual spaces. In the last decade, Google Arts & Culture, as an interactive platform, has emerged as an influential space for the art collection, and represents a pioneering digital curatorial practice, which embraces advancing technology for seamless collection and proliferation of art and heritage across the globe. Besides providing a diverse range of interactive and advanced services, the platform fundamentally showcases the high-quality visuals of artworks and cultural artefacts by partnering with museums, galleries and cultural organisations across the world. The platform keeps a collection of more than 3000 art galleries, museums and other cultural institutions (Google Arts & Culture, n.d.). Google Arts & Culture strives to make art and heritage easily accessible for people across the world, by hosting a mammoth total of six million high-resolution images of artworks from countries across continents.

Google Arts & Culture operates as a virtual repository, curating and exhibiting artworks and cultural heritage through the innovative technological interface, enabling people to explore and engage with the artefacts through immersive and interactive presentations. The platform uses high-resolution image technology to curate immersive visuals of arts and heritage owned by partner cultural institutions across the world. By enabling virtual tours of art galleries and heritage sites, the platform empowers the viewers to have customised physical and contextual information about the artworks through advanced interactive digital tools (Montagud et al., 2020). The platform, which is visually driven, adopts a storytelling approach while presenting art and heritage for user consumption. It incorporates digital storytelling elements in the website interface, in collaboration with the partner cultural institutions. Through the "Themes" and "Experiments" tabs, the platform cultivates the online visits and browsing styles of the users to curate the most suitable and relevant collections for them. The "Themes" function enables users to explore topical themes, which curates a collection of artworks, heritage and institutions in relation to the search query. On the other hand, the "Experiments" function encourages interactivity, allowing users to sneak behind the curtain to look at the exhibition preparation at the Cultural Institute's Lab. Unlike traditional museums where the visitors are exposed to finished and polished artworks, through the "Experiments" function, the online users can witness the development and collaborations for art presentations on the platform. This functionality allows for increased interactivity and real-time feedback, which the platform utilises to develop the evolving modes of cultural presentations. Some of the interactive technical affordances offered by the Google Arts & Culture platform are discussed in the sections below.

5.1 Art transfer

This feature on Google Arts & Culture enables viewers to apply the style and characteristics of iconic artists and artworks to their own images, with the use of advanced machine-learning techniques and image-processing digital tools. Rather than producing an overlay or blending user images with the existing artworks, this cultural functionality feature creates a distinctive algorithmic recreation of users' photos, with inspirations for particular customised chosen art styles.

Figure 1: Photo of a pet virtually recreated and inspired by several art styles (Source: Google Arts & Culture, n.d.)

5.2 Art in 360° (360° videos)

In collaboration with partner cultural institutions and curators across the world, the platform uses advanced features of Art in 360° to enable the users to experience culture in 360 degrees. This functionality allows the users to experience the visuals of artefacts and heritage sites in 3-dimensional space. This allows the users to undertake virtual 360 degrees visual tours of thousands of museum interiors from the comfort of their homes. These 3-dimensional interactive virtual tours allow users to zoom in and navigate around the artefacts to absorb minute details and experience them through customised perspectives.
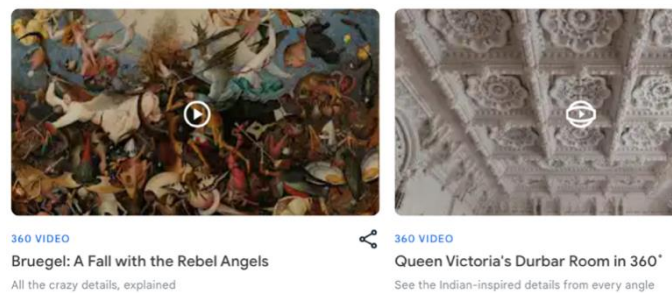
Figure 2: Snippets of 3600 virtual tours of museums (Source: Google Arts & Culture, n.d.)
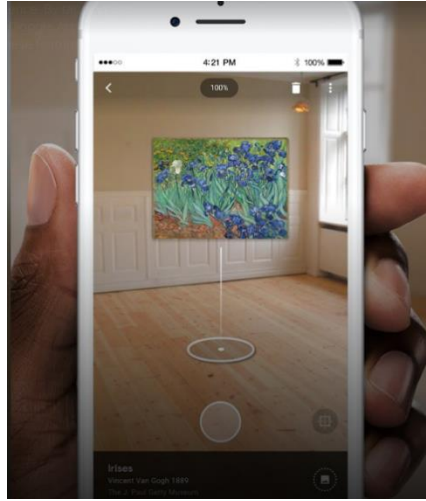
5.3 Art selfie

