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Application research on spreading the engraving technique based on digital technology

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ABSTRACT

Nowadays, science and information technology is very advanced. And with the emergence of digital technology, the visual arts have been under great influence. Digital technology has been used in creating process in all artistic areas and with the bold attempt and exploration of the artists, the art effect is very significant and its impact is very profound. And much attention has been received. As for the aspects of creating and developing of modern engraving, the application of digital technology in engraving gives it a new visual experience, making the artistic effect of engraving being enhanced and creation technique and expression of it being greatly expanded. The present paper has studied the application of digital technology in spreading the engraving technology.

KEYWORDS

Digital technology; Engraving technique; Digital engraving; Application.



INTRODUCTION

At the information age, the application of digital technology in engraving produced digital engraving, which has rich artistic effect, and contemporary engravers, who have brought the infinite vitality and vigor for the creation and development of engravings, are very fond of the sense of the adornment and the modernization of the digital engraving. Application of digital technology in the engraving technique can make the creation of engraving more convenient, and it also accords with the trend of the development of the art. Artistic creation is to express the artists' minds and emotions, and show the artists' training and skills as well as their social responsibility. Therefore it has great practical meaning of apply digital technology in engraving for the development of the modern engraving.

THE PRESENT DEVELOPING SITUATION OF CHINESE ENGRAVING AND THE PROBLEMS IT FACED WITH IN CREATION

The present developing situation of Chinese engraving

With the continuous development of science and technology, the integrated use of a variety of means leads to the diversity of art which meets the aesthetic needs of different people. And the engraving has been developed to a certain degree in the aspects of language and conception, broadening the original concept of engraving. Traditional engraving has been given more attention for convex, concave, flat and hole. Through gradual development, electronic, digital and other new media have been used in contemporary engraving. At the same time of paying attention to the traditional engraving, there are more and more young artists began to use new media technology in the engraving creation to explore the new look of contemporary engraving art. After the 17th century, personal aesthetic feelings of artists for the western engraving has gradually appeared with new visual art, while the new green shoots of China's traditional engraving appeared in the early 1930s. Observing each stage of the development of the engraving, it can be seen that the development of engraving has close relationship with that of science and technology as well as the technical innovation of printing. In China, wood engraving has come into existence after the birth of template printing and the same goes to silk screen engraving and "silk" printing. The development of science and technology promote that of the art, especially the development of engraving. After occurring, the digital technology has been closely related to the engraving technique. And the application of the digital technology in engraving technique will inevitably promote the development of digital engraving.

The limitations of traditional engraving creation

Deeply rely on technological and material conditions

In traditional engraving creation, material medium is one of the important parts of the artistic creating activities, which has the influence and determining functions on the kinds of engraving creation, and restricts the artist's technical operation. Traditional woodcut engraving, etching, and silk screen engraving which presented through certain physical medium all have a material "version" medium. Painting tools limits the painting process of traditional engraving. Artists often draw draft, which is carried on a piece of drawing paper with a pencil, showing the relationship between black and white. This whole process requires artists to have strong control ability for the whole picture to control artistic effect showing by the picture, and the ability of handling the details as well as ability of hand painting. Only with the above abilities can the artists create a piece of engraving well. During the producing process, the effect of the engraving should be modified and improved continuously. After all, testing-run is needed, but the original effect may not be shown in the final work. Sometimes it may not be finished. These factors lead to a lot of uncertainty in engraving creation.

The influence of traditional ideas

Tradition is a necessity for Chinese engraving. However with the development of modern science and technology, the application of modern science and technology in the engraving is the inevitable trend of social development. China's engraving has very glorious history, including the engraved Buddhist scripts, illustrations in folk novel and drama, etc., which are deeply loved by the masses, and get rapid development. The diversified development of contemporary Chinese engraving lays the solid foundation for the new engraving. The developing process of engraving is a process of constant evolution. Nowadays when making engravings, artists should inherit these fine traditions. But as the time changes, the future of the development is largely affected by the social environment, and is closely linked with the contemporary life. The traditional engraving seems to be incompatible with the pace of nowadays social development, so we should break the bondage of traditional concept, to the pursuit of new things, and exploit the unique creating language of contemporary engraving. Therefore in presented days, engraving creation is inevitably affected by the divergence of inheriting and carrying forward and the contradiction between tradition and modern.

THE PROBLEMS FACED BY TRADITIONAL ENGRAVINGS

Demanding for bigger space

Traditional engraving process is very complicated, needing for separate space for painting, engraving, and printing. Especially for etchings, it needs different space to finish printing and corrosion which means larger space. But because of the limited space, it must become more difficult for making engravings.

Demanding for high technology and artistry

As engraving is the combination of artistry and technicality, only students from professional art academy have the knowledge and understanding of the contents of the technical level. And as for the engraving class of other comprehensive universities, the content of the course is mainly focuses on imparting knowledge and the target of courses are to improve the comprehensive quality of students which directly lead to the students' poor actual operative ability and make the students' ability development unbalanced. That affects academic exploration and research of engravings to a certain extent. Therefore, there appears a divergence about whether paying more attention to the technology or the artistry and leads to more disputes in engraving creation.

