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Construction and Management of ASEAN Art Platform for Intensive Cultural and Artistic Digital Information

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Abstract: This article aims to explore the application and practice of cultural and artistic digital information intensification in the construction and management of ASEAN art platforms. With the rapid development of information technology, digital information intensification has become an important means to promote innovative development in the field of culture and art. Especially in the ASEAN region, the diverse art resources and rich cultural connotations provide broad space for the construction of art platforms. This article first analyzes the concept of cultural and artistic digital information intensification and its importance in ASEAN art platforms, and then explores the current situation and challenges of ASEAN art platform construction. On this basis, this article proposes strategies for building an efficient and sustainable ASEAN art platform, including strengthening the integration and sharing of digital information resources, optimizing platform functions and services, and improving user experience and participation. At the same time, this article also emphasizes the key elements of platform management, such as a sound management mechanism, a professional operation team, and effective market promotion. Finally, this article looks forward to the future development trends of ASEAN art platforms and believes that intensification, intelligence, and internationalization will be the main directions for platform development. Through this study, the aim is to provide useful reference and inspiration for the construction and management of ASEAN art platforms, and promote the prosperity and development of ASEAN cultural and artistic fields.

Keywords: Art Resources; Intensification of Digital Information; Management Mechanism

1. Introduction

In the wave of the digital age, the integration of culture, art, and information technology has become an irreversible trend. The rapid development of digital information technology has not only reshaped the expression and dissemination channels of traditional art, but also provided infinite possibilities for innovation in the field of art (Dana and Salamzadeh, 2021). The intensification of cultural and artistic digital information, as the core content of this integration process, aims to integrate and optimize artistic

resources through efficient and systematic methods, achieve the sharing and exchange of artistic information, and promote the sustained prosperity of the cultural and artistic industry. The ASEAN region, as one of the regions with the richest cultural diversity in the world, has numerous unique art forms and cultural heritage. These rich artistic resources not only provide valuable spiritual wealth for the people of ASEAN countries, but also provide a solid foundation for building an ASEAN art platform. However, how to effectively integrate these resources, break down information barriers, and achieve the sharing and utilization of art resources has become an important challenge for the construction of ASEAN art platforms (Francisca et al. 2020).

In this context, the intensification of cultural and artistic digital information is particularly important. Through intensive methods, comprehensive integration and efficient utilization of art resources in the ASEAN region can be achieved, providing strong data support and technical support for the construction of art platforms. At the same time, intensification can also promote the rapid dissemination and extensive exchange of artistic information, strengthen cooperation and interaction among ASEAN countries in the field of culture and art, and promote cultural prosperity in the entire region (Holroyd, 2019). Therefore, this article aims to explore in depth the application and practice of cultural and artistic digital information intensification in the construction and management of ASEAN art platforms. By analyzing the concept of intensification, sorting out the current situation of ASEAN art platform construction, and exploring management strategies, the aim is to provide useful reference and inspiration for the construction and management of ASEAN art platforms. At the same time, this article also hopes to attract more scholars and practitioners to pay attention to and study the intensification of cultural and artistic digital information and the construction of ASEAN art platforms, and jointly promote the prosperity and development of ASEAN cultural and artistic fields (Leung and Cossu, 2019).

In summary, the intensification of cultural and artistic digital information is not only a key means to promote the construction of ASEAN art platforms, but also an important way to promote the development of ASEAN cultural and artistic fields. In the context of globalization and informatization, strengthening research on the intensification of cultural and artistic digital information has significant practical significance and far-reaching historical impact on promoting the construction and management of ASEAN art platforms.

