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The Impact of Technological Advancements on Art – Parallels Between the Renaissance, the Discovery of Photography, and the Digital Revolution

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ABSTRACT

Digital technology has undoubtedly influenced the way we create art today. The digital era gives us an unprecedented range of tools for making art and myriad art forms for expression, constituting a distinct aesthetic form. Furthermore, the new technology brought in new media that challenged the conventional notion of medium, artwork, artist, and audience and exerted a critical influence on the old, non-technological media, such as painting, drawing, sculpture, etc. The traditional media has been altered through hybridization and media convergence, most recently reaching the state of post-media condition. But we should remember that ours is not the first era in which technological advancements have led to a new state of art practice. The discovery of oil paints and the sfumato technique, and the linear perspective system in 15th century Europe formed the pictorial ideals for painting and drawing and, to a great extent, contributed to the Renaissance idea about human reason and power. Photography also generated a revolution in the art world. It was not only a new medium for artistic expression, but it changed the way image is perceived, challenging the detailed realism and conventional approach in the treatment of form and space in Western art. The work investigates similar ideas and sensibilities between the Renaissance, the discovery of photography, and the digital revolution, particularly relevant to the importance of technological advancements in artistic revolutions.

Keywords: art and technology, technological innovations, Renaissance, the discovery of photography, digital art, new media art.

1. Introduction

There is no question that digital technology has shaped the way we make art today, offering an unprecedented variety of tools for expression and expansion of creative approaches. Numerous artists today utilize digital innovations in specific art creation or presentation phases. The most challenging decision artists must make is which art forms to explore first: from still images to animations to

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websites to interactive environments – the range seems endless. But the significance of the new technology goes far beyond offering a more sophisticated substitution of the traditional artistic tools. As Christiane Paul suggests, there is a critical distinction between using digital technology to create more traditional art objects and using digital technology as a medium reflecting on its aesthetics (Paul, 2015, p. 86). The latter, known as new media art, implies exploring the new technology's inherent possibilities, reevaluating the conventional media, and bringing us in front of the subsequent artistic revolution.

In an attempt to highlight and reflect on these ideas, the paper will discuss and compare the state of the current art practice with some of the most characteristic moments in the history of art, in which innovations challenged and altered the conventional media and inevitably reached a new level of development.

Similar to today's digital revolution, Renaissance man discovered a whole new universe, a unique individual consciousness through artistic discoveries. The discovery of oil paints, the sfumato technique, and the linear perspective system in 15th century Europe formed the pictorial ideals for painting and drawing and, to a great extent, contributed to the Renaissance idea about human reason and power. According to Romanyshyn, the invention of linear perspective during the Renaissance, particularly the conditions by which linear perspective space is constructed, had a decisive influence on the art world and played a critical role in conceiving the modern, technological world (Romanyshyn, 2005). Joseph Nechvatal sees the Renaissance sfumato visualization as the beginning of the immersive tradition (Nechvatal, 2009).

The invention of photography in the 19th century offered a new form of expression and an exciting tool for making art. Even before photography, the conceptual predecessor of today's photographic camera, the camera obscura, played a significant role in achieving a better replica of nature in painting. The camera changed our perspective on the world, understanding of the movement, compositions, etc. In "Secret Knowledge: Rediscovering the lost techniques of the old masters", David Hockney argues that painters have utilized this optical device since the Renaissance and were trying to recreate some of the effects of the lenses on the canvas: soft focus and out-of-focus effect, wide-angle lens perspective distortions, high contrast chiaroscuro, etc. (Hockney, 2001). But what is more critical, the invention of photography changed the way image is perceived, challenging the detailed realism and conventional approach in the treatment of form and space in Western art. Robert Hirsch argues that Society's acceptance of photographic veracity allowed painters to explore new boundaries of representation. "If painters no longer needed to create one-point Renaissance perspective views of their subjects because photography could do it more quickly and inexpensively, then artists were free to make paintings that did not look like paintings of the past" (Hirsch, 2017, p. 219).

