With the rapid development of information technology, human civilization has brought painting art into the computer digital age again and computer digital painting has emerged. In this paper, the art perspective of the overall overview, comparative analysis and classification methods, and digital painting as one of the categories of painting art, watercolor prints as the representative of traditional painting art, digital painting, and traditional painting were compared. This paper analyzes the influence and main differences between digital painting and traditional painting and strives to rationally explore the relationship between them from the aspects of modeling factors, expression methods, creation methods, painting style, and communication. The results show that digital painting and traditional painting are different and related, opposite, and interactive. This will be the relationship between inheritance and reference, breakthrough and integration, openness and expansion in future common development, and exploration and application in practice to examine digital painting and traditional painting from a new perspective.

1. Introduction
The art of painting has thrived with the emergence of human civilization and has a thousand-year history. Its expression and language always evolve with the development of social life, economy, and science and technology, and with it comes the information age. The emergence of digital application technology has brought unreachable forms of expression to our traditional thinking. The creation of 3D scanning, pressure-sensitive pens, and dynamic sensing announced that the language of artistic expression had entered a whole new era. A new era of art has also emerged, and digital painting has been the first to bear the brunt. It is different from traditional painting in terms of artistic expression and artistic concept and injects new vitality into traditional painting. Digital painting refers to the digital painting works done by the creator with the help of computer, which has attracted widespread attention and covers a wide range of subjects, including digital painting with a preference for pure art and painting with a preference for commerciality. Digital painting has been integrated into our daily life through the Internet, films, books, and other media means of communication. We can see different styles of digital painting works everywhere. With its fashionable and avant-garde painting concept and strong exaggerated visual effects, it is quickly accepted and welcomed by young people and has unparalleled advantages and characteristics of traditional painting. It not only shows a richer and broader painting world but also gives a new aesthetic development to painting art, breaking the traditional singularity and moving towards diversification, so that digital painting shows a rapid development momentum and a good development prospect. Digital painting is widely used in commercial design and has achieved unprecedented success, and it plays an irreplaceable role in certain design fields, giving full play to the efficiency and convenience of digital technology. However, as a painting art itself, the lack of originality and commercialization of digital painting are the main problems that digital painting is facing. On the premise of affirming digital painting as a kind of painting, we analyze the relationship between digital painting and traditional painting from the perspective of artistic characteristics and aesthetic value. As a typical visual art form, traditional painting is a profound art, and there are many art schools from ancient to modern...
times, from painting concepts to painting media and techniques, which are very different and cannot be generalized. Watercolor painting and digital painting both originated in the West and have been developed in the world, sharing similar culture, religion, historical tradition, and artistic soil; from the perspective of pure painting, the two are one and the same. Digital painting inherits the essence of traditional painting, but at the same time, there are many pioneering, traditional paintings that borrow some means of digital painting and also absorb some “digital” style of digital painting; the mutual integration of the two (learn from each other) is the common development direction of digital painting and traditional painting art in the future.

2. The Connotation and Development History of Digital Painting and Traditional Painting Art

Digital painting is the inevitable outcome of the digital age and the perfect combination of modern technology and traditional painting technology. Digital painting is mainly a way to produce images or graphics by using corresponding computer software, digital screen, pressure-sensitive pen, graphics tablet, etc. It is the general name of computer graphics processing technology and art. With its strong social adaptability and unique scientific nature, coupled with the nature of actual economic benefits, digital painting has expanded to almost all fields of painting in recent years, including the field of pure painting art. Digital painting is to use drawing software and drawing tools to create paintings on the computer. On the drawing software, the creator can paint according to his own wishes, saving a lot of preparation work for painting. Rich artistic expression and higher creative efficiency, providing more convenient drawing tools. Digital painting is also called “paperless” painting, which reflects the great difference between digital painting and traditional painting in tools. Digital painting tools can be divided into hardware and software, and the hardware mainly includes computer input and output devices. Computer software refers to system software and application software. Therefore, the combination of digital painting in computer hardware and image processing software has produced the mainstream painting software. High-end painting software is welcomed by many digital painting enthusiasts, illustrators, cartoonists, and professional painters at home and abroad and has become the preferred professional painting software for practitioners in the field of art design and painting. The graphic changes obtained by using digital software are more random and changeable, such as ripple distortion, tangent, extrusion, spheroidization, and liquefaction. As long as you can operate various drawing software, you can get drawing effects beyond the artist’s imagination.

