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Computer-Aided Design AND APPLICATIONS

Research on the Visual Impact of Digital Media Art Based on Augmented Reality Technology

Bai Gui-wei[1] and Zhou Guo-bao[2*]

[1,2]TongLing Polytechnic, Tongling Anhui 244061, China
Panda2023920@163.com

Corresponding author: Zhou Guo-bao, Zgbao00@163.com

Abstract. This paper uses augmented reality technology to conduct in-depth research and analysis on the methods of enhancing the visual impact of digital media art. Augmented reality technology is an important branch and research hotspot in the field of virtual reality, and is also an emerging multidisciplinary cross-research field, as well as a new type of teaching media in the field of educational technology, and its educational application value has been one of the hot directions of research and development in the field of education. In this paper, from the interrelationship and interpenetration between the two, we explore the interaction and development trend based on the current situation of digital technology and digital media art practice. From the perspective of instructional design and augmented reality technology, the design ideas and principles that should be followed for the software designed in this study are discussed, and then the overall architecture and each functional module are studied, and a scientific and reasonable design model is proposed. The general methodological model to be followed for the development of this resource is designed, and the basic development process of the model is explained and discussed, especially the requirements analysis, structural design, and how to build the development environment are explained in detail; secondly, based on the course unit development process in this model, through meticulous analysis of the measurement results, we clarify the limitations of the system, which will provide a solid foundation for the next step of system optimization. Then, starting from the creative approach of digital media art practice, we sequentially elaborate the role of digital technology on the creation of digital media art that is a mainly visual expression, on auditory expression in, and on audio-visual integration, as well as the role of digital technology in promoting the fields related to digital media art practice. Finally, with a focus on future development, it elaborates on the potential possibilities of digital technology in the future period and the trends of digital technology for future digital media art practice. By exploring and discussing the impact of digital technology on digital media art practice, this paper aims to provide

theoretical possibilities for digital technology to be more effective for digital media art practice in the future.

Keywords: augmented reality; digital media; art; visual impact
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1 INTRODUCTION

With the arrival of the 5G era, augmented reality technology has also gradually entered the public's field of vision. In recent years, a variety of phenomenal augmented reality applications have come into being, and the potential of the augmented reality market is immeasurable [13]. AR applications are ubiquitous, such as smart changing mirrors for e-commerce platforms, reversing image systems for cars, AR assisted summoning systems for games, AR literacy cards for education platforms, L'Oreal's "thousand makeup magic mirror" for cosmetics industry, and AR selfies in beauty cameras. The advantages of high capacity, low latency, and high stability of the 5G network have accelerated the popularity of AR applications. Real technology is an important branch and research hotspot in the field of virtual reality. Augmented reality (AR), as an extension and expansion of virtual reality technology, is a new technology developed because of virtual reality, which is also called mixed reality and augmented reality (Taiwan). Augmented reality technology is dedicated to combining virtual information generated by computer computing with scenes in the real environment, to achieve the enhancement of real objects [20]. Augmented reality is one of the research hotspots of many famous universities and research institutes abroad in recent years. Augmented reality technology has a wide range of applications not only in fields like VR technology, such as innovative weapons, visualization of data models, virtual training, development, and development of aircraft, entertainment exhibitions, etc. but also because augmented reality technology has the characteristic of enhancing the display output of real objects. The value of introducing augmented reality technology as a new form of media into education teaching has been one of the hot directions of research and development in the field of education. This study takes "digital camera operation skills training" in the public basic course of "modern education technology" as a case study, given the current large number of students in public courses in colleges and universities, large class teaching, lack of experimental equipment, serious limitations of hardware conditions and many other difficulties. The "digital camera teaching demonstration software" is designed by using augmented reality technology to show spatial digital information in the display terminal, thus creating a learning situation that combines virtual and reality, bringing multi-dimensional interaction for learners, enabling them to experience the wonderful effect of combining reality and reality, and thus trying to propose an effective augmented reality-based experiential teaching demonstration software. In this way, we try to propose an effective design process and the idea of experiential teaching and demonstration software based on augmented reality.

Digital media art practice is a new field of artistic application research and creation, which integrates modern science and technology with the traditional art field [12]. Due to the in-depth research and development of advanced science and technology and digital technology, the direction of digital media art practice will bring together more talents specialized in digital technology. As digital technology continues to reform and innovate, digital technology can largely help people to share some of their work and is likely to replace humans in some types of work. The creative process of digital media art practice can be applied in digital technology, and the development of digital technology can also serve digital media art practice more effectively [21]. Under the impetus of such trends, electronic data has gradually replaced some previously indispensable material elements, forms of production have been transformed from manual labor to computer manipulation, cultural forms have been transformed from materialization to informatization, and the world economic system has been transformed from physical to digital exchange [5]. The new digital media

technology, using new technologies such as multimedia technology, virtual reality technology, and interactive technology as a means and the Internet, computers, and mobile phones as media, has transformed the dissemination of information from text to image, from delayed to instantaneous, from one-way to two-way transmission, completely changing the way information is disseminated, its efficiency and its effectiveness.