2. Related Research

In recent years, with the rapid development and widespread application of digital technology, the intensification of cultural and artistic digital information has gradually demonstrated its important value in the construction and management of ASEAN art platforms. As a region with rich cultural diversity, ASEAN's artistic resources have unique charm and broad market prospects (Liang and Wang, 2020). However, traditional art management and dissemination methods seem inadequate in the face of massive data, thus giving rise to the demand for the intensification of cultural and artistic digital information. At present, the construction of ASEAN art platforms has made some progress in the intensification of digital information. Many art institutions

and platforms have begun to use digital technology to integrate and classify art resources, such as digital museums, online art exhibitions, and other forms, greatly enriching the presentation of art information. In addition, some art platforms also analyze user behavior through big data to provide users with more accurate art recommendations and personalized services (Magni et al. 2021). However, despite achieving certain results, the construction of ASEAN art platforms still faces many challenges in terms of digital information intensification. Firstly, the level of digitalization of art resources varies, and some traditional art resources have not yet been effectively transformed and utilized. Secondly, the rapid development and updating of digital technology require art platforms to continuously update and maintain their systems to adapt to new technological standards and user needs. In addition, data security and privacy protection are also key issues that art platforms need to pay attention to in the process of digital information intensification.

In response to these challenges, ASEAN art platforms need to take more proactive measures in digital information intensification. Firstly, strengthen the digitization of art resources, transforming more traditional art resources into digital forms for better integration and utilization. Secondly, increase technological investment, continuously update and improve platform systems, and enhance platform stability and user experience. At the same time, strengthen data security and privacy protection measures to ensure the security and privacy of user information (Meng et al. 2023).

The construction and management of ASEAN art platforms have achieved certain results in recent years, but still face many challenges. Firstly, there are differences in culture, language, customs, and other aspects among ASEAN countries, and how to achieve resource sharing and exchange while maintaining their own characteristics is an important issue; Secondly, challenges in technology, funding, talent, and other aspects cannot be ignored, and platform builders need to constantly innovate and improve management models; Finally, data security and privacy protection are also key issues that need to be focused on in the construction and management of ASEAN art platforms. The application of cultural and artistic digital information intensification in the construction and management of ASEAN art platforms is mainly reflected in the following aspects: through digital scanning, image processing and other technical means, traditional art resources are digitized and integrated into the platform, providing users with rich artistic content choices (Ocón, 2021).

Using big data technology to analyze and mine user behavior, discover user interests and needs, and provide users with accurate art recommendations and personalized services. By using digital technology to break geographical restrictions, promote cooperation and exchange among ASEAN countries in the field of culture and art, and promote the sharing of artistic resources and project cooperation. Using digital technology to disseminate art education and popularization content to a wider audience, improving the public's artistic literacy and aesthetic level. With the continuous development of digital technology, its impact on artistic resources will be even more profound. Future research will focus on how digital technology can change the form, dissemination, and utilization of artistic resources. The cultural differences among ASEAN countries are significant, and how to achieve effective cross-cultural communication while maintaining their respective characteristics is an important direction for future research. In the digital

age, data security and privacy protection have become important issues. Future research will focus on how to ensure the security and privacy of user data while digitizing art resources.

3. The Expression Form of Digital Media Interactive Installation Art

Based on the definition and explanation of the concept of digital media interactive installation art in the previous chapters, we know that this important form of contemporary art is not just a single art form, but on the one hand, it is derived from traditional installation art forms, integrating interactive concepts and interactive art into traditional installation art, making traditional installation art have interactive characteristics; On the other hand, it is a contemporary art form that is computer-generated digital interactive art; Contemporary digital media artists, due to the interactive nature of numbers, have showcased the diverse aspects of their works in interactive forms and attempted to combine installation art as a platform for creation. In this chapter, I will explore and summarize the various creative types and forms of contemporary digital media interactive installation art works.

Digital images are images that have been digitally processed by computer hardware. They often focus on expressing surreal states that traditional images cannot express. By combining digital images with interactive installation art types, the audience's participation can generate meanings that go beyond what digital images themselves express.