The so-called traditional painting is relative to the digital painting technology. It is an art form in which the artist uses a certain material medium to shape the image on a two-dimensional plane through various modeling means such as point, line, composition, color, light, and dark image; it is also an art in which the creator of the painting shows the state of mind and creates a materialized work of the mind. After thousands of years of development, it has profound national history, cultural heritage, and artistic value. Such as oil painting, watercolor painting, printmaking, lacquer painting, and Chinese painting, its regional and cultural differences, a variety of painting, painting techniques, and painting tools are increasing, also has a certain development, especially by modern technology and civilization, the introduction of computer digitization, to add new vitality to the traditional painting art.

The development history of digital painting is divided into three stages: the budding period, the development period, and the prosperity period. Digital painting first originated in the US, so the related theoretical research was also in the US. There have been some more professional works, and digital painting was soon accepted as the mainstream form of painting from the initial recognition, so the number of digital painting creation, artists, and researchers has also been gradually increasing. In 1952, Bell Lab’s researcher Ben Lapsky used high-speed film to create various digital curves on the phosphor screen of a controlled cathode ray tube oscilloscope and named the captured images “electronic abstraction.” Four years later, in 1965, several artists from different countries independently completed their digital paintings on this basis [1]. Wise’s works are not ordinary paintings, but an expression of his personal emotions and spirit, expressing his real connection with objects and images, an ideological art that he has given to his paintings. However, Japan, France, England, and the Netherlands, including Korea, have a good development model and research status due to their relatively mature technology and market. The field of digital painting in China belongs to the stage of starting and learning, and in recent years, theoretical studies on digital painting have emerged [2]. However, generally speaking, the research level is mainly at a relatively elementary stage, focusing on the research of digital painting technology and the analysis of digital painting characteristics, etc. There is still a certain gap compared with Europe, the United States, Japan, and Korea. At present, there is no systematic theoretical monograph in China. The differences in creative concepts and expressions between Chinese painting and Western painting stem from the differences in cultural traditions and spiritual backgrounds between the two countries, leading to the continuity of China and the diversity of the West. Chinese painting focuses on expressing the painter’s personal emotions and pursues mood and spiritual similarity, while the creative philosophy of Western painting is to fix the observation of painting and use perspectives to express near, large, far, small, and spatial changes to make the pictures as similar as possible.

Digital painting is the use of drawing software to create paintings on the computer through drawing tools. On the drawing software, creators can draw and create according to their own wishes, which saves a lot of preparation work for painting creation, for example, watercolor painting creation requires preparation of other materials such as paper, paints, and water before painting. In addition, digital painting is very easy to modify and all kinds of modification work can only be done on the painting software, which makes painting creation simple and convenient. Traditional painting has a
high learning threshold and belongs to a highly specialized field; it requires learning and familiarity with all aspects of painting, which is a long-term accumulation process. However, digital painting is relatively easy to learn and creators do not need to be proficient in various painting techniques, such as watercolor painting, as long as they have a certain artistic foundation to create digital paintings. No special fine-tuning skills are needed; as long as you know how to operate various drawing software, you can get the desired painting effect, allowing creativity to be more free and making painting creation more abundant. Digital painting is generated by some digital painting software such as Abode Illustrator, CorelDRAW, Photoshop, and other image processing software to generate vector graphics, which are then converted to fill graphics with outlines [3].

Computer painting leaves more time for artists to think and design and effectively expands the imagination. With the development and popularity of computer technology and the Internet, a platform for sharing information resources has been established. The characteristics of computer network informatization and mass storage enable artists to obtain materials easily, and computers can realize mass storage, network informatization, and sharing of artists’ works, making the publication and dissemination of works with significant advantages. At the same time, computer art design has contributed to the rapid development of the entire field of art and painting, creating a platform for artists to communicate with each other [4]. Today, the emergence of digital painting technology has provided many artists with an efficient platform for expression, and even some artists rely too much on digital generation technology precisely because it can help artists render creative effects in their minds more effectively.

Simulating realistic visual effects and interactive features are also the main characteristics of digital painting in the current digital media era. Take a look at the traditional painting of the past, which highlighted the realistic features of painting techniques that both precise modeling capabilities and the rich digital painting itself possess. These convenient technical means make the painting performance more controllable and realistic. At the same time, digital painting art creation can showcase its own realistic effects based on the comprehensive processing of flat graphics and simulated three-dimensional graphics effects, and the infectious dreamy images also make the artistic language characteristics of digital painting more prominent. The interactivity exhibited by digital painting is mainly because it can directly realize the conversion of various input and output methods in network communication, forming a two-way communication mode from the beginning of communication to the feedback of the receiver to confirm the communication effect. It can break the limitation of time and space.