It can be said that the widespread application of information technology has fundamentally changed the operational form of all aspects of society and has been integrated into different fields, greatly changing the way of human production and life. With the constant updating of technology, digital media technology is gradually becoming the mainstream form of contemporary communication, constantly breaking through people's perceptions, reshaping the way the public behaves in receiving information and influencing the development of the information age with its unique nature. Therefore, when digital technology brings a colorful cinematic space, characters beyond imagination, and even more advanced means of expression, it is already difficult for classical film theory to reasonably explain digital cinema, and as an art form with strong technical factors, the development and changes of digital cinema and the performance of aesthetic transmutation should become an important proposition for contemporary film theory research.

2 CURRENT STATUS OF RESEARCH

Digital technology is the basis for the development of digital media art practice. In the surging wave of technological innovation, the era of digital technology has come, and the current period is the best period of rapid development of digital technology, and the most controversial period [6]. Digital technology has been developed for a short period and fused in the new era, grafting, and serving professional fields such as intelligent interface, digital imaging, game design, business communication, etc. to carry out various cross-disciplinary innovations and thinking [16]. The breakthroughs in multimedia technology and big data technology have also paved the way for the development of digital technology. Unfolding from the current situation of triple-play in Japan, we explore the characteristics of triple-play and provide suggested references for the policy formulation of digital information technology planning [18]. As the concept of augmented reality matures and technology continues to advance, the original research field expands into several new areas, bringing augmented reality technology out of the laboratory door and beginning to spread in various areas of life, such as teaching and training, gaming, and entertainment, information retrieval, content creation, and display, equipment maintenance and inspection, industrial simulation, cultural heritage preservation, etc. Augmented reality system has developed from a huge hardware construction to portable and lightweight outdoor equipment, heavy head theft display extended to portable and spatial experience type display equipment, from simple desktop type to mobile portable type, thus it is clear that augmented reality technology has been integrated into the media needed for people's daily life [11]. Foreign to augmented reality technology was first applied to innovative weapons, aircraft development and development, military aircraft navigation, precision instruments, and equipment overhaul, data model visualization, and other high-end precision industry fields.

With the rapid development of computer technology, the development of augmented reality technology is changing day by day, and the media has also listed augmented reality technology as one of the major technological trends of the year, which has gradually extended from the industrial field to many aspects of entertainment games, medical care, education, and other applications [2]. The research of augmented reality technology has become a hot spot in the field of computer vision, computer graphics, etc. Many well-known foreign universities and research institutions are extremely concerned about it, and it is also of great interest to experts and scholars in the field of education [8]. It can be said that augmented reality has several important kinds, and each kind itself has a wide range of topics, and the above-mentioned augmented reality uses are only the beginning, and with time, augmented reality will shine. From the technical point of view of digital media technology,

digital media technology is applied in a wide range of fields, so this paper combines the scope of its research and collates the relevant research results of foreign digital media technology corresponding to the field of display [9]. Distinguishing immersion in the age of digital media from earlier forms of illusionary art, drawing on actual works by contemporary artists and groups in the analysis, summarizes how to use technical means such as 3D, IMAX, and virtual reality to create immersive illusions and outlines the impact of virtual reality on the concept of contemporary art [19].

Digital technology is the basis for the development of digital media art practice. In the surging wave of technological innovation, the era of word technology has come, and the current period is the best period of rapid development of digital technology, and the most controversial period [14]. Digital technology development time is short, fusion in the new era, grafting, and service in the intelligent interface, digital shadow. The breakthroughs in multimedia technology and big data technology have also paved a good way for the development of digital technology. To sum up, compared with foreign countries or Hong Kong and Taiwan, at the technical level, domestic augmented reality systems designed and developed independently are not very mature, with a narrower application scope and a single function, mainly concentrated in the national laboratories of key universities and some science and technology university laboratories, and the technology migration of consumer-grade devices and mobile terminal platform products needs to be further accelerated. From the domestic technical development point and research literature, the main research point of domestic augmented reality technology is concentrated in the field of computer science algorithm implementation and alignment technology on the optimization stage.