Figure 1 – "Picture Scroll" at the Opening Ceremony of the Beijing Olympics

For example, in Figure 1, the "painting scroll" that appeared at the opening ceremony of the 2008 Beijing Olympics is a Chinese painting scroll projected by a projector. In the center of the scroll, there is a white paper with a flat size of 20 meters long, 11 meters wide, 20 millimeters thick, and a self weight of about 800 kilograms, The various contents displayed and interpreted on paper vividly illustrate China's thousands of years of history and culture, while also reflecting China's determination to embrace and integrate into the world.

When traditional text and images are no longer sufficient to meet the display requirements of the work on site, artists pursue a more perfect on-site experience, and interactive sound art has emerged and developed. Through organic integration with various forms of art such as performance art, performance art, and installation art, it highlights the various characteristics of three-dimensional sound, sets off the environment, and gives the audience an immersive sense of reality.

"Auditory Boundary" is a series of works by Parsons School of Design that focus on auditory interference in public spaces. Passengers passing through this device can be immersed in a taboo agricultural environment, filled with the overwhelming force of the South Stand, experiencing the dynamic changes of the subject. In the descending frequency, space is divided into many consecutive segments of strict anti H fragments. Being able to control the sound transmitter to record and replay music, making previously unrecognizable pieces recognizable. In this work, sound is displayed through an interface, which makes us aware of the characteristics of listening itself.

In the digital age, the combination of art and technology brings infinite possibilities for creation. GAN, as a star technology in DL field in recent years, provides a new direction for digital art creation. This section will discuss the theoretical basis of GAN and its application and prospect in digital art creation. The core idea of GAN originates from the "zero sum game" in game theory, where two networks (generators and discriminators) progress together in confrontation. In this continuous confrontation, the capabilities of both networks have been improved, making the generated data more realistic and textured. With GAN, artists can input some specific parameters or conditions to generate images that have never been seen before but are of artistic value. This creative way not only retains the artist's creativity, but also injects the novelty of technology. GAN can realize the style transfer between images, for example, applying the style of one painting to another. This provides artists with more style choices and the possibility of integrating different styles. For non-professional artists or designers, GAN can be used as an auxiliary tool to help them automatically generate certain elements and reduce their design burden. Moreover, it also provides opportunities for those who lack traditional artistic skills to participate in artistic creation. GAN's advantage in digital art creation lies in its ability to generate high-quality and high-resolution images and realize the migration of various artistic styles. Moreover, because of its antagonistic training method, GAN can continue to evolve and produce unexpected creative results. Traditional digital art creation and display methods often require artists to have professional design skills and computer operation skills, which increases the learning burden and creation difficulty of artists. In order to realize the automation of digital art creation and optimize the exhibition effect, this section puts forward an algorithm and model based on GAN, and applies it to the process of digital art creation and exhibition. This innovation will help to improve the artist's creative efficiency and reduce the difficulty of creation. By training GAN, we can create a model that can generate digital works of art. This model can automatically create brand-new digital works of art under given parameters or conditions. The model also realizes the style transfer technology, that is, one artistic style can be automatically applied to another artistic work, thus enriching the style expression of artistic works. At present, the construction and management of ASEAN art platforms have achieved certain results, but they also face many challenges. On the one hand, ASEAN countries have abundant resources and unique advantages in the field of culture and art, which

provides a solid foundation for building an ASEAN art platform. On the other hand, due to differences in culture, language, customs, and other aspects among ASEAN countries, how to achieve resource sharing and exchange while maintaining their own characteristics has become an urgent problem to be solved. In addition, the ASEAN Art Platform also faces challenges in terms of technology, funding, talent, and other aspects in its construction and management process. How to overcome these difficulties and promote the sustainable development of ASEAN art platforms has become an important issue. GAN model should be trained by a large quantity of digital art image data to learn to generate high-quality and diverse digital art images. In the training stage, the generator and the discriminator will compete with each other and make progress together, thus generating realistic digital artistic images. Once the training of GAN model is completed, the generator can be used to generate new digital art images. By inputting specific parameters, styles or other conditions, the generator will output corresponding digital artistic images. These images can be brand-new works generated according to input conditions, or they can be style migration or transformation of existing works. Using the output results of GAN, the automation of digital art creation can be realized. By writing scripts or using graphical user interface, users can easily input their own ideas and parameters into the generator, and then automatically generate digital artistic images with the required characteristics.