Today, we are again in the middle of a new revolution, which affects every aspect of the art practice. The new, digital-born media have challenged the traditional notion of medium, artwork, artist, and audience. According to Manovich, the conventional medium concept was challenged because the new artistic media include and combine many forms into a single work, and some of the media aimed for dematerialization of the art object, meaning that the new forms were not so much media in the traditional sense of the term (Manovich, 2001). Furthermore, the conventional media underwent various metamorphoses, most recently reaching the state of post-media condition, in which the collection of all media forms a self-contained universal medium. The most relevant theories regarding the so-called "post-media" in art criticism are discussed by Rosalind Krauss and within new media studies, those by Lev Manovich and Peter Weibel. Despite the difference in a keyword[2], there is an overarching idea about how to assess the influence of digital technologies on art forms and practices. It is generally established that the digital revolution of the 1980s and 1990s was the most significant challenge to the modernist medium specificity. As seen by Manovich, another example of how the traditional understanding of medium does not work in relation to new media art is the concept of database introduced by digital technology as a center of any digital artwork. The idea of database also redefines the concept of narrative, introducing interactive or hyper-narrative (Manovich, 2001). Technological advances and new media also challenged our customary human cognition and perceptual

[2] Rosalind Krauss uses the term “post-medium” to focus on the “artistic medium” rather then “media” of communication.

capabilities. With the arrival of the computer-simulated environment, we are in front of a remarkable change in our optical perception and consciousness (Nechvatal, 2001).

The primary research objective of this study is to investigate the role and importance of technological advancements in artistic revolutions, i.e., to identify and compare similar ideas in the three different historical periods.

It is important to note that similar topics have been addressed in other works. For example, Lev Manovich's "New Media from Borges to HTML" (Introduction to The New Media Reader, edited by Noah Wardrip-Fruin and Nick Montfort, The MIT Press, 2003), explains that new media is not new, namely by stating: "New Media as the Aesthetics that Accompanies the Early Stage of Every New Modern Media and Communication Technology"; "New Media as the Encoding of Modernist Avant-Garde"; and "New Media as Metamedia". In Packer and Jordan's "Multimedia: From Wagner to Virtual Reality", in "The Great Northeastern Power Failure", Billy Klüver states that "The effect of technology on art can apparently be even a negative one: the invention of the camera helped kill off representational painting, and we are now witnessing how the computer is about to take care of music and non-representational painting".

Nevertheless, I believe this work may add to the subject area when compared with the previous research. The study makes a parallel between the discovery of oil paints, i.e., the sfumato technique, the linear perspective system, the photography, and the digital revolution, giving a comprehensive record of how technological innovations led to new states in the art practice. The following observations could add, I hope, to today's debate about the importance of digital technology in our modern society and the direction in which the art world is headed.

This work combines both theory and practice in its analysis. It seeks to incorporate the specialist insight revealed through the discussion of, and critical engagement with, processes of creative practice and the final product, alongside those of traditional qualitative research methods suited to research within the arts. The paper structure is divided into five parts: Introduction, The transformation of the European culture during the 15th and 16th centuries, The influence of photography, The digital revolution; and Conclusion.

2. The transformation of the European culture during the 15th and 16th centuries

The Renaissance is a period in European history that spans approximately between the 14th and 17th centuries. The word renaissance (rebirth) summarizes the changes that took place in European culture, marking the transition from the Middle Ages to Modernity. By the middle of the 15th century, the two great centers of European art, Italy and Flanders, introduced two important artistic discoveries that had a decisive influence on the art world: the linear perspective system, a depiction of three-dimensional objects and spatial relationships on a two-dimensional plane; and aerial perspective, subtle gradation of tones suggesting distance in landscapes (Honour & Fleming, 2010, p. 424). Along with the revived interest in classical antiquity, these discoveries formed the pictorial ideals for painting and drawing and, to a great extent, contributed to the Renaissance idea about human reason and power. Even though Renaissance is considered in the western European art tradition as a decisive break from the prevalent medieval era (primarily because of the linear perspective discovery), we shouldn't be tempted to dismiss the previous styles, such as the medieval icon painting style, as naive. As explained by Florensky, the transgression against the laws of the linear perspective in icon painting is not fortuitous. Still, there is a unique system for representation and perception of reality (Florensky, 2002, p. 202). In his book Technology as Symptom and Dream, Romanyshyn describes the difference between medieval and Renaissance artworks not as a matter of the real and the unreal but rather as a difference between one world and another. He describes art as a reflecting mirror of the changing nature of humanity. "The canvas records not only the style of the painter but also the style of the world in which he or she lives and paints" (Romanyshyn, 2005, p. 33).