3 ANALYSIS OF THE VISUAL IMPACT OF DIGITAL MEDIA ART WITH AUGMENTED REALITY TECHNOLOGY

3.1 Augmented Reality Technology Design

Three-dimensional registration tracking technology is the basis and key of augmented reality technology to follow spatial matching, which is the physical space or location that the information has in the real world [1]. For example, if a virtual model is located on a real card, and if a person moves to change the viewpoint or rotates the card, the model is still located on the card, which indicates that the virtual model is registered with the real world. Because the display view depends on the physical view of the participant, the object must be re-rendered each time the observer changes position, so the camera is required to acquire the current frame in real-time and the system accurately calculates the virtual information's position and pose in the real world, and if there is a lag in the registration tracking calculation and the participant changes viewpoint quickly, it may lead to a lag in the scene and thus a registration tolerance, and the larger the tolerance, the more the virtual information cannot be matched to the real world, which could be fatal for physicians using augmented reality to help perform surgery [4]. One of the key technical barriers to AR is that the virtual information achieves very close spatial and temporal close registration tracking with the real world, as shown in Figure 1.

The augmented reality-based experiential teaching demonstration software is a teaching demonstration software for a specific teaching content structured by augmented reality technology under the guidance of experiential learning theory, contextual cognition and learning theory, and constructivism theory. This study is designed based on the operation skills training of digital video cameras in the public course "Modern Education Technology - Theory and Practice" of educational technology in higher teacher training institutions. The software is designed for "understanding the main components and functions of digital video cameras", "mastering the operation process of the camera in the two working states of shooting (and playing) in the automatic shooting mode, and mastering the relevant shooting methods and operation requirements".

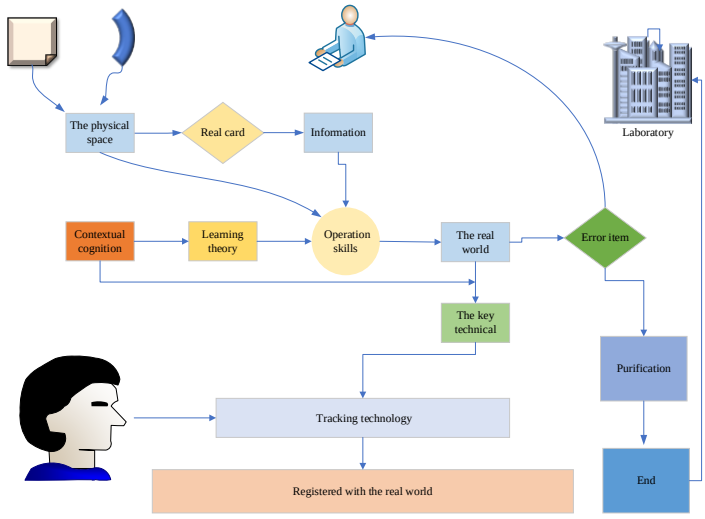

Figure 1: Augmented Reality Technology Process.

The software is designed to assist teachers in teaching and solve students' learning problems, and provide new methods and ideas for teaching demonstrations.

$$Loss = \frac{1}{m}\sum_{i=1}^{m}\left[y_t + y_i\right]^3 = \frac{1}{m}\sum_{i=1}^{m}\left[f(x_i;v) - y_i^t \right]^2 \quad (1)$$

Digital camera operation is one of the means of information acquisition and one of the practical operation skills of educational technology majors. Familiarity with digital camera operation determines the quality of the acquired video material. The author found in the preliminary investigation and research that when teachers explain the construction and actual operation of the digital video camera demonstration, due to the experimental equipment, experimental field, and other reasons, teachers can only demonstrate the operation of the digital video camera on the podium, and the students below the podium are difficult to observe the components of the digital video camera, functional buttons and the teacher's demonstration of the operation of the subtle components of the camera, students are not able to understand in detail the digital video camera major components and functional buttons. To solve these two limitations, the augmented reality-based experiential teaching demonstration software needs to be structured in two parts: first, the organization of the demonstration content; second, the writing of the application for augmented reality functions. The overall architecture is shown in Figure 2.

At the beginning of the development decision making of augmented reality teaching resources, the first stage needs to make a systematic analysis decision, i.e., needs analysis, which is a prerequisite for the development of augmented reality teaching resources, and this stage should determine the objectives and specifications of augmented reality teaching resources, and make it clear why, for whom, what and which platforms are needed. Therefore, the needs analysis includes the analysis of learner characteristics and the analysis of learning objectives.

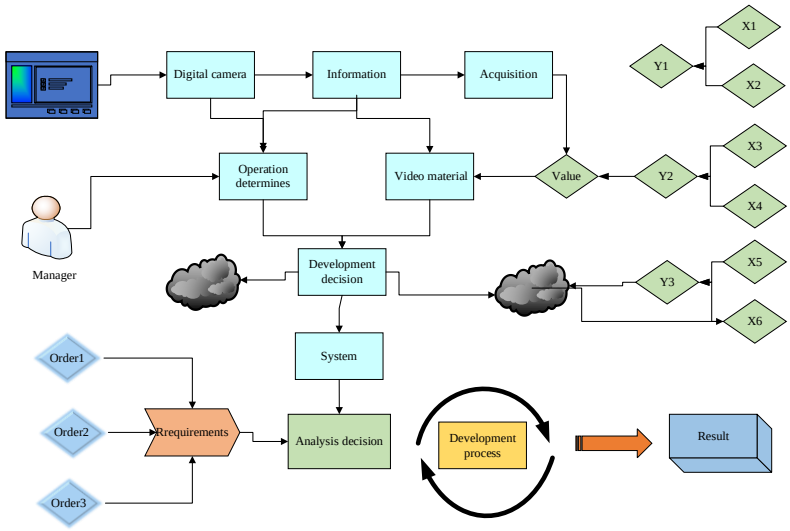

Figure 2: Experiential demonstration of the software development process.