This popular functionality on Google Arts & Culture enables individual users to match their selfies with iconic artworks across the collections curated by them. The Art Selfie utilises facial recognition technology, which analyses and interprets the users' facial features, and then compares them to a huge database of artworks, paintings, and murals from across museums and cultural institutions. This immersive feature not only furnishes the artworks that resemble the users' face, but also curates important historical and contextual information about the artworks and the associated artists. Such techniques have made art curation more individualised and personalised, and facilitate an impactful and engaging experience for art lovers who no longer need to visit cultural institutions in person.

Figure 3: Snippet from art selfie interface (Source: Google Arts & Culture, n.d.)

5.4 Art projector

The function of Google Arts & Culture allows users to see and feel how the artworks will look in a real sense in front of them. Users who are interested in the physical display of the artwork at their homes can use this function to visualise how it actually looks in the real sense. The Art Projector tool allows users to access camera view and tap on portraits of artworks, paintings and murals on their screen, and visualise them at the desired places in their home.

Figure 4: Snippet from art selfie interface (Source: Google Arts & Culture, n.d.)

5.5 Art palette

The Art Palette functions as an intelligent colour resource in the platform and operates as a search engine, which finds the artworks based on the colour chosen by the user. This function on Google Arts & Culture uses computer vision algorithms to navigate through the curated artworks and condense them through colour palettes. This function manifests the digital use of machine learning in cultural applications and art curation in the digital sphere.
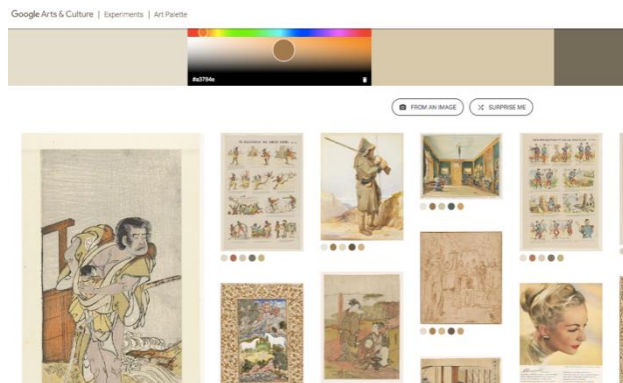
Figure 5: Snippet from art palette interface (Source: Google Arts & Culture, n.d.)

As a cultural institution, Google Arts & Culture has "put the world's cultural heritage in the hands of the world" (Marsh, n.d.). The user seeking artworks can virtually experience cultural heritage sites through 360-degree photos or videos from museums and art galleries from across the world (Cowin, 2020). Google Arts & Culture has redefined and significantly expanded the presentation of culture by dicing into the diversity of cultural elements like science, astronomy, music, folklore and history.

Figure 6: A screenshot of pocket gallery in Google Arts & Culture (Source: Google Arts & Culture, n.d.)

The Pocket Gallery feature introduced by the platform in 2018 is a unique functionality, which provides an immersive experience for users who seek to explore virtual exhibitions and artworks in a three-dimensional museum setting. This is the platform's digital curatorial feature that uses augmented reality (AR) to facilitate virtual tours to the ever-growing collection of virtual galleries and museums around the world. While leveraging Artificial Inteligenge (AI), this feature allows users to use their smartphones and tablets to not only view, but interact with the collections of artworks in the partner art galleries and museums. This has been an advancing collaborative project of Google Arts & Culture, where virtual exhibitions are held to curate an immersive art experience for users from various artists, genres, or themes. Google's platform has collaborated with over 50 museums globally to launch a new digital feature, which enabled the associated museums and curators to present their artworks in virtual 3D gallery spaces. Moreover, it enabled these cultural institutions to personalise their gallery spaces to offer vibrant and immersive cultural storytelling to the users. Through this feature, the platform curated art collections that were not publicly available earlier due to their delicate nature. Art troves like the Barilla Collection of Modern and Contemporary Art were not displayed, as the relics are too delicate for display. However, Google Arts & Culture has facilitated a virtual display of this precious collection for millions of people online.