THE COMPARISON BETWEEN THE DIGITAL ENGRAVING AND TRADITIONAL ENGRAVING

The comparison of the producing processes

The producing process figure of digital engraving is shown as Figure 1:

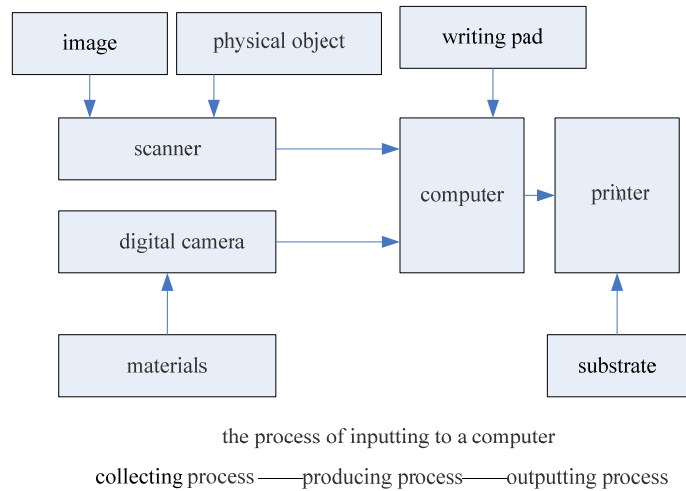


Figure 1 : The producing process figure of digital engraving

2): The producing process figure of traditional engraving (taking silk screen engraving as an example, shown as Figure

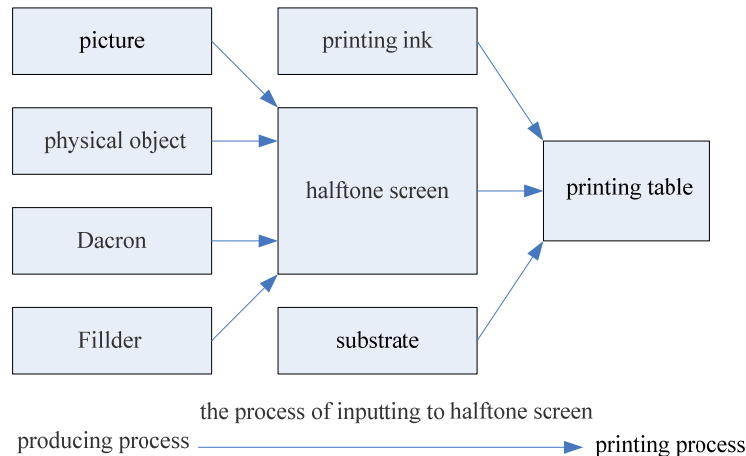


Figure 2 : The producing process figure of traditional engraving

Comparison between production equipments and technical features

Producing equipments of digital engraving include computers, scanners, digital cameras, writing pad, printers and other digital products. These equipments are interlocked, and can basically separated to the collecting process, producing process and the final outputting process: (details are in above figure)

① Images materials required in collecting process will be input into computer by digital camera or scanner. These image materials can be plane image or real object. Trying to scan a variety of physical materials will lead to a lot of unexpected results.

②Producing process: Produce all the materials in the computer mainly by the combination of software and writing pad.

③Outputting process: Print the images made in the computer onto substrate by the printer.

Traditional engraving needed many materials, and the producing process, compared to the new digital medium is a bit more complicated. But it unites the collecting process and producing process, calling it engraving-making process. And during printing process, the halftone screen, printing ink, and substrate should be out on the printing table to print and output the work.

Through the comparison of the two, it can be found that the computer and screen occupy an important position in both producing process, and they can be called the essential core factors. There are no big differences at the early preparing stages, both inputting various materials into the essential core factors, and at the final output printing stages, both printing with printing equipments. Only in digital engraving printing, the printer also plays the role of the ink. The only difference is that in producing process of digital engraving, all the materials should be inputted into computer to produce the engraving while the traditional engraving is produced directly on the screen. The former inputs first and produces later while the latter is just reverse and it cannot be modified after inputting. So from this point, the advantages of the new medium can be shown and its operability in later stage is higher than that of traditional engraving.

THE INFLUENCE OF DIGITAL TECHNOLOGY ON ENGRAVING PRODUCTION

Expanding the expressing space and areas of the engravings

Digital technology, by rich technique, enlightens the artist's inspiration and creative thinking. And through some artistic effects which cannot expressed by traditional engraving, digital engraving makes up the blank of traditional engraving creation. The application of digital technology in the engraving creation makes every kind of engravings more vigorous and vivid, giving engravings new developing opportunities and aesthetic taste. In the process of creating engravings, applying digital technology into traditional techniques such as black and white engraving, silk screen engraving, etching and etc, can enables each kind of engraving to bring different visual feelings, and provides a new method and thinking way to engraving creation, inspiring the artist's creative potential. The artistic expression method, which is consistent with contemporary aesthetic concept, must be looked. Especially grasping the accidental point in the image will make the application of digital technology in the engraving produce surprising effect. Due to the fact that digital engraving creation is not restricted by technology and materials, the digital engraving can express the artistic effect of the image texture which cannot be provided by the traditional hand-painting. Digital engraving can hit our vision from the multiple perspectives, offering the engraving with a vast and metrical special sense. And artice effect of digital engraving will be stranger, abstracter, and more fantastic, presenting a real virtual world to the public. From the Figure 3, the artice effect which is unique to digital engraving can be seen.