The main purpose of the learner characteristics analysis is to understand the learning target, to choose the best way to present augmented reality information and provide appropriate sensory stimulation; the purpose of the learning objectives analysis is that the result of the teaching resources should meet the teaching requirements, curriculum requirements and the requirements of students and teachers; the analysis of the implementation resources is to determine whether the development and application conditions are feasible and easy to implement and popularize [7]. The structural design provides specifications and guidelines for the detailed text unit design and production, this stage needs to determine the design principles of augmented reality teaching resources, design architecture, use case diagrams, flowcharts, and user manual design, design content to strive for certainty, effectiveness, and exhaustiveness, design style to strive for simplicity, consistency, and graphics. The third stage enters the production stage, which requires the selection of appropriate augmented reality teaching resources production tools to prepare for the subsequent production of augmented reality text units. The fourth stage is testing and evaluation, the purpose of which is to obtain valuable feedback and use it to suggest targeted adjustments and modifications for the subsequent study, while the work needs to be carried out throughout all aspects of the development process.

$$h_i \le sigmoid(W_i^3 - xb_i), (i = 1) \tag{2}$$

The modeling of virtual information enhanced in augmented reality is the basis for the composition of the elements, to achieve the ideal integration with the real environment, the modeling, materials, lighting, and the process of this dye have certain requirements. There is many mainstream 3D modeling software, and powerful, each has its strengths, such as, etc. in the field of 3D modeling, animation has not a bad performance. Because augmented reality is cross-platform research and development, need to collaborate with all kinds of hardware and software to build, so there are special requirements for the establishment and type of model. Based on the low configuration requirements of the system, with rich plug-in features and powerful character animation capabilities, as well as the ability to stackable modeling steps and better compatibility, it is the preferred modeling tool for augmented reality developers under its strong scalability and portability. It is a system-

based 3D modeling and animation planting and dyeing production software designed and developed by the company, and its main use is to create usable models and output usable models and actions, as shown in Table 1.

Development language	*JavaScript and C#*	*258*
operating system	*windows 10 64-bit system*	*125*
Integrated Development Environment	*Qualcomm SDK and Unity 3D engine*	*142*
Graphic and audio processing tools	*Adobe Audiovisual Package*	*754*
3D modeling tools	*Autodesk 3D Studio MAX9*	*44*
Display platform	*Android SDK*	*11*

Table 1: Development environment configuration.

The core of the augmented reality-based experiential teaching and demonstration software is the design of virtual information combined with the actual teaching context. Only by scientifically and reasonably creating experiential and interactive information corresponding to real objects can learners realize the combination of theoretical knowledge and practice, and teachers can use augmented reality to visualize and demonstrate, giving students a more intuitive learning experience. Therefore, this study combines the selected objects and uses the digital camera as the expert object to create virtual information superimposed on the real object through the acquisition of graphic information, the production of audio and video information, and the construction of virtual models. The use of graphic information to help learners improve comprehension and cognition is a common method, and many studies have shown that in the age of map reading, the effect of graphic layout affects learners' reading time and subjective perception, and different line spacing, word spacing, and picture color effects are factors that affect reading performance. Therefore, in the production process, the graphic arrangement is optimized by taking this as a reference, so that different knowledge points are reasonably presented in different forms. The annotations allow the learner to use suggestive and emphatic graphic information to gain an initial understanding of the composition and operation of a digital camera.

$$m_i = \frac{\sum_{q=1}^{R} n_{pq} \sum_{p=1} c}{RC}, (i = 1, 2, 3, ..., L) \tag{3}$$