6. CASE 2: RIJKSMUSEUM'S RIJKSSTUDIO

Located in Amsterdam, the Rijksmuseum is the national museum of the Netherlands, which features Dutch arts and history, and houses more than 8,000 artworks belonging to Dutch and European history. The historic museum consists of a total of 1 million objects involving arts, crafts, and history, ranging from the 13th to 19th century (Rijksmuseum — Collections, n.d.). The historic museum houses masterpieces by Dutch Golden Age artists like Rembrandt van Rijn, Johannes Vermeer, and Vincent van Gogh (Cascone, 2021). In the year 2012, the museum manoeuvred to a digital shift and digitalised artworks into 125,000 high definition images available for download on the newly launched Rijksstudio web platform, and by 2021, the Rijksstudio featured 700,000 copyright-free and royalty-free works virtually (Rijkmuseum, n.d.). The platform invites common people to download the images of the artworks and use them creatively to produce their own artworks. This practice enables the users to zoom in, edit and share the artwork without having a copyright issue. In 2021, the Rijksmuseum had 5.5 million visits to its website, which included 2.2 million visits to the virtual collection. Besides this, the museum witnessed a 23 per cent increase in its followership on social media platforms (Cascone, 2021).
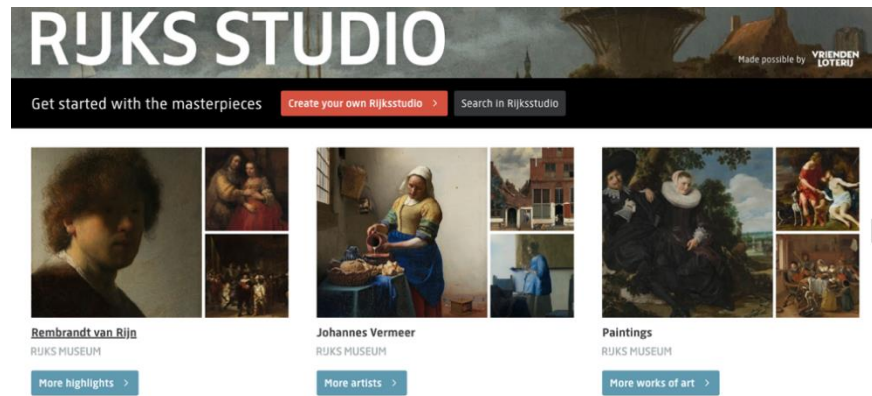
Figure 7: A screenshot of virtual collection at Rijksstudio (Rijkmuseum, n.d.)
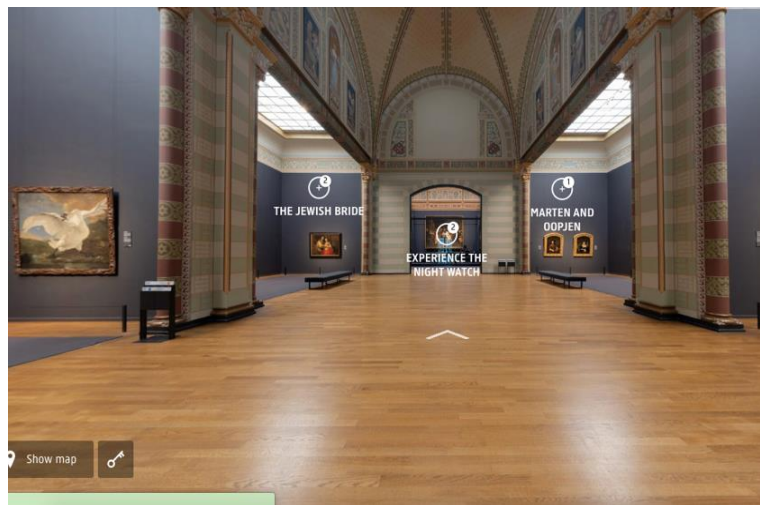
**Figure 8:** A snippet from the virtual tour at Rijksstudio (Rijkmuseum, n.d.)