In the history of Western Europe before the Renaissance, there are attempts to revive Classical Antiquity: Carolingian Renaissance; the architectural revolution from Romanesque to Gothic as analogous to the intellectual movement known as Scholasticism; Giotto di Bondone's frescoes inspired by classical ideals; etc. Nevertheless, only with the arrival of the Renaissance, Classical antiquity becomes the absolute ideal for art. As seen by Honour and Fleming, "the humanists found in Classical

antiquity absolute standards by which cultural and, indeed, all human activities could be judged" (Honour and Fleming, 2010, p. 417). An important 15th-century figure leading to the revival of antique forms is Filippo Brunelleschi, also acknowledged for inventing the technique of linear perspective, later systematically elaborated in Leon Battista Alberti's treatise On Painting (1435).

Assuming that visual rays are straight lines subject to the laws of geometry, he (Filippo Brunelleschi) seems to have been the first to realize that if a picture is regarded as a window between the viewer and what he sees, the object on it can be made to obey the same laws. The key to his system lies in the observation that all parallel lines running into space at right angles to the "window" will seem to converge on a central vanishing point at the viewer's eye level. These lines, called orthogonals, provide a geometrical network defining pictorial space. (Honour and Fleming, 2010, pp. 419-420)

Many artists such as Masaccio, Uccello, Mantegna, and Piero della Francesca began to use linear perspective to represent three-dimensional reality on the picture plane. Linear perspective had raised the art of painting to a science, and artists took place among the great minds of the age. Around the 1500s, painting, architecture, and sculpture were finally promoted to the ranks of the liberal arts. As explained by Weibel, "painting advanced its merits in terms of its illusionist qualities, its inventiveness and the possibilities it held for imitating nature through the means of perspective and color, sculpture referred to its multiple dimensionality, its haptic qualities, and materiality" (Weibel, 2012, para. 7).

Based on the findings of Brunelleschi and Alberti, when constructing one of the main components of the linear perspective, the vanishing point, we can distinguish two main conditions: the viewer looking at the world as if through a window, and the baseline of the height of any subject depicted is the same as the vanishing point height, thus the observer and the objects observed seem to sit on the same plane. Romanyshyn sees a number of implications coming from the conditions by which linear perspective space is constructed, each one of which has had a decisive influence on the art world and played a critical role in conceiving the modern, technological world. "That linear perspective vision is a historical invention recommends, therefore, that we pay close attention to its conditions and implications, for in creating it we have also designed and invented ourselves and our world" (Romanyshyn, 2005, p. 42).

The condition of the window, as seen by Romanyshyn, implies a formal separation of the observer from the observed world, and in doing so, it sets the stage for the withdrawal of the self from the world, which characterizes the dawn of the modern age. "Ensconced behind the window, the self becomes an observing subject, a spectator, as against a world which becomes a spectacle, an object of vision" (Romanyshyn, 2005, p. 43). He explains that the condition of the window also implies an eclipse of the body, emphasizing the eye as a means of access to the world and de-emphasizing the other senses. With the eclipse of the body, the world on the other side of the window becomes a matter of information, a bit of data, a matter of light and information, readable as a computer print-out or a blip on a radar screen. The second condition, according to Romanyshyn, implies that the human eye is now the measure of the world, a symbol of the new vision where humanity is given a central place, replacing God (Romanyshyn, 2005). He sees the linear perspective system became the cultural vision that has shaped our contemporary technological world. It seems like a very bold claim, and yet it is supported by many historians (e.g., Helen Gardner, William Ivins) who claim that the mathematical development of the linear perspective system gave an impulse to the exact representations (maps, charts, graphs, etc.) as a precondition to the modern science and technology (Romanyshyn, 2005).

In the 15th century Flanders, the artist began to utilize another important innovation. Instead of using egg yolk to bind the pigments, they started to mix pigments with oil, usually linseed, which allowed them to build up the painting slowly, rendering the details with great precision. As seen by Honours and Fleming, mixing pigments with oil also allowed artists to apply translucent layers of paint over opaque colors, to give an appearance of depth beneath a hard enamel-like surface (Honour and Fleming, 2010). They describe Van Eyck's paintings in the following way:

> Van Eyck's skill in handling oil paint is indeed extraordinary. The transparency of oil pigments gives his paintings a unique jewel-like quality to which no reproduction can do justice. They seem to emit light from within. He developed the medium to give form the palpable solidity. (Honour and Fleming, 2010, 425)

Leonardo da Vinci perfected this technique to the extent that his paintings present images that are very close to a real visual experience. The distant elements disappear into a grayish/bluish mist. The

expressive facial features, like the corner of the mouth, are rendered with translucent layers of paint, giving the face the enigmatic half-smile, like that of Mona Lisa. As seen by Joseph Nechvatal, this is a rare aspect of Renaissance art with immersive characteristics. In the sfumato visualization, he sees the beginning of the immersive tradition as opposed to the geometricized optics of the linear perspective (Nechvatal, 2009, p. 222).