3. The Difference between Digital Painting and Traditional Painting

Traditional painting art is produced on the basis of profound national culture and long historical development, with very rich regional customs and ethnic characteristics. Both Western traditional painting art and Chinese traditional painting art are historical derivatives of different genres, combining the artistic essence of multiple genres together. The development of traditional painting can be said to have reached the highest level. Digital painting is a product of the rise and development of modern science and technology, an inherent requirement of the digital age, and a new art form derived from traditional painting, which has the unparalleled technical and digital characteristics of traditional painting and has formed its own unique artistic charm in the new era.

Digital painting is also called “paperless painting,” which means it no longer relies on paper and pen to create paintings; it is completely free from the limitations of paper and pen and only needs computers and other auxiliary devices to do what you want. The creation of a painting is not limited by its creation space, and the creation space can be expanded at will on the computer, making the whole painting method simple, while saving the high cost of buying painting tools, and also improving the level and efficiency of the painting creation; basically, after the painting software is finished, it can be spread and appreciated, and the painting skills are reduced.

The creation concept of traditional painting art requires a profound cultural foundation and high artistic quality, as well as long-term professional technical training. It should be said that traditional painting is a high-level and highly skilled art creation project, whose purpose is to realize the creator’s own artistic concept and convey the creator’s own creative intention. However, digital painting not only inherits the basic composition, shape, and coloring characteristics of traditional painting but also has the advanced nature and superiority of modern science and technology. For example, digital painting has a large number of drawings to modify and choose from and can also synthesize multiple effects. The computer can also store and present a large amount of drawing materials, which facilitates the creator to improvise without affecting the drawing, which is impossible for the traditional art of drawing.

Usually, traditional painting techniques are a set of skills that artists have summed up after countless repetitions of practice and research, for example, improving the ability to model things, coordinating the overall picture, using various painting tools to deal with various aspects of painting, and mastering certain scientific methods; these skilled techniques must be the result of years of unremitting efforts and concentrated research by artists. In digital technology, if we want to master a technique, we only need to master and apply that technique to produce satisfactory results. However, in traditional painting, if we want to produce a satisfying work, we need not only solid basic skills but also to master the full perspective ratio and to prepare well before creating the work. The same is true in terms of color. If you want to master the color tone of a work in a traditional painting, you not only need to master the relevant color knowledge and the principles of harmony but also have a process of repetitive practice.
4. The Connection between Digital Painting and Traditional Painting

Traditional painting and digital painting also have certain similarities with each other. This is because they both belong to the category of art, with the beauty of form, material medium and technique, historical and cultural accumulation, and sense of penetration and interaction and have common aesthetic laws and artistic characteristics.

It provides digital painting with aesthetic standards and modeling skills formed through thousands of years of development, which are creative elements of painting that cannot be formed independently in any era. Traditional painting has accumulated a solid mass foundation and formed its own aesthetic principles and basic characteristics during its long-term development, whether it is traditional Western oil painting or printmaking, or traditional Chinese water black painting, watercolor painting, pastel painting, and other kinds; all of them are artistic crystallization developed over a long period of time. This aesthetic standard is extremely valuable and provides a basic aesthetic standard for modern digital painting. In other words, digital painting cannot get rid of the aesthetic standard of traditional painting.

The cultivation of digital painting talents cannot cause neglect and should mainly start from the cultivation of traditional painting talents. Only by cultivating enough traditional painting talents can we provide more excellent painting creators for digital painting; an excellent painter cannot rely on computer software development, but needs a deep artistic foundation and aesthetic interest. These artistic achievements need long-term traditional painting cultivation, just pursuing computer software technical training is impossible to cultivate excellent painting talents. Therefore, traditional painting is the root of digital painting.