6.1 Digitalising classical art

The Rijksstudio platform has produced rich collections of classical artefacts, where users can experience immersive guided virtual tours to some of the iconic artworks from the past. In the digital collections, the largest image is the huge 44.8 gigapixel photo of Rembrandt's The Night Watch composed of 528 exposures (Cascone, 2021). According to the museum Director, Taco Dibbets, "The photograph is a crucial source of information for researchers, and online visitors can use it to admire Rembrandt's masterpiece in minute detail."

Figure 9: The screenshot of digitised artwork of the Night Watch (Rijkmuseum, n.d.)

The high-definition images of artworks are accompanied by a short description of the artefact, which includes the title, artist's name, object dimensions, year of creation of the artwork and the location within the museum. This metadata adds to the materiality of digital objects of the artwork in a virtual environment. In order to significantly enhance the viewer experience, these digital objects use metadata, which involves information about the materialist, style and technique used in the creation of artworks. In addition to this, a list of documentation (URL) related to the objects enhances the viewer's knowledge of the artworks. The Rijksstudio web environment uses keywords to categorise art objects, and such methods are effective in helping the user to navigate independently and find objects similar in style and craft. In the digital curator environment established through Rijksstudio, the platform beyond text and graphics uses audio as a digital augmentation to enhance the multisensory experience of the user navigating through artworks. An example of this is the iconic "Milkmaid" painting of Vermeer, which is augmented by synchronised audio, and users listen to the sound of the milk being poured into the vase while looking at the digital object. This is followed by another sound where a person enhances the aura, by explaining the scene and associated aesthetics for increased immersive experiences of the users looking at the painting in the virtual space. Such immersive and multisensory experiences of art consumption in digital environments not only encourage users to download the digital objects of artworks, but also encourage them to creatively produce their own creative art creations inspired by the collection available in the museum. Rijksstudio facilitates increased user participation in art interpretation as it allows them to make remarks, share questions, or provide additional information about the artworks featured. Such measures foster user interaction and engagement, and strengthen the collaborative element, which redefines art curation and online art viewing experience in the existing digital environments. The museum's web environment integrates several technological tools and techniques, to invite the viewers to look at the collection and listen to the stories and history behind every object. Moreover, it allows them to virtually move across the spaces of the museum, and playfully and creatively interact with the digitalised artefacts. In the words of Peter Gorgels, the Rijksmuseum's former manager of digital communication, "We bring everything close by, so that the user can reach out, establish personal contact, and zoom in and out. We make art accessible, inviting, and inspiring. We encourage touching. We create ease of use" (Medea, Malmö University, 2018).
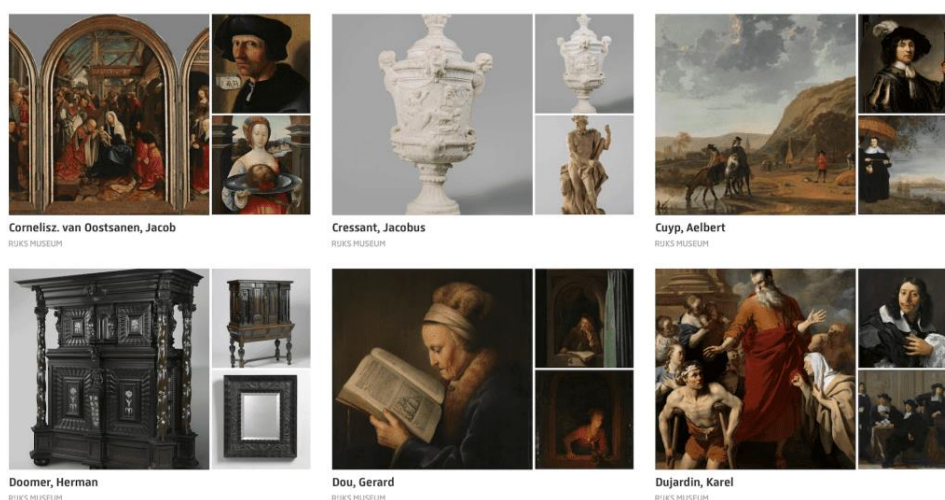
Figure 10: A sample from the user-generated artworks at Rijksstudio (Rijkmuseum, n.d.)