$$f(x)=\begin{cases}-a\left(e^{-\frac{x}{b}}-1\right), & if\ x\geq 0\\ c\left(e^{\frac{x}{d}}-1\right) & otherwise\end{cases} \tag{1}$$

$$\frac{\partial f}{\partial x}=\begin{cases}\frac{a}{b}e^{-\frac{x}{b}}, & if\ x\geq 0\\ \frac{c}{d}e^{\frac{x}{d}}, & otherwise\end{cases} \tag{2}$$

$$\frac{\partial f_i}{\partial w_i}=\begin{cases}\frac{af_{i-1}}{b}e^{-\frac{f_{i-1}w_i}{b}}, & if\ x\geq 0\\ \frac{cf_{i-1}}{d}e^{\frac{f_{i-1}w_i}{d}}, & otherwise\end{cases} \tag{3}$$

$$\min_G \max_D V(D,G)=E_{x\sim P_{data}(x)}[\log D(x)]+E_{z\sim P_z(z)}[\log(1-D(G(z)))] \tag{4}$$

$$\max_D V(D,G)=E_{x\sim P_{data}(x)}[\log D(x)]+E_{z\sim P_z(z)}[\log(1-D(G(z)))] \tag{5}$$

The second step is to optimize the generation model *G*:

$$\min_G V(D,G)=E_{z\sim P_z(z)}[\log(1-D(G(z)))] \tag{6}$$

In the process of displaying digital art images, the output results of GAN can also be used for optimization. Firstly, the generated digital artistic images can be automatically processed, such as color correction and resolution improvement, to ensure the image quality. Secondly, according to the characteristics and environmental conditions of the display equipment, the parameters such as brightness and contrast of the image can be automatically adjusted to ensure the best visual effect under different conditions. Finally, the results of creation and display optimization are integrated and delivered to users or use scenarios. This can be achieved by developing an automatic digital art creation and display system. Users only need to input ideas and parameters, and the system can automatically generate and optimize digital art images.

4. The Application and Practice of Cultural and Artistic Digital Information Intensification in the Construction and Management of ASEAN Art Platforms

The intensification of cultural and artistic digital information provides an effective solution to the challenges and problems faced by the construction and management of ASEAN art platforms. Specifically, the application and practice of cultural and artistic digital information intensification in the construction and management of ASEAN art platforms are mainly reflected in the following aspects: digital transformation and integration of art resources: through digital scanning, image processing and other technical means, traditional art resources are digitized and integrated into the platform, making it more convenient for storage, transmission, and utilization. This can not only improve the efficiency of utilizing artistic resources, but also provide users with a richer selection of artistic content. Big data analysis and user behavior analysis: Using big data technology to analyze and mine user behavior on the platform can discover user interests and needs, providing users with more accurate art recommendations and personalized services. This can not only improve user experience but also provide data support for the operation and development of art platforms. The establishment of cross-border cooperation and exchange mechanisms: breaking geographical restrictions through digital technology to promote cooperation and exchange among ASEAN countries in the field of culture and art. Cross border cooperation and exchange mechanisms can be established to promote the sharing of artistic resources and project cooperation among countries, thereby promoting the cultural prosperity and development of the entire region. Promotion of art education and popularization: Utilizing digital technology to spread the content of art education and popularization to a wider audience. We can create online art education courses, organize virtual art exhibitions, and other activities to help more people understand and appreciate ASEAN's art and culture, thereby promoting the development of art education and popularization.