Figure 3 : Amen 11 digital engraving, poland

Therefore it can be said that the development of digital engraving brings new development direction for engraving creation. Artists through practice, are trying to make the breakthroughs in expressing techniques and materials of the traditional engravings and has made continuous explorations and trials for new materials and new technology. The TABLE 1 in below is the comparison between digital engraving and traditional engraving:

TABLE 1 : The comparison between digital engraving and traditional engraving

Digital engraving	Traditional engraving
saving resource	wasting resource
simple producing process	complicated producing process
high efficiency of printing	low efficiency of printing
rich expressing methods	Single expressing methods

Therefore, the advantages of digital technology should be fully used. By using digital image technology in a computer to deal with the skin texture effect the ideal picture could be made out. A lot of rich texture of nature is difficult to show in the traditional paper, while in the application of digital technology, all of them can be used as a source of creation, making it possible to achieve the artistic effect which is hard to show. Black-and-white woodcut, for example, in the history of the engravings of China is very brilliant, but with the continuous development of the ages, black-and-white woodcut became farther from the people. Modern people impacted by the various art in the society, are difficult to feel the beauty of the traditional black-and-white woodcut, never mention the glorious history of the black-and-white woodcut. The same problem exists for etching and silk screen engraving. So the application of digital technology in engraving is consistent with people's environmental background at the present stage, and with contemporary aesthetic requirements, bring the engravings new development and vitality. Because of the rapid upgrading of the digital computer software, the emergence of some new features will bring more inspiration for artists, and clever usage in the engraving will produce a variety of new artistic effect.

Raising the efficiency of the printing work

The appearance of digital engraving frees the traditional engraving from complicated producing process, as well as from the bondage of printing. The error of written engraving is small and it has fast spreading speed. So compared with the traditional hand-painted way, it is more efficient, time-saving, convenient and quick. Firstly, in digital engraving creation, the author can make several pieces of work and choose a better one according to the different visual effects. There is no need for complex and complicated producing method of the traditional engraving. The procedure of making digital engravings could be implemented within the computer, and then the result can be directly printed out. There is no need to use so much energy as with traditional engraving. Secondly, before the appearance of digital engraving, it is almost impossible to make giant engravings for the giant engravings need more materials, money and people. And the artist should draw a small draft first and then enlarge the small draft to realize the creation of giant engravings. However sometimes small draft is satisfactory, the art effect of the large version may not satisfy the artists. The application of digital technology in the engraving can easily solve the problem. Because as for digital engravings, the artist's small draft can be magnified in the accurate proportion without damaging the engraving image. And the modification is also very convenient, saving time and energy. Besides it can be stored in the USB drive, being more convenient for communication and transmission.

Saving resources and complying with the sustainable developing trend of art

The emergence of digital engravings is consistent with the developing trend of art. With the continuous development of era, the art is also bound to develop into the direction of diversification. As aesthetic pleasure is the goal of the artistic function, in order to improve people's own aesthetic pleasure, new materials and new expressing methods have been explored. The pursuit of artists also includes searching for new and unique way of artistic expression, so digital engravings produced by digital technology is a very representative expressing way, changing people's aesthetic style and concept. Besides, compared with traditional engravings, the producing process of digital engraving is relatively easy and uses fewer materials which save the cost of the creation. What's more, it effectively saves resources and reduces the waste of the tool material and paper by replacing the engraving tools with the mouse and computer screen. Meanwhile it is good for people's health by making some polluted chemical material sources from away the people. And the key of the presented age is the exploitation of the talents. And in the art industry, the key is the competition of brain and creativity. The development of digital technology represents the progress of the society, raising the efficiency of production and life, which is also accord to the sustainable development advocated by the nation.

CONCLUSIONS

Digital engraving is the organic combination of digital technology and engraving technology, bring new development and vitality for the engraving art and enriching the artistic effect of engravings. Today, though people's aesthetic are strongly impacted by all kinds of visual art, the emergence of digital engravings makes engraving remain competitive enough to not being drown in the torrent of the times. The present article first analyzes the developing situation of Chinese engraving and the problems it faced with in creation and then gives a detailed analysis of the problems existing in traditional engravings, including the need for a large space, expensive engraving teaching equipment, as well as high technical and artistic quality and the artist's concept. And then the influences of digital technology on engravings are discussed including expanding the performing space and domain of engravings, greatly raising the printing work efficiency,

and saving resources to be consistent with sustainable development trend of art. The emergence of digital engravings is consistent with era development pace, which can make traditional engravings keep important role in Chinese painting history.

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