6.2 User interactivity through social media platforms

In the realm of digital innovation, the Rijksmuseum strategically leverages social media platforms to increase art accessibility, promote audience interaction, and showcase the rich cultural collections of the museum. In 2019, the museum launched two YouTube channels, "RijksTube" and "RijksCreative." While RijksTube showcases content based on funny and informative videos by blending art and popular culture, RijksCreative is educational in nature and focuses on tutorials by famous artists on art and creativity.

Within advancing digitalisation, the viewer experiences and engagements with artworks and heritage have undergone substantial transformative changes, and Rijksstudio's innovative digital modes of art presentation are a manifestation of this phenomenon. In the realm of digital art curation, the platform strives to break the physical barriers to people's access and interpretation of art, by offering them immersive and engaging ways to consume art and heritage. Rijksstudio is pushing digital curation beyond the notion of mere art presentation towards creativity and exploration. The initiatives such as "Rijksstudio Award" competition

have redefined the purpose of museums and art curation for both curators as well as visitors. The "Rijksstudio Award" competition, as a unique strategy of engagement by the Rijksmuseum, manifesting in the convergence of art, digitalisation and viewer engagement. Through competition, the Rijksstudio platform invites art enthusiasts around the world to explore and exhibit their artistic creativity, by creating new artworks inspired by the existing art collections in the museum. The studio keeps the competition open for all, which includes designers, artists and creators, irrespective of their background and location. The competition involves several editions, each having its specific theme, and the participants compete on theme-based inspiration. Such thematic art competition inspires them to seek and interpret artworks in distinctive ways, subsequently resulting in diversity of art interpretation among the audience. Such digital strategies of audience engagement adopted by Rijksstudio for greater accessibility and inclusivity, are enabling diversity in the perception and interpretation of artworks curated by the museum. The utilisation of the collections and resources from Rijksstudio, and the subsequent showcase of participant entries in both physical and virtual spaces of the museum, fosters symbiotic relations between the museum and its audience.

7. DISCUSSION

The popularity of digital environments for art collections like Google Arts & Culture and Rijksstudio, marks a significant shift in curatorial practices, reshaping the way artworks are presented to the global audience. The emerging innovative digital modes integrated into art curation are not only influencing the practices of art exhibitions, but have also led to the emergence of new possibilities for art engagement and appreciation. This study explored the modern practices of art curation, and how digital technology serves as a catalyst for transformation, thereby pushing the boundaries of conventional art presentation and visitor engagement. Digital platforms like Rijksstudio, while altering the physical landscape of art curation, leverage digital infrastructure for dynamic curatorial experimentation bring the audience closer to art, through interactive and immersive means of engagement. These virtual spaces have ushered in an era, where technologies are helping curators and gallerists to explore unprecedented and innovative ways to archive, curate and showcase historical or cultural materials. This digital shift in art curation has potentially influenced the processes of art exhibition for wider audience reach, and facilitated enhanced spaces for creative expressions. In the wake of growing digital curation in art, the novel ways of art delivery fundamentally rely on virtual spatiality, where digital visualisations of objects are elevated by movements, sound effects, and audio narratives, which include historical background information for an enriched experience for the audience. The user's ability to customise and control the visualisation of digital objects fosters a participatory approach in art curation, and such engagements are challenging the conventional practices in museums and galleries. For example, Google Arts & Culture has mainstreamed the notion of 'participation' and 'inclusion' in the curator cultures, by adopting a substantial range of interactive functions like games and challenges, which stimulate creative artistic curiosities among the viewers.

In the digital realm, the transition of artefacts from physical gallery confines to virtual spaces, has redefined the aesthetics and appreciation of art and heritage. In the case of Google Arts & Culture, technical features like high-quality imaging and 360-degree viewing experiences, allow the users to have extraordinary levels of engagement with art. The digital modes of art consumption have challenged the conventional notion of user perception and proximity, facilitating an intimate experience with art, and making the physical limitations irrelevant. Through the digitalisation of artworks, the emerging trends of curation are not only introducing new dimensions of art preservation and accessibility, but are also fostering inclusivity and diversity in the appreciation of art.