This article uses the method of concrete sketching to organize the materials collected in the early stage, and draws 10 architectural drawings of the ten ASEAN countries, mainly including Thailand's Jade Buddha Temple (as shown in Figure 2), Singapore's Merlion Scenic Area (as shown in Figure 3), and Cambodia's Angkor Wat (as shown in Figure 4), which are typical architectural sketches. On the basis of logo design, line drawing, text design, and pattern drawing, color rendering is carried out to respond to the creative theme of "shared blue sky, beautiful and beautiful." The entire background

is painted with white clouds in the sky, expressing that the ten ASEAN countries live together under a blue sky, their destinies are closely linked, and they jointly build an ASEAN community with a shared future. The colors of each building continue to use the original colors of the building, using color contrast of warmth, brightness, and purity to complete the overall drawing.



Figure 2 – Oyu Buddha Temple in Thailand

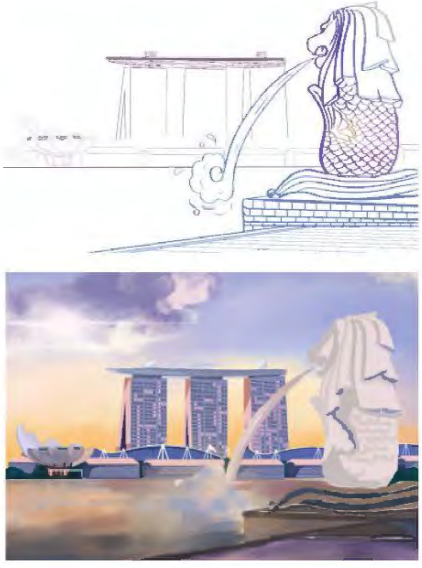


Figure 3 – Singapore Merlion Scenic Area

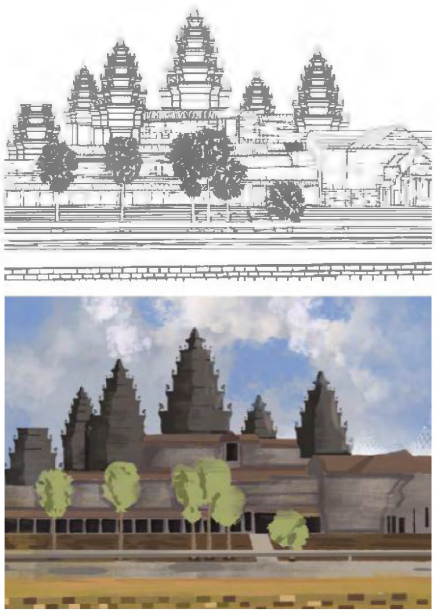


Figure 4 – Angkor Wat, Cambodia

5. Model Testing and Analysis

The training is divided into two stages: one stage includes the training of digital artistic images, and the other stage does not include the training of digital artistic images. There are 20,000 iterations in each training stage, and each iteration takes 1 hour.

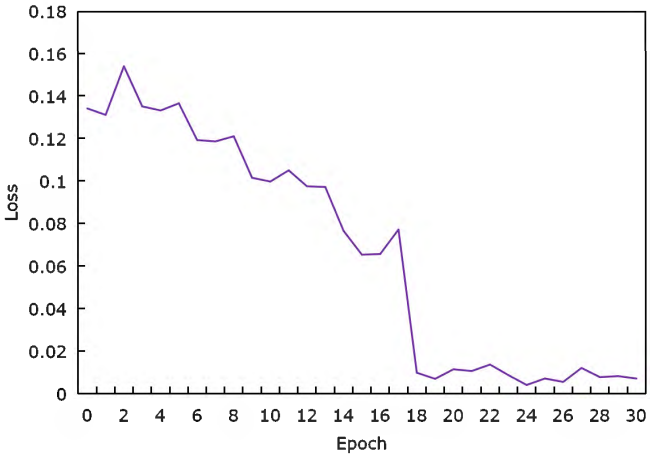


Figure 5 – Loss curve of training set.