3.2 Analysis of the Visual Impact of Digital Media Art

In the application process of intelligent image recognition, it is generally necessary to consider various aspects such as structure composition, color proportion, and shooting background. The current more common 3D film and television technology fully apply intelligent image recognition, by processing the image - a series of processing to make it as close as possible to real life, to meet the artistic effect of the image. In addition, the color ratio adjustment and processing of the image can directly stimulate the audience's sensory experience, to understand the emotion, image, and moral

meaning of the image to be expressed. Through the constant arrangement and combination of the three base colors, accompanied by changes in brightness, the textual information is expressed through colorful pictures, images, and videos, making it easier for people to understand the message and emotion to be expressed. Animation makes the static image drawn in motion and constitutes a complete, moving, and logical image. According to human visual characteristics, in the animation production, with 25 frames as each - frame pause time, painting is artistic, some animation also has a definite educational significance, can help children during the growth of better electricity to shape the values, some animation visual effects are very rich, China's long history and culture, has a rich story material and inexhaustible source of inspiration, through modern digital. The processing of these materials through modern digital technology can not only show the characteristics of our culture but also reflect [17]. By creating and processing virtual images and characters, computer vision technology can give virtual characters emotions, trigger people's empathy, achieve good results, improve people's understanding of intelligent image recognition, and promote the further development of digital media. With the continuous development and comprehensive improvement of electronic information technology, the intelligent image recognition technology in the field of digital technology has an increasingly wide range of applications in the field of digital media, especially in the game industry, which not only injects new vitality into the game industry but also provides the game with different development ideas. For example, the very popular interactive tabletop display game now, through intelligent image recognition technology, when the recognition module is placed on the display module, the corresponding information will pop up and can be further clicked, moved, rotated, and so on, as shown in Figure 3.

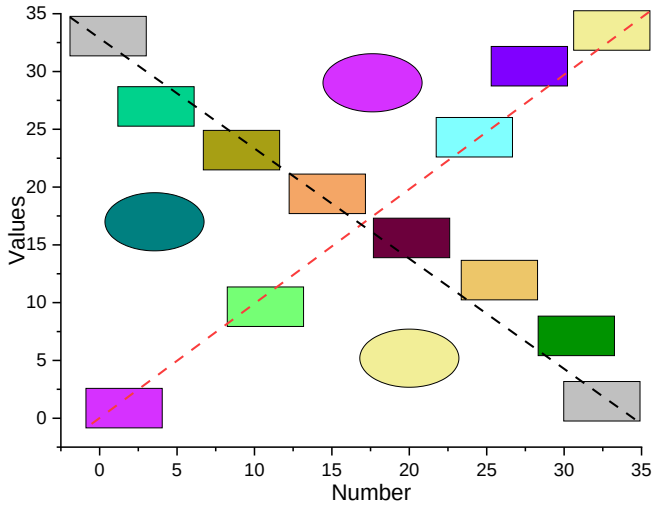

Figure 3: Respondents' level of need for spatial presence.

In the past, the existence of space was mostly to provide a place for the conservation and display of exhibits, without considering other needs related to the visitor experience, which is one of the reasons why museums are not attractive. The continuous advancement of media technology is gradually replacing physical exhibits as traditional information carriers, and most of the information presented by digital media technology needs to be discovered and received by visitors through a full range of experiences, thus the public's demand for museum display spaces is beginning to increase. To provide a better experience in the exhibition space, it is necessary not only to have a reasonable space to carry display activities but also to realize the interaction between the space and the

audience, in addition, it is necessary to strengthen the dynamic atmosphere of the sound and light effects and vivid and obvious guidance system. In this case, the traditional means of shaping space cannot fully meet all the needs. Therefore, the contemporary museum display space should become a point of integration of technology and architecture, and digital technology should be used as a new design resource or a new "material" in the display space, spread in all aspects of the architectural space, so that the technical elements become essential elements in the composition of modern museum space In the design of the museum space, it is important to realize more diversified needs by technical means, i.e. to integrate the principle of integration of technical means.

$$\{R,t\} = \arg\max \sum_{i\in\theta} \rho(\left[x^2 - \pi(RX - nt) \right]^{\sqrt{2}}) \tag{4}$$

Adaptability makes the form no longer simply take its artistic image or patterned form as the starting point, but should realize "form follows technology", for different technical means and expression, to facilitate the prominent expression of information, choose specific form shaping techniques, so that space and technology are more suitable, display content in a more ideal the display content will be presented in a more ideal state. In addition, the principle of spatial adaptability is reflected in the grasp of spatial scale on the one hand, in contemporary display activities, display information can be conveyed through different digital media technology, these different technical ways require the application of different technical equipment. Therefore, it is necessary to match the suitable space basic scale according to different equipment conditions [10]. At the same time, in the previous exhibition activities, the activities of the audience are simply to view the physical exhibits at close range, so the scale of the spatial activity area can meet the necessary passage and close viewing requirements, while different contemporary digital media technologies require people to experience them in different ways of activity, so the spatial scale should be reserved according to the technology used for the corresponding scale of visitor activity. In addition, technical devices can be used to adjust the existing spatial scale secondarily to fit the psychological perception scale of the display activity to be expressed. This is shown in Table 2.