In the digital realm, the inclusive virtual space has dismantled the physical and geographical constraints, and reproduced the museum experience by strengthening cultural accessibility. In the creation of immersive virtual spaces for art presentation, these institutions emphasise broadening the space for identities and ethnicities to explore their past and heritage, through never-before-used modes of cultural engagement, and all this is reimagining the concept of a museum. Digital curation in art has expanded the horizon on interactivity and interpretation of culture and heritage. The influence of the digital frontier embodied by Google Arts & Culture and Rijksstudio is not only challenging the conventional curatorial practices, but at the same time, has reproduced and redefined the meaning of the museum itself. This paradigm shift is characterised by a transformative phenomenon, which has led to new debates within the field of museology. Beyond the physical confines of a museum as a brick-and-mortar institution, these digital curatorial practices focus on integrating digital infrastructure to inspire the public towards art and heritage, evoking emotions by elevating their sensory experiences. These cultural institutions engage digital tools to enhance public participation and inclusion in the dissemination and exhibition of artworks, by accentuating the formwork around cultural memory, art discovery, cultural identity and sustainability of heritage. The socio-cultural relevance of

conventional museums in the parlance of heritage promotion, education and research, continues to serve a broader social purpose. However, the emerging practices in digital curation have enabled unprecedented levels of fusion between physical art objects and the intangible heritage, in the form of digital representations, digital narratives and immersive art experiences. The collection, preservation and presentation of artworks through digital interfaces have broadened the social purpose of curation, by enabling ease with access to research, education, and recreation.

The digital intervention in art representation has challenged the conventional notion that digital objects are immaterial, as they can be physically touched by visitors. In recent times, the deepening digital context in the collection and representation of art by cultural institutions like Rijksmuseum and web platforms like Google Arts & Culture, have elevated people's engagement and experience of art. Scholars have argued that such digital objects posses materiality, as the physical technological infrastructure such as devices, screens and networks making visual representations of artworks possible (Drucker, 2013). Additionally, such physical tools significantly enhance the audience's experiences and interpretative possibilities of the artworks, as they facilitate "richer connections and metadata relationships", leading to "broader and deeper contexts" between the objects and their history (Tebeau, 2016, p. 482). For digital art objects, the materiality lies in pixels, algorithmic databases, and the interplay of digital elements. The emerging trends of art curation and representation in advancing and interactive digital environments, have enabled users to reconstruct the meaning of materiality by developing links between physical and artificial objects and spaces, thereby elevating sensory experiences in virtual spaces. The infusion of technology in art curation is pushing towards a participatory culture, where the audience engages in multisensory encounters with digitally curated artworks. In the digital realm, the art audience's active participation and user-generated content, significantly contribute towards the co-creation of meaning and interpretation of shared cultural heritage and curated artworks. The involvement of enriched metadata powered by content-centric and material-centric approaches, has enabled digital curators to attract an audience to have engagements with art in a way never experienced before (Alemu, 2018). Digital tools facilitate interactive spaces, virtual tours, and digital storytelling, which significantly enhances users' capabilities to interpret art and provide inputs to the evolving story of the curated artworks.

The evolving digital curatorial practices as evident from the case studies in this research, leverage user data and algorithms to facilitate personalised experiences for the viewers. Such customisation through algorithmic systems sets art recommendations for users, which resonate with their individual preferences, interests and demographics. One of the major implications of digital curation in art has been the promotion of art and heritage in the domains of education and outreach, by making art accessible to educational institutes right from schools to universities. Unlike conventional cultural institutions, the virtual art spaces, mainly online exhibitions, are fostering significant learning environments by serving as rich educational sources of art and heritage for students and researchers, contributing towards inclusivity in art education. While the digital shift in art curation has enhanced the accessibility and compatibility of art consumption, such practices have led to some critical challenges discussed in the section below.