3. The influence of photography

The invention of photography in the 19th century changed the way image is perceived, challenging the detailed realism and conventional approach in the treatment of form and space in Western art. Although the focus of this paper is the conceptual breakthrough coming with the discovery of photography, I would also like to briefly discuss the changes photography has brought about on a more material level.

In 1839, Louis Daguerre and Henry Fox Talbot, independently of each other, announced new procedures for "fixing the images," and that is how photography, as we know it today, was born. The breakthrough came with the observation that certain chemicals were light-sensitive, and therefore images could be preserved or fixed on a metal plate or paper. Nevertheless, the concept of photography, particularly the predecessor of today's camera, camera obscura, was known for much longer. Camera obscura means a darkened room with a hole in the exterior wall. Light filters through that hole/aperture into the room, and if the room is dark, we can see an upside-down image of the scene outside. Researchers such as Martin Kemp and David Hockney claim that painters have utilized this optical device since the Renaissance to achieve an accurate replica of nature, something that is known as a photographic look today. In Secret Knowledge: Rediscovering the lost techniques of the old masters, David Hockney and his collaborator Charles Falco explain that some western artists, as early as 1430, used portable camera obscura as an aid in their painting procedure. As seen by Hockney, by using either concave mirrors or refractive lenses, artists projected the scene onto the canvas and later traced it, entirely or partially, and applied paint (Hockney, 2001). This optical projection theory is something that provokes opposed attitudes among scholars, and Hockney's direct tracing claim is rejected by many scientists, art historians, and curators. Nevertheless, none of the scholars reject the possibility that some renaissance artists saw and were indirectly influenced by projected images (Stork et al., 2011). It is generally established that optical devices have played a significant role in achieving a better replica of nature in painting. Many artists had knowledge of optical instruments and were trying to recreate some of the effects of the lenses on the canvas: soft focus and out-of-focus effect, wide-angle lens perspective distortions, high contrast chiaroscuro, etc.

Similar to the arrival of digital technology today, the invention of photography in the 1800s offered a new form of expression and an exciting tool for making art. From the beginning, photography changed our perspective on the world, understanding of the movement, compositions, etc. Many of the foremost artists, Edgar Degas, Thomas Eakins, Eugene Delacroix, embraced the new technology and took photographs, later using them as references for their paintings (Lewis and Luciana, 2005). Nevertheless, from the early Renaissance to the 1800s, Western art strived to imitate nature, so the invention of photography was met with resistance. As seen by Romanyshyn, "the camera is the technological incarnation of the linear perspective eye" (Romanyshyn, 2005). If creating an accurate replica of nature is what the audience wants, then photography can do it more quickly and accurately. So, the traditional function of the detailed realism that dominated Western art for centuries was replaced by the camera, and painters were urged to explore new ways of representation. Robert Hirsch describes it in the following way:

> Society's acceptance of photographic veracity allowed painters to explore new boundaries of representation. If painters were no longer needed to create one-point Renaissance perspective views of their subjects because photography could do it more quickly and inexpensively, then artists were free to make paintings that did not look like paintings of the past. With photography usurping art's traditional function as the mirror of nature, artists decided to leave imitation behind and discover a new rationale for their profession. (Hirsch, 2017, p. 219)

As seen by Hockney, the photograph, similar to the linear perspective system, offers a distant vision, separating the viewer from the world. So, the great revolution achieved by modern artists like

the Cubists was eliminating that distance and restoring time and body to the viewer (Hockney, 1984). As seen by Honour and Fleming, Picasso's The Young Ladies of Avignon (1907) is a revolutionary moment in the development of modern art, presenting a way of thinking radically different from the previous approach in Western art. Abandoning the Renaissance linear perspective system, artists utilized a new approach to form and space, rejecting the comfortable representational art (Honour and Fleming, 2010). This would bring the artist in front of a new radical change concerning how we see the world and who we are as viewers. It could be seen as an attempt to avoid the conventional optic models and the conventional perception of space, an effort to transcend the boundaries of our customary human cognition. Another important aspect of this watershed moment in art history is the exchange between the media of photography and painting. As explained by Weibel, after the discovery of photography, painting focused on depicting its own idiosyncratic world, surface, form, color, etc., and the object-based painting came to refer solely to the world of objects as it was depicted by photography, i.e., to object-based and figurative photography (Weibel, 2012).