Comprehensive editing	*Simple user interface can quickly make and develop game models.*	*Graphics engine*	*Values*
Resource import	*The mainstream file format is supported by Unity.*	*One-click deployment*	*56*
Shader	*It has the characteristics of ease of use, flexibility, and high performance.*	*Terrain editor*	*45*
Physical effects	*Simple user interface can quickly make and develop game models.*	*Audio and video*	*88*
Script editing	*The mainstream file format is supported by Unity.*	*Resource server*	*43*
Light and shadow effector	*It has the characteristics of ease of use, flexibility, and high performance.*	*networking*	*52*

Table 2: Main functions and features.

Qualcomm has a diverse product portfolio that ranges from mobile devices to desktop computers, from consumer-grade applications to industrial-grade, from hardware and software optimization to end-product implementation [3]. Unlike common augmented reality-based technologies today, Qualcomm's vision-based augmented reality technology provides a stronger sense of augmented reality experience by optimizing the performance of hardware and software, using cameras, processors, and displays to recognize images captured by the camera and blend them with virtual elements created by the computer [15]. Specifically, Qualcomm's augmented reality software development platform and toolkit (for mobile device platforms (and Android) and platforms provide the technical features and frameworks needed to create interactive and immersive augmented reality experiences, including the following: first, native application development for, and; second, mobile devices with built-in renderers for robust tracking; third, plug-ins for development to create ad-hoc augmented reality content in real-world scenarios; and IV are advanced augmented reality technologies such as cloud-based deployment, continuous visual search, etc.

4 ANALYSIS OF RESULTS

4.1 Augmented Reality Technology Performance Results

After Levene's method test, the F-value did not reach a significant difference (F=0.071, p=0.790>0.05), then check the column of "Assuming equal variance", t=2.014, df=78, p=0.047<0.05, which has reached a significant level, indicating that there is a significant difference between the performance of the control class and There is a significant difference between the scores of the experimental class, where the scores of the experimental class are significantly higher than the scores of the control class. In addition to the probability value, the 95% confidence interval of the difference value can also be used to determine whether the t-value of the difference test between the two groups is significant. The distribution of the number of scores in the experimental class and the control class was counted, as shown in Figure 4.

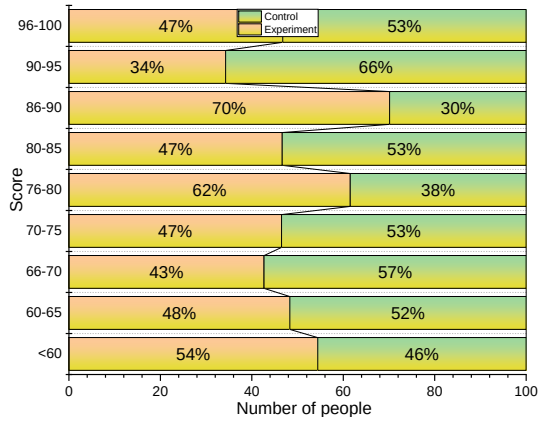

Figure 4: Statistical chart of the distribution of the number of students in the experimental and control classes.

From the above data analysis chart, we can see that the use of augmented reality teaching resources in classroom teaching has increased the passing rate by ten percent compared with the use of ordinary teaching resources, and the overall performance of students has shown a significant upward trend, especially for the intermediate and lower intermediate level students' performance is more

obvious, indicating that the use of this teaching resource by teachers has a greater role in promoting the English learning performance of primary school students. Augmented reality technology, as an extension of virtual reality technology, brings people an unprecedented visual experience and makes them wonder at the infinite charm of modern technology. As a rapidly developing new form of software, it is constantly penetrating the field of learning, gradually promoting the development of the field of learning research, bringing learners a wonderful experience in all aspects with its unique flexibility, practicality, virtual reality, and other advantages, and restoring the real sense of knowledge by building virtual space and physical space seamlessly integrated, ubiquitous learning space, further satisfying the knowledge seekers for interactivity This study is based on three years of research on augmented reality. After three years of tracking and exploring augmented reality, this study has designed and developed augmented reality-based experiential teaching demonstration software based on the research results and many mature products at home and abroad and achieved the span from model to entity and from theory to practice.

$$X_{\ell} \geq \frac{(\alpha - u_x) \bullet \mathrm{Z}^{\ell}}{af_x} \tag{5}$$

During the sublimation experience phase, the teacher plays the role of a guide, facilitator, and catalyst, allowing more time for students to transfer their knowledge and strengthen their comprehension skills. The Thinking Experience is the concluding link in the process of experiential learning activities. Through the first four links of experiential learning, students have mostly mastered the knowledge and skills conveyed by the demonstration. At this time, teachers summarize in time through the interactive function of augmented reality, exchange and discuss, so that students can independently reflect on what they have learned, correct mistakes, strengthen correct operations, and make these knowledge and experiences transform into guidelines to guide their thoughts and behaviors. In the reflective experience stage, students can give immediate feedback on the problems they encounter, clarify what is the correct operation, what is the wrong operation, what should be paid attention to, etc., so that they can construct their knowledge and skills. Summing up the five specific steps of the teaching strategy, the teaching process model designed in this study is shown in Figure 5.