8. CRITICAL PERSPECTIVES IN DIGITAL CURATORIAL PRACTICES AND VIRTUAL ART EXHIBITIONS

Art curation in the digital era has been the subject of critical discussion, which emerges at the intersection of heritage and digital reproductions. In digital reproduction and preservation of artworks, the shifting paradigms of authenticity and recreation of heritage have been critically debated as implications of digital curatorial practices. One of the major implications of the digital shift in curatorial practices has been the attrition of the spatial context, which has potentially influenced the viewer's reception and interpretation of the artworks. The notion of space and time associated with art objects, in conventional curatorial environments, continues to diminish in the wake of digital curatorial practices (Topali, 2024). The relocation of artworks through recreation and digital reproduction involves the process of decontextualisation, where art objects are removed from the original setting and virtually installed. In these decontextualised art environments, scholars like Topali (2024) believe that the artefacts lose their historical and cultural importance, as the interpretations are subjectively defined by the viewer's interactions with these digital objects. The logistical procedures and decision-making involved in the digitalisation and digital curation of artworks in itself are contested, as political and cultural motivations are often involved in the selection of heritage art to be curated digitally.

In 2016, the 2000-year-old Palmyra arch was recreated using advanced 3D printing technology and installed at Trafalgar Square in London. The heritage monument, though meticulously designed as a 3D model, raised many ethical concerns among scholars and archaeologists. Digital reproduction was contested for the issue of ownership, as the cultural heritage was delinked from its historical context and connection within a

cultural setting. The reconstruction of the monument has been attributed to 'digital colonialism' (Davidson, 2023). The digitalisation in curatorial practices, using digital interfaces to showcase artworks, has been associated with a weakened relationship between the exhibition and the audience. In the digitalisation process, the characteristics undergo alterations about the original characteristics and contextual details. The direct physical interactions with artworks in conventional curatorial practices are replaced by virtual interactions through digital interfaces, thereby scuttling viewers' physical proximity to the art and its aura. The digital interfaces for the consumption of artworks offer non-linear entry points to view digital objects, which result in a fragmented user engagement with artworks (Topali, 2024). Such digital nonlinearity can lead to distracted attention and reduced cohesive understanding among visitors, who are exposed to unconventional art presentations. There are also concerns about the commoditisation of creativity and artistic innovation in digital curatorial practices. These digital practices in art recreation and representation have been seen bridging materiality and virtuality (Quiñones Vilá, 2020). Despite the fact that the digital art exhibition has led to an extension in the reception of art globally, there are also concerns about the diminishing tangible materiality of artworks. These digitalisation efforts in art exhibitions and museums are often associated with commercial interests, which focus on virtual content, leading to declining sensory experiences and spatiality associated with heritage art. While Google Arts & Culture and Rijksstudio pioneer the enhanced audience accessibility to art through their digitalisation efforts in the art world, the declining tangible materiality of artworks and disparity in digital access emerge as major challenges.

8.1 The digital divide

There are also evolving debates on the shifting power dynamics of authority and control within art exhibitions and museums in the digital realm. The conventional authority of spaces like museums and galleries, in curating artworks and exhibitions, has been replaced by the power structures configured by digitisation, capitalisation, and optimisation (Kopp, 2023). The very phenomenon of 'digitisation' in curatorial practices itself is contested as a reflection of modern consumerism, where art visual flows in the optimised algorithm, taking away the narrative and context from the original artworks. These practices detach the artworks "from the organisational and curatorial oversight of the museum and its work as a representative of the original work of art" (Kopp, 2023, p. 2). While digitalisation in art curatorial practices has democratised the visitor's engagement with art, there have been growing concerns about the nuances of exclusion in the digital realm. Digitalisation in the exhibition of heritage and artworks has been made easily accessible. Nonetheless, equal access to these sophisticated digital spaces remains contested.

The unequal internet access and disparity in digital infrastructure have led to the digital consumption of artworks being an uneven phenomenon globally. The data from the art curation website *Tate* revealed that digital engagement with curated art continues to remain skewed towards developed countries, where sophisticated digital penetration and increased presence of educated online users are making digital curation of art a growing trend (Bayley, n.d.). However, in the Global South with underdeveloped digital infrastructure and low education levels, the digital curation excludes the conventional art audience. Digitalisation in curatorial practices has shelved less educated art consumers from developed countries, as "digitisation remains a way to access art more easily for certain, rather sophisticated societies" (Enhuber, 2015, p. 126). The persisting digital divide globally has direct implications for the emerging phenomenon of digital curation. There is disparity in access and proficiency of digital tools among demographics. The privileged access to digital technology has aggravated the digital divide, limiting the access to art for substantial levels of the population globally. Therefore, on one hand, digitalisation of art has ushered in increased accessibility yet exclusionary socio-economic factors, mainly the digital divide, and underdevelopment across countries limit the significance and scope of digital curation of heritage and art globally.