4. The digital revolution

Just as the linear perspective system in the 14th century and photography in the 19th century, we are today in the middle of a new revolution, which profoundly affects every aspect of the art practice. The digital era gives us an unprecedented range of tools for making art and myriad art forms for expression. Lewis and Luciana, in their book Digital Media: An Introduction, describe it in the following way:

> For many artists and designers, entering the world of digital art and design is liberating and exciting. Their biggest challenge is choosing which of the digital media to investigate first: from still images to animations to websites to immersive environments (digital art installations), the range of forms and experiences appears limitless. The tools for digital artists are unlike any before them. Rather than starting a collage by cutting out a picture from a magazine, they can simply copy an element with a click of a mouse and then paste hundreds of them into a pattern. Instead of erasing and redrawing a line, they can reshape it with a drag of the mouse. The color of a structure can be changed instantly and the palette of choices runs into the millions. Unlike an oil painter anxious, yet hesitating in front of the canvas before making the next stroke, the digital painter "works with a net". When you can undo any experimental action instantly, disaster simply doesn't lurk in quite the same way. (Lewis and Luciana, 2005, pp. 40-46)

The artistic practice that uses digital technology has experienced a few name changes since it initially developed: computer art, multimedia, cyberart, presently called digital art, used conversely with new media art. Although the term digital art today is used to describe any artwork that uses digital technologies in the creative or presentational process, many artworks are influenced by digital technology on a more material level, similar to the Renaissance artists using optical devices (camera obscura) as an aid in the painting procedure. Christiane Paul strongly discusses this. She suggests that we need to distinguish between this type of art and the digital-born art that employs these technologies as a tool for creating a less material, software-based form that utilizes the digital medium's inherent characteristics, such as its participatory and customizable features. The latter is also understood as "new media art."

There is a critical distinction between the usage of digital technology as a tool for the creation of more traditional art objects (painting, photograph, sculpture, etc.) and using digital technology as a medium, which implies exploring the inherent possibilities of the new technology and reflecting on its aesthetics (Paul, 2015). The significance of the new technology goes far beyond offering a more sophisticated substitution for traditional artistic tools. Technological advances brought in new media that challenged the conventional notion of medium, artwork, artist, and audience and exerted a critical influence on the old, non-technological media, moving from medium-specificity to post-media condition.

The hallmark of the Modernism of the XX century is the idea of medium specificity, the emancipation of art from pure representation, and focusing on the idiosyncratic world of the artistic medium. In painting, for example, the canvas's flatness, the colors' materiality, all its physical elements are the subjects that art must explore. Clement Greenberg describes it in the following way:

> Realistic, naturalistic art had dissembled the medium, using art to conceal art; Modernism used art to call attention to art. The limitations that constitute the medium of painting -- the flat surface, the shape of the support, the properties of the pigment -- were treated by the Old Masters as negative factors that could be acknowledged only implicitly or indirectly. Under Modernism these same limitations came to be regarded as positive factors, and were acknowledged openly. Manet's became the first Modernist pictures by virtue of the frankness with which they declared the flat surfaces on which they were painted. The Impressionists, in Manet's wake, abjured underpainting and glazes, to leave the eye under no doubt as to the fact that the colors they used were made of paint that came from tubes or pots. Cézanne sacrificed verisimilitude, or correctness, in order to fit his drawing and design more explicitly to the rectangular shape of the canvas. (Greenberg, 1960, para. 7)

However, the development of new artistic forms in the second half of the 20th century, such as installation, happening, conceptual art, etc., made the traditional concept of medium meaningless. According to Manovich, the traditional concept of medium was challenged because the new artistic media include and combine many forms into a single work, and some of the media aimed for dematerialization of the art object, meaning that the new forms were not so much media in the traditional sense of the term (Manovich, 2001). Having a very strong connection with art movements such as Dada, Fluxus, and Conceptual art, digital art continued to expand concepts such as formal instructions, event, interaction, audience participation, virtuality, etc., as opposed to unified material objects. As Christiane Paul writes:

