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Computer-Aided Design AND APPLICATIONS

Design of Advertising Art Teaching Strategy Based on User Behavior

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Abstract. In the application analysis process of advertising art design teaching, user behavior plays a very important role in computer-assisted advertising. In the analysis process of computer advertising art design, there are shortcomings in user behavior in advertising art design. This article analyzes the effectiveness of integrated teaching through the design of advertising art teaching based on user behavior models. Through case analysis of advertising design art and in combination with the current teaching situation, the practical teaching mode for students has been improved. In the analysis process of advertising art teaching, analyzing the market demand value of user behavior can effectively promote consumer behavior in the teaching. The research results indicate that the model can be well applied to advertising education in analyzing the innovative value of students' learning outcomes. In addition, using user behavior models for teaching can also improve students' market adaptability and employment competitiveness. This indicates that the user behavior model is an effective auxiliary tool in advertising art and design teaching, which can provide strong support for cultivating advertising art and design talents that meet market demand.

Keywords: User Behavior Model; Advertising Art Design Teaching; Market Demand; Consumer Behavior; Application Value
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1 INTRODUCTION

The current research mainly focuses on the creative production process in advertising operations, guided by the theory of kinesthetic schema, with the aim of studying the impact of artificial intelligence technology on advertising creative production in the context of intelligent advertising development [1]. And how to apply artificial intelligence technology in the process of advertising creative production, I hope to explore the possible path of future intelligent development of advertising creative based on this. At present, the development status of artificial intelligence technology and its application in the field of advertising creative production. Some studies believe that the current intelligent advertising creative production still belongs to primary intelligence [2]. The intelligent creation of text-based advertising is based on natural language processing technology, and its intelligent production follows a model path of text content understanding and

user and product feature extraction, intelligent copy generation, and effect feedback. To achieve the above research objectives, the study adopted a literature research method, case analysis method, and in-depth interview method to sort out the existing literature on artificial intelligence technology and its application in advertising and creative-related fields. This includes the impact of the wave of intelligence on traditional advertising creative production models, as well as the new changes brought by technological applications to the production of advertising creative content. The research covers intelligent advertising creative production in three major categories: text, images, and videos [3]. Through the integration and analysis of case data, an abstract summary of the application model of artificial intelligence in the field of creative production has been drawn. Intelligent creation of video advertisements requires the comprehensive application of various artificial intelligence technologies such as natural language processing, computer vision, speech recognition and processing, to form a system model of image, copy, comment, audio data processing, visualization generation, evaluation and optimization. Intelligent creation of image-based advertising is based on computer vision technology, forming a demand extraction and image design framework to learn a system model for visual image generation, evaluation, and feedback. At present, creative production mainly focuses on basic content, lacking systematic brand creativity, and due to the monopoly of data and technology, the overall advertising creative production ecosystem is beginning to show an "intelligent gap". On the basis of analyzing and summarizing the above three types of subsystems, extract a general learning, generation, and feedback model for intelligent advertising creation [4].

This user centered teaching design philosophy, combined with the powerful features of CAD technology such as precise drawing, quick modification, 3D modeling, etc., can greatly enrich design methods, improve teaching design efficiency and flexibility. Experiments and case studies have shown that combining user behavior analysis with CAD technology in advertising art design teaching [5]. The integration of user behavior based advertising art design teaching strategies and CAD technology will demonstrate broader application prospects. Promote the popularization and deepening of the integrated communication mode of information and graphics, and lead the new trend of future design education. It will not only promote the transformation and upgrading of the advertising industry, enhance advertising effectiveness and commercial value, but also play an important role in multiple fields such as education, entertainment, and cultural dissemination. Looking ahead to the future, with the continuous development of computer graphics and vision technology, as well as the continuous integration of cutting-edge technologies such as big data and artificial intelligence, more efficient teaching results will be demonstrated [6].