Digital art and traditional painting share the same artistic pursuit. For example, traditional Chinese brush painting, which focuses on neat and detailed, round and smooth line expression, requires a sense of transportation and rhythm; then, digital painting is formed by controlling the rhythm of brush strokes and strokes in different line production. In the works of contemporary digital technology reviving traditional Chinese figure painting, the refinement of traditional lines of the Peony Pavilion group painting is shown in Figure 1. This line enhances the three-dimensionality and texture of the picture, making the figures in the picture vivid. The whole picture is very neat and delicate, with lines as delicate and smooth as silk threads that vividly outline the softness and beauty of women. With his professional Chinese painting skills, the artist fully understands the traditional meticulous painting guidelines of “using the brush with bone and writing the spirit with form” and skillfully combines modern techniques with traditional ones, fully expressing the common artistic pursuit of figure expression in different themes of painting.

With the development of society and the emergence of digital technology, art has become more and more popular and lifelike. More and more people are getting into painting. Designers are taking materials from the things around them, making their work more friendly and creating characters that contrast with the original high-class images. The protagonist is no longer “perfect” but also has some flaws and temperament and is accepted by the public in an imperfect way. At this point, the element of “cuteness” with affinity gradually develops (Figure 2). The main figure in the digital painting uses elements of traditional Chinese folkloric figures, adopting graphics common to the traditional wooden door gods of the new year paintings, but integrating current design elements that have a strong influence on the specific door god shape, and the proportions of the figure’s head and body are exaggerated and distorted from the traditional image.

5. The Pros and Cons of Digital Painting on the Flowing Relationship of Traditional Painting Art Characteristics

Because of the rise of digital painting and entertainment, the development of painting art has been affected in many ways and its influence has led to the emergence of cartoonish and filtered works of easel painting. This influence should be viewed from two perspectives, both positive and negative. A one-sided attitude of considering the impact of digitalization on traditional painting art as either beneficial or detrimental is not desirable.

Digital painting is also known as paperless painting, and it is free from the traditional painting of paper and ink. The creator only needs a computer and its related auxiliary equipment to complete the picture on the computer and then gets a pair of real existing works through the output device, which can save the creation cost, save a lot of time, and improve the creation efficiency. In addition, computer software provides a lot of help to creators, lowering the skillfulness and artistic threshold of painting. For example, creators do not have to master a variety of painting expression skills such as oil painting, watercolor painting, and printmaking separately to create various painting effects through software, which is unimaginable for traditional artists. Digital painting is more convenient for the artist than traditional painting and plays an important role in expanding the painting creation group and popularizing the art of painting.

Digital painting has contributed to the art of painting in two ways. First of all, digital painting has expanded the group appreciation of painting art, which is the beginning of the process of popularization of painting art. Appreciators could only contact the works through art museums or books and magazines, and the channels of appreciation were relatively narrow. However, the emergence of digital painting has changed this slightly embarrassing situation to a certain extent. With the help of video, network, and other means of communication, digital painting has rapidly entered people’s lives and become a part of cultural life. People can enjoy tens of thousands of paintings on the Internet by sitting in front of the computer and clicking the mouse and can collect them on their personal computers according to their preferences. The emergence of digital painting has brought about a
fundamental change in this traditional way of art dissemination and communication. The digital network, an extremely vast and free space, is completely open, interactive, and cross-cultural in its mode of dissemination. The rapid development of information technology has greatly shortened the traditional concept of time and space in the sense of instantaneous global sharing of information and also provided artists with a new form of art media and digital network art exhibitions. This emerging form of art exhibition connects not only thousands of computers but also an extremely large art group next to computers.

Loss of boundaries and technicality of painting categories: traditional painting is divided into oil painting, Chinese painting, printmaking, fresco, watercolor painting, lacquer painting, etc. Each painting type has its own advantages and limitations, but for digital painting, the concept of “painting type classification” has become extremely blurred. Digital painting software can truly imitate various tools, materials, and mediums of traditional painting to serve the theme without worrying about any technical problems, and this freedom in artistic creation and richness in picture effect is the great charm of digital painting that is different from traditional painting. On the other hand, the loss of painting skills and the depreciation of artistry in digital painting have brought a crisis to traditional painting art that cannot be ignored, and the problem of depreciation of artistry and degradation of traditional skills in traditional painting works has emerged. However, because of the congenital deficiency of basic modeling skills and art literacy, a large number of digital painting works with poor and mediocre artistic quality have proliferated, and many creators are only satisfied with the novel artistic effects brought by digital technology and are obsessed with the pursuit of visual effects and commercial profits, resulting in the overall reduction of the artistic quality of digital painting works and the loss of the ideology and academic nature of painting.