> The artwork is often transformed into an open structure in process that relies on a constant flux of information and engages the viewer/participant in the way a performance might do. The public or audience becomes a participant in the work, reassembling the textual, visual, and aural components of the project. Rather than being the sole 'creator' of a work of art, the artist often plays the role of a mediator or facilitator for audiences' interaction with and contribution to the artwork. (Paul, 2015, p. 25)

Another example of how the traditional understanding of medium does not work in relation to new media art is the concept of database introduced by digital technology as a center of any digital artwork. According to Manovich, in the case of the old media, artists use a specific medium to create unique artwork, and therefore the interface and the work are the same. Today, the database concept separates the content of the work and the interface, allowing for creating different interfaces to the same material. The idea of database also redefines the concept of narrative, introducing interactive or hyper-narrative. The hyper-narrative could be understood as a sum of multiple paths through a database, as opposed to the traditional linear narrative (Manovich, 2001). In his essay on post-media aesthetics, Lev Manovich proposes a program for post-media aesthetics, a new set of concepts coming from information theory that would substitute the concept of medium.

Similar to Manovich, Peter Weibel claims that there is no dominant media anymore. Using code or scripting language, digital technology transformed all media, and the concept of algorithms and programs is behind any digital artwork.

> Nowadays all of art practice keeps to the script of the media and the rules of the media. This notion of the media comprises not only the old and new technical media, from photography to computers, but also the old analogue media such as painting and sculpture which have been transformed and influenced under the pressure of the technical media. This explains why we can rightly say that all of art practice keeps to the script of the media. (Weibel, 2012, para. 23)

Weibel uses the term post-media condition to describe today's art more adequately. According to Waibel, the current art practice is mainly determined by two characteristics: the transformation of all media and the mixing of the media, which leads to extraordinary major innovations in each of the media, thus to a rediscovery and fresh evaluation of the traditional non-technological media. Weibel explains that during the first phase of the post-media condition, the distinct worlds of the individual media survived, and each medium demonstrated its capability and power. The second phase, according to Weibel, is about mixing the specific idiosyncratic worlds of the media, which has led to extraordinarily major innovations in each of the media and art. Every medium lives from its referencing of other media: video lives from film, film lives from literature, and sculpture lives from photography

and video. They all live from digital, technical innovations. According to Weibel, the set of all media forms a universal self-contained medium (Weibel, 2012).

Technological advances and new media challenged not only the traditional notion of medium, artwork, artist, and audience but also our customary human cognition and perceptual capabilities. With the arrival of the computer-simulated environment (VR and AR), we are in front of a remarkable change in our optical perception and consciousness. By mixing the real and virtual worlds, a mixed reality system results in a superior environment in which computed (virtual) and uncomputed (corporeal or actual) co-exist and interact. Central to most of Nechvatal's research is immersion – experience deeply inherent to virtual reality and the newly emerging immersive cultural consciousness. Nechvatal explains immersive art as a temporary realization of the desire to exist in an anti-mechanic state of expansion, a meta-symbol of expanded human potential. Furthermore, he describes interactivity not as an ability to manipulate and modify the virtual world but as an essential ability of the immersant to self-modify (self-re-program) their sense of self (Nechvatal, 2001).

5. Conclusion

The paper proposes investigating the role and importance of technological innovations in art revolutions, particularly how technological innovations lead to new states of the art practice within three different historical periods.

It looked at concrete cases: the influence of the linear and aerial perspective systems in Renaissance art, the discovery of photography in the 1800s, and the digital revolution nowadays. The Renaissance man discovered a whole new universe through artistic findings, a unique individual consciousness. The invention of photography in the 19th century changed the way image is perceived, challenging the detailed realism and conventional approach in the treatment of form and space in Western art. Digital technology has brought forth new media and art movements that have challenged the traditional topology of art practice, the traditional notion of medium, artwork, artist, and audience. The traditional media, such as painting, drawing, sculpture, etc., underwent various metamorphoses, most recently reaching the state of post-media condition, in which the collection of all media forms a self-contained universal medium.

In the course of the discussion, it was acknowledged that in all three historical periods, the arrival of new technologies not only offered a range of new tools for making art or new media for expression but it also challenged and altered the conventional media and inevitably reached a new level of development.

Although similar topics have been addressed in other works, this work may add to the subject area when compared with the previous research. The study makes a parallel between the discovery of oil paints, i.e., the sfumato technique, the linear perspective system, the photography, and the digital revolution, giving a comprehensive record of how technological innovations led to new states in the art practice. The following observations could add to today's debate about the importance of digital technology in our modern society and the direction in which the art world is headed.

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