The teaching strategy of advertising art design based on user behaviour emphasizes the user-centred design concept. For example, through interdisciplinary collaborative research, more intelligent data processing and analysis tools can be developed to improve the efficiency and accuracy of advertising art design. Further, adjust the design elements of advertising works to attract user attention better and enhance interactive effects. In the era of constantly moving towards intelligent digital and online communication, advertising creative production is facing issues such as insufficient precision, misplaced scene connections, and efficiency. Faced with cybernetic users, these problems are becoming increasingly apparent. While improving efficiency, gradually penetrating into various links of creative production, promoting the reconstruction and intelligent transformation of the advertising industry [7]. Optimal combination creativity, augmented reality advertising creativity, and human-machine co-creation creativity. It exhibits the characteristics of machine participation, dynamism, diverse connections, and diverse presentations. In the development process of intelligent advertising creativity, some scholars have summarized the intelligent advertising creative model and its three stages [8]. Based on R technology, it is possible to achieve cross-scene interaction that breaks through the limitations of time and space and enhances users' creative experience. Intelligent machines highlight their creative initiative, as they join the creative production process as production entities and collaborate with professional creative production to form an advertising creative production matrix of "UGC (User Generated Advertising Creativity)+AIGC (Artificial Intelligence Generated Creativity)+PGC (Professional Generated Creativity)" [9]. Faced with the continuous dramatization

of users, products, and scenarios, the generalization and deconstruction of the "small group creativity" model by advertising creative production entities have incorporated intelligent machines with data and algorithmic hearts as solutions into creative production. At the level of advertising creative communication, the media platform and the scene are becoming increasingly close, and the Internet of Things technology has expanded the touchpoints with users. Virtual and physical scenes are constantly integrating, and the reach of creativity has become diverse and efficient [10]. At the level of creative production entities, on the one hand, with the support of the media environment, UGC creative content has a broader space, and users collaborate with intelligent creative tools to produce higher-quality content. The flow of data between users and scenarios has accelerated, and machines have strengthened their ability to obtain and analyze user data, resulting in an improvement in the effectiveness of advertising creativity, gradually approaching zero time difference from insight to reach conversion. However, the current intelligent advertising creative model faces issues such as technological limitations, data barriers, user privacy, and human-machine ethics. Based on this, the author proposes a human-machine co-creation creative model from the perspective of a human airport, depicting the structure and production process of the human-machine co-creation system.

2 RELATER WORKS

The opening of the era of intelligent advertising has infinitely amplified the pursuit of speed, scale, and personalization in advertising. At the level of creative content production, there will be stronger integration between humans and machines, and human-machine collaborative production will become a norm. The time interval between traditional advertising creativity and advertising production is constantly shrinking, and real-time data feedback and optimization adjustments mean that production is completed and quickly enters the advertising channel while ideas are generated. The connection between humans and machines is becoming closer, forming a virtuous complementarity and continuously moving towards human-machine integration with the development of brain-computer interface technology. Therefore, Risi and Togelius [11] identified the research object as advertising creative production, which refers to the entire process from the generation of creative concepts to the implementation of performance. With the liberation of technological limitations and the continuous integration between industries, a creative production model of human-machine co-creation will gradually form in the future, and the above problems will gradually disappear. The intelligent advertising creative model will drive the advertising industry towards the era of deep intelligence, creating more beauty in a new ecology where machines and the environment are integrated, and people and the environment coexist and coexist. Through case analysis, practical exercises, and other methods, cultivate students' innovative thinking and practical abilities and enhance their core competitiveness in the field of advertising design. CAD software not only provides high-precision drawing tools but also supports complex conversion and combination of graphic elements to meet the diverse needs of advertising design. The graphic-assisted visual element active propagation algorithm proposed by Shi and Sun [12] constructs the variance matrix and covariance matrix. The orthogonal transformation matrix was applied to achieve deep mining and efficient utilization of graphic element features. The experimental results show that the algorithm proposed in this paper has achieved significant results in improving the visual recognition rate and dissemination efficiency of graphic-assisted visual elements. In teaching practice, teachers can guide students in combining user behaviour analysis with CAD technology.