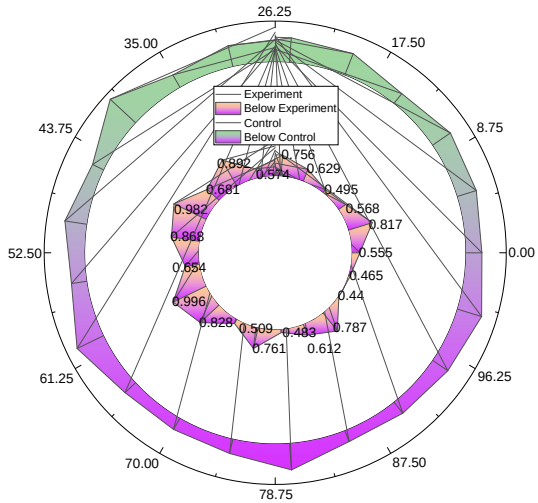

Figure 5: Augmented reality performance results.

With the help of context creation, through guided experience and inquiry experience, learners in the process of teaching demonstration of activities to obtain a more scientifically correct basis for operating experience, but in the actual operation of how effective, only through the operation of the entity to obtain the test. For example, in the operation of the digital camera entity, due to the limitations of the number of experimental equipment and other reasons, may lead to some students cannot operate entity, to solve this problem, the teacher can choose representatives from the students or divided into groups to operate, teachers and students to work together to promote the internalization of student experience and deepen understanding.

4.2 Results Of the Visual Impact Of Digital Media Art

In the digital age, cinema has become increasingly "beautiful", not in the sense that the plot or characters are more attractive, but in the sense that the visual effects are more appealing, and satisfying the needs of the eye has become the goal of contemporary cinematography. The narrative form of spectacle films is no longer bound to the meaningful relationship of the narrative, nor does it become a subordinate of the narrative, but begins to narrate the plot and shape the characters with the creative mode generated by technological progress. Especially in the post-modern context, the "spectacle" narrative has gradually become a unique narrative mode that is more subservient to visual pleasure. In the process of viewing, it is a common phenomenon that when the audience reaches the limit of their visual receptivity, they will ignore their emotional experience and reflection. When images of human beings on the verge of extinction and the world on the brink of destruction appear in the picture, almost no viewers will reflect on their human values from the inside, and the deep thoughts covered behind the images will be diluted or even dissolved by excessive visualization. French cinematographer Jean Mitri once pointed out, "Cinema is a world that organizes itself following a story; cinema becomes largely a visual manifestation of literature." After grabbing the audience's interest through sensory stimulation, the most important task of a good digital technology film is to package the film in a very attractive and exquisite way, firstly leading the audience to an environment focusing on surface phenomena, and then leading them to focus on life and thoughts, guiding them to find the emotional resonance in it and to fall with the fate of the characters in the film, as shown in Figure 6.

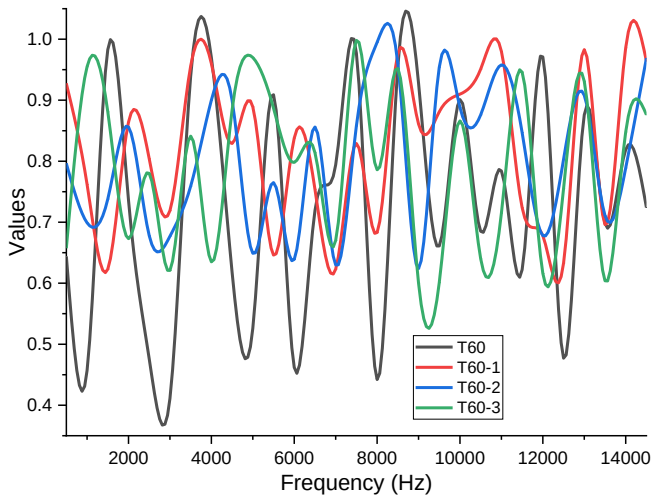

Figure 6: Visual impact test chart.