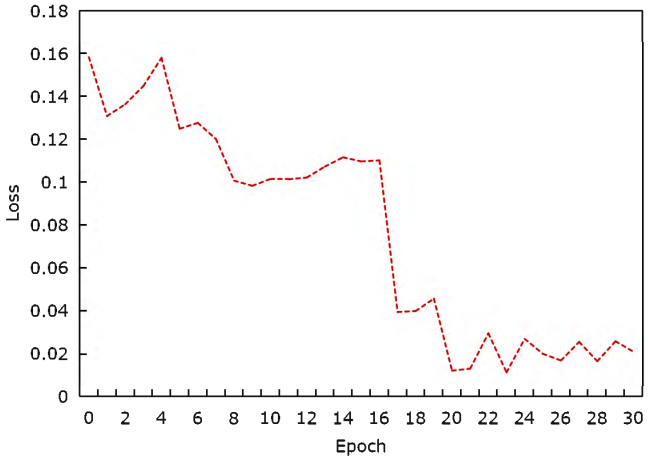


Figure 6 – Loss curve of test set.

Figure 5 shows the loss curve of the training set. Figure 6 shows the loss curve of the test set. According to the results shown in Figure 5, the characteristic parameters of GAN output are very close to those of real digital art images. This shows that when learning and generating digital art images, the GAN model can capture the key features of real digital art images and accurately reproduce these features. This means that the image generated by GAN has a high similarity with the real art image in the feature level. Through the antagonistic loss function in the training stage, the generator network learned to generate images with similar characteristic parameters as real digital art images. This learning ability enables GAN to generate high-quality images that are difficult to distinguish from real digital art images. Artists usually create different artistic styles and expressions by adjusting characteristic parameters. GAN's generator network can imitate the artist's creative process to some extent by learning and reproducing these characteristic parameters.

6. Conclusion

The application and practice of cultural and artistic digital information intensification in the construction and management of ASEAN art platforms have shown us a vibrant and potential future. Through in-depth research and exploration of the current situation, we can clearly see the many advantages and changes brought about by intensification. Firstly, intensification has significantly improved the efficiency of utilizing artistic resources. The traditional management of art resources is limited by physical space and human resources, while digital information intensification achieves efficient integration and classification of resources through digital technology, making art resources more convenient to store, transmit, and utilize. This not only saves costs, but also promotes the widespread dissemination and in-depth application of artistic resources. Secondly, intensification promotes the sharing and exchange of artistic resources. In the digital age, geographical restrictions are no longer an obstacle to artistic exchange. Through

intensive platforms, ASEAN countries can more conveniently share their artistic resources and achieve cultural integration and complementarity. This cross-border artistic exchange not only helps to promote the prosperity of ASEAN culture and art, but also provides artists with broader creative space and inspiration sources. In addition, intensification has brought new opportunities and challenges to the construction and management of art platforms. On the one hand, through technical means such as big data analysis and user behavior analysis, we can more accurately understand user needs and market trends, providing data support for platform optimization and development. On the other hand, the rapid development of digital technology requires art platforms to constantly update and maintain systems to adapt to new technological standards and user needs. At the same time, data security and privacy protection are also key issues that need to be focused on during the intensification process.

Looking ahead to the future, the role of cultural and artistic digital information intensification in the construction and management of ASEAN art platforms will become more prominent. With the continuous innovation and popularization of digital technology, we can expect more efficient, intelligent, and convenient art platforms to emerge. These platforms will not only serve as gathering places for artistic resources, but also as bridges and links between artists, audiences, and the market. They will promote the sustained prosperity and development of ASEAN's cultural and artistic fields, bringing us a richer and more exciting artistic experience. In summary, the intensification of cultural and artistic digital information plays a crucial role in the construction and management of ASEAN art platforms. It not only improves the utilization efficiency of art resources, promotes the sharing and exchange of art resources, but also brings new opportunities and challenges to the construction and management of art platforms. We believe that in the near future, the ASEAN Art Platform will shine brighter with the support of digital technology, bringing richer and more exciting artistic experiences to art enthusiasts in ASEAN and even globally.

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