Wen [13] uses advanced image processing and computer vision technology to capture and analyze visual elements on the exhibition stand in real-time, including colour, shape, layout, as well as the user's gaze trajectory and fixation hotspots. By combining sensor technology and artificial intelligence algorithms, the system can recognize and track users' specific behaviours in front of the exhibition booth. Such as touch, click, dwell time, etc., to gain a deeper understanding of users' interests and interaction habits. These pieces of information are crucial for developing advertising art design strategies based on user behaviour. This not only helps to understand users'

initial impressions of advertising content but also provides direct feedback on visual appeal for Zhou et al. [14]. On the basis of visual and behavioural recognition, the system further introduces natural language processing and semantic analysis techniques, attempting to explain users' profound understanding and emotional reactions to advertising content. The creative expression of advertising refers to the process of using image thinking and visual imagination as the basic way of thinking in advertising creation and using specific elements such as language, text, visual images, and sound to express creative themes. Zou [15] combines this type of information with insights into consumer behaviour, including purchasing behaviour, to analyze and abstract consumer profiles that represent the entire target user population. These preliminary plans will first undergo internal verification in the creative department to determine whether their core elements can accurately and effectively convey creative concepts and whether they are consistent with advertising objectives. In the stage of creative divergence, creative personnel will generate several or even dozens of creative performance drafts through group discussions, brainstorming, and other methods based on their own experience, intuition, and imagination. The creative expression of advertising is the concretization of advertising creative concepts, and the resulting advertising works will be placed in the market to meet the audience and convey product and brand information to them. In the traditional advertising creative process, the establishment of creative expression requires several steps: creative thinking and divergence, internal argumentation, creative production, and review and submission. And enhance the expressive and impactful power of creativity in visual perception through professional visual design and image communication. These completed plans and finished products will be submitted to advertisers for review and confirmation. In this process of argumentation, most of the drafts will be discarded, and only one or a few versions can be retained and enter the creative production stage.

3 CONSTRUCTION OF USER BEHAVIOR MODEL

3.1 Collection and Processing of User Behavior Data

The collection of user behaviour data is the foundation for building user behaviour models. The sources of data can be diverse, including online platforms (such as social media and e-commerce platforms), user surveys, and actual observations. When collecting data, this article ensures the authenticity and integrity of the data while complying with relevant privacy policies, laws, and regulations. Meanwhile, this article will preprocess the collected raw data, including data cleaning, data transformation, and data integration. Select one or two successful cases, such as how Facebook uses user likes, comments, and other behavioral data to optimize content recommendations or how Amazon predicts shopping preferences based on user purchase history and browsing behavior. Guide students in analyzing the data collection strategies and their effects in these cases. Using simulation tools or open-source software, students can try to design and implement a simple user behavior data collection scheme, such as obtaining user interaction data on social media through API interfaces.

(1) Data cleaning

A. Remove invalid or erroneous data

Missing value handling: The following formula can be used to determine whether data is missing:

$$IsMis\sin g\ \ x\ \ =\begin{cases} Ture, \text{If x is a missing value} \\ False, \text{Otherwise} \end{cases} \tag{1}$$

Outlier detection: Z-score can be used to determine whether data is an outlier:

$$Z=\frac{X-\mu}{\sigma} \tag{2}$$

Where X is the observed value, μ is the average value and σ is the standard deviation. Generally, it $Z>3$ X is considered an abnormal value.

(2) Data conversion

A. Z-score Normalization:

$$X_{std} = \frac{X - \mu}{\sigma} \tag{3}$$

In this context, X represents the original data, μ denotes the average value of the data and σ signifies the standard deviation of the data.

B. data coding: for classified data, you can use unique heat coding:

$$X_{onehot} \ i \ = \begin{cases} 1, \text{If x} \ = \text{i} \\ 0, \text{Otherwise} \end{cases} \tag{4}$$

Where i is a value in the category?

(3) data integration

If there are two data sets D_1 and D_2, they can be merged by the following formula:

$$D = D_1 \cup D_2 \tag{5}$$

Here $\cup$ stands for merge operation, which can be a simple database merge or merge according to a key.

3.2 Analysis and Extraction of User Behavior Characteristics

There are many of valuable information and patterns hidden in user behaviour data. Through the in-depth analysis of these data, we can extract the behaviour characteristics of users, such as buying habits, browsing behaviour, clicking behaviour and so on. Figure 1 shows the timing diagram of the advertisement extraction process.