8.2 Art curator and digitalisation

The digital intervention in the art world has transformed the museum's relationship with the public, and the conventional curatorial role has undergone drastic changes. The curatorial roles in physical museum spaces drew from the spatial context hosting the art, and curators served as the sole source of knowledge and interpretation of artwork for the visitors. The conventional curators hosting art and heritage have faced numerous challenges in sustaining their relevance, and lost their authority substantially (Besser, 2019). The advent of digital technology in curatorial practices and art exhibitions has led to potential challenges for curators, who are struggling to balance technological innovation with the preservation of authenticity in art (Bertrand, 2022). While bypassing the traditional curatorial gatekeeping, technology-driven art exhibitions are somewhere shelving the curator's role in providing contextual knowledge and information about the art objects. Rather, emerging trends of algorithms and user-generated inputs are shaping the experiences of the art consumers. The expertise associated with physical curatorial practices not only involved specialised information, but also facilitated historical contextualisation for nuanced interpretation by the audience.

9. CONCLUSION

The intervention of digital technology in cultural institutions in the last two decades has significantly contributed towards the proliferation of culture, by pushing the inclusivity of new audiences in art engagement. The study sought to investigate the emergence of digital curatorial practice in the art world and its impact on audience engagement. The study concluded that through digital art curation, the transition of artefacts from physical gallery confines to virtual spaces, has led to increased accessibility and immersive user interactions with art and heritage. These virtual spaces have reproduced the museum experience by diversifying art presentation and strengthening cultural accessibility. The online presence and immersive digital interfaces have empowered the museums to discover and engage with new audiences, specifically younger people (Robaina-Calderín et al., 2023). The post-custodial paradigm and participatory approaches adopted by cultural institutions, galleries and museums, are transforming artefacts into objects of spectacle and entertainment, which are significantly redefining the aesthetics and interpretation of art for the audience. From a postmodernist perspective, the advent of digital platforms in the curation and exhibition of art and heritage, challenges the conventional notions of originality and authorship manifested by the fluidity in cultural representation in the digital era. Previously, scholars had raised concerns about the issues in the translation of the physicality of artworks and associated physical perceptions in the digital realm (Watkins et al., 2015). The digital curation of art and heritage has brought along an era, where the reproducibility of artworks redefines curatorial practices contesting the traditional physicality in ownership and exhibition of art. Such curatorial practices, besides being immersive, are redefining the notion of aura associated with physical art spaces, which is taken over by innovative and engaging modes of sensory experience in the digital space. On one hand, digital curation is helping these organisations to enhance the accessibility and consumption of art, while, on the other hand, there are growing concerns about the shifting paradigms of authenticity and contextual aesthetics. Digital recreation and reproduction have challenged contextual spatiality, while diminishing the materiality of artworks in virtual environments. Moreover, digitalisation has led to shifting power dynamics of authority and control in art curation. The spatial authority of museums and galleries in curating artworks and exhibitions has been replaced by the power structures configured by digitisation, capitalisation, and optimisation. The cultural organisation hosting digitalised artworks for exhibitions, is a reflection of modern consumerism, where art visual flows in the optimised algorithm, taking away the narrative and context from the original artworks.

One of the major implications of digital curation in art is that it has redefined the role of traditional curators and their relationship with the audience. In the digital realm, such social interactions are absent as the individualised exploration into digital objects annuls the features of artistic narratives and contextual historical information, for in-depth understanding. Digitalisation of artworks and their virtual consumption is significant for wider access and reach of the cultural heritage. However, the fundamental curatorial practices of facilitating a meaningful experience of the art are equally important. In digitalisation initiatives like Google Arts & Culture and Rijksstudio, the distinctive curator roles have become diluted, as these organisations have adopted formal business and marketing frameworks, involving an array of entities to operate the technology-driven art exhibition. This study relied on a case study, and further research in this direction must engage with stakeholders that include digital curators, museums and gallerists, in order to fully comprehend the deeper implications of the phenomenon.

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