6. The Value of New Integration of Digital Painting and Traditional Painting Revealed

The value of the times and the importance of mutual nutrition from the art of painting both digital painting and traditional painting have their own advantages and strengths, and the two kinds of painting art should complement each other’s strengths, give full play to their advantages, and obtain nutrition from each other. The rapid development of digital painting, the fault of painting art talents makes and enters the zone. Only by training up excellent painting art talents can digital painting develop better and try to avoid the proliferation of a large number of digital painting works with poor and mediocre artistic quality. It should be soberly recognized that the innovation and breakthrough of digital painting are still more at the level of computer technology, which provides technical support for artistic expression, while the traditional painting modeling law is the artistic foundation of digital painting. The traditional painting art has its unique advantages, and more excellent creators have selectively absorbed the new nutrients of modern digital painting to develop their ideas and make the traditional painting art full of vitality.

Spiritual values strengthening the spirit of the times and innovation in art: the social background of the modern world has undergone tremendous changes, but such changes have instead strengthened the close ties between artistic creations. No matter in what era environment, the advanced art concept should have the spirit of innovation and social era responsibility on the basis of inheritance and development, keeping up with the times and forging ahead. For the present, whether it is digital painting or traditional painting, the creators of painting should pay attention to the real life, maintain the spirit parallel to the times, and take responsibility of the common development of painting art.

The combination of traditional painting and digital painting can better reflect the artistic value of painting. From
the perspective of artistic value, although the traditional hand painting is slow to spread and poor in communication, the creator invests a lot of energy and time to make the creation process incorporate more thinking and innovative elements, requiring higher aesthetic values, which should be the goal pursued by digital painting [5]. At present, the level of digital mapping technology is increasing. Whether it is pixels, drawing sense, or various high-tech aids, the labor intensity of creators has been greatly reduced and the quality and output of drawings have been improved. This also serves to expand the scale of animation creation and improve the production level. However, it will produce a reduction of artistic value, so from this perspective, the pursuit of the aesthetic value of painting art is the mainstream trend of animation creation in the future, which helps animation works to obtain wider dissemination and higher production level, which is also an artistic value itself. In this era of rapid artistic change, dissemination and propaganda are a major event that has been concerned by the relationship between digital painting and traditional painting around the world [6, 7]. With the emergence of photography and printing technology, traditional paintings are copied and produced in large quantities, which seriously affects the uniqueness of traditional paintings, which are neither detached nor substituted for each other [8–10]. Maintaining the uniqueness of the artistic and aesthetic value of traditional paintings and the advanced uniqueness of digital paintings should be the common value pursuit of painting art, and there are challenges and opportunities in the environment of digital painting technology [11]. Artists need to work together to maintain the artistic environment and use digital painting technology to create more wonderful artworks [12].

7. Conclusion

Both traditional painting and digital painting are expressions of painting art and are related and essentially different. Traditional painting is the source and foundation of digital painting, and digital painting is the new life of painting art. The rapid development of computer technology and the deep artistic accumulation of traditional painting together provide infinite possibilities for the development of digital painting, so that the future digital painting will be detached from the embarrassing commercial status and become one of the painting art categories. Like traditional painting, it will have a relatively independent creation and appreciation group and will become increasingly mature in both the art academic and art market. It is conceivable that, in the near future, art creators will complete the painting process on the computer screen and the images obtained will be comparable to manual painting, and this “painting what you get” will greatly increase the enthusiasm of painting creators to engage in digital painting so that the two can influence each other, learn from each other, and develop together. The development of digital painting relies on hardware support alone which is far from enough, and the vitality of art works lies in the artistry and creativity reflected in the works. At present, although there are problems and difficulties in digital painting, such as insufficient artistry, lack of originality, simple copying of western works, and unregulated market, and both traditional painting and digital painting are facing opportunities and challenges, we should firmly believe that these problems and difficulties will move forward together with the development of the times to create a better future art world.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The author declares that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Acknowledgments

This paper was supported by the Key Program for Cultivating Outstanding Top-Notch Talents in Colleges and Universities of Anhui Province in 2021, the Key Program for Academic Funding for Top-Notch Talents in Colleges and Universities (Major) in 2021 (project no. gxbjZD2021029), and the 2020 Provincial High Level Professional Group Project of Quality Engineering for Higher Education in Anhui Province, Maanshan Teachers’ College Art Design Professional Group (project no. 2020ZYQ83).

References