Thanks to the creation and application of digital technology, the production of cinematic images broke the limits of the objective matter of the real world, and creators could create new scenes and new worlds, as well as more impactful scenes and images that could not exist, more freely according to their rich imagination, and spectacle began to replace narrative as one of the dominant creative modes of cinema.

$$L(y, f(x,\theta)) = \frac{1}{2}(y - f(x,\theta))^2 \tag{6}$$

With the support of contemporary advanced technology, it is possible to use it not only to form spatial guidance in real space environments but also to build digital guidance systems in virtual spaces. In the past, there were electronic devices that could be used for voice explanation and guidance in museums, but most of these devices were only used to input their location numbers at specific locations to play a guiding effect, and they did not have the function of real-time guidance and visualization. With the development of the information age and the popularity of mobile terminals, people use digital media technology to digitally translate the spatial information of physical museums, forming a digital map of museums with a complete three-dimensional spatial environment. At the same time, the architects through the network technology, positioning technology, identification technology, and other information technology implanted into the display space, build out the museum space information network positioning system, and mobile phones, tablets, and other personal mobile terminal devices to form real-time information interconnection, so that visitors in the museum space can be in the digital map through mobile devices at any time to obtain personal location information and in the virtual space scene Free-roaming to understand the real spatial environment, to establish a personal online spatial guidance system, forming a guide for visitors to the exhibition route, as shown in Figure 7.

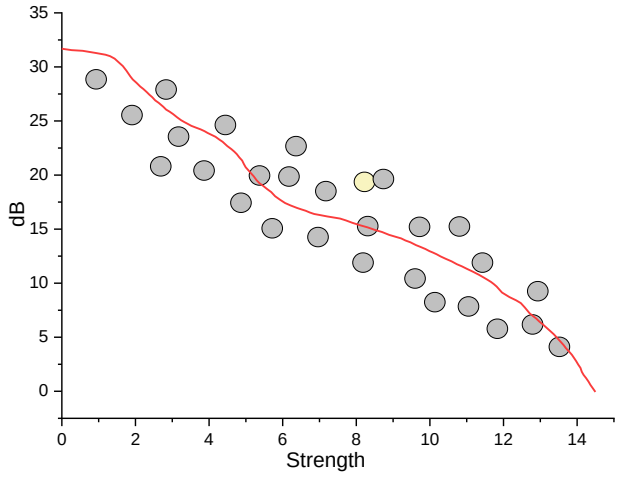

Figure 7: Visual impact results**.**

Of course, we must also look at this impact in the right light, fully aware that it is mainly presented on a physical level. As far as the development of digital painting is concerned, there is still a big gap between it and the artist. Even if in the future people recognize the works created by machines, it is undeniable that human beings are involved. But it is undeniable that people always play an important role in it, and they need to be involved in the design.

$$\frac{\partial I}{\partial x}=\frac{I(3x-\Delta x)+I(x+\Delta x)}{2\Delta x}-O\left(\Delta x\right)^{\frac{1}{2}} \tag{7}$$

To understand the meaning of a picture, the viewer must understand the economic, social, and political conditions of the time in which the painting was made, and must have a full understanding of the author's personal life. Works created with digital technology do not have a sensual touch. In this way, we must consider the question: what is the significance of such technological artistic creation? The painter must learn and practice the technique, but the machine can produce the same effect in just a few minutes. Does this mean that man's previous efforts have been in vain? Nothing develops overnight, it depends on a lot of work. Both machines and human painters are good examples of this. However, there is an objective and essential difference between the two, in that the work created by the painter is not only a result of the painter's personal learning experience but also a result of the painter's three views and personal aesthetics. From this aspect, only when the viewer's emotions are moved by the work can he or she appreciate the work. This is also the biggest shortcoming of machine creation, in which it is impossible to have human emotions if from this aspect the works formed by digital painting can only be called commodities or experiments.

5 CONCLUSION

Augmented reality technology, as an extension of virtual reality technology, brings people an unprecedented visual experience and makes them wonder at the endless charm of modern technology. As a fast-developing new form of software, it is constantly penetrating the field of learning, gradually promoting the development of the field of learning research, bringing students a seamless integration of physical space and virtual space sensory experience under its unique advantages of virtual reality, flexibility, simplicity, and interactivity, breaking the limitations of teaching because of time, place, space, and money, and bringing learners a wonderful experience in every aspect. After three years of tracking and exploring augmented reality, this study has designed and developed augmented reality-based experiential teaching demonstration software based on the research results and many mature products at home and abroad and achieved the span from model to entity and from theory to practice. The emergence of digital technology has brought film art to an unprecedentedly wide space. Whether it is the subject matter of creation, the form of creation, or the level of appreciation, there is nothing we cannot do in film creation nowadays only we cannot think of it. At the same time, we should also look at the impact of digital technology on the development of film art dialectically. The impact of digital technology on film, film aesthetics, and film aesthetics has become a problem that contemporary filmmakers should not underestimate. The emergence of digital technology has impacted the dam of humanistic rationality and the sacred status of classical aesthetics. People's spiritual pursuit, aesthetic scale, and space for deeper reflection on cinema are gradually shrinking.

Bai Gui-wei, https://orcid.org/0009-0001-5693-2638
Zhou Guo-bao, https://orcid.org/0009-0003-2061-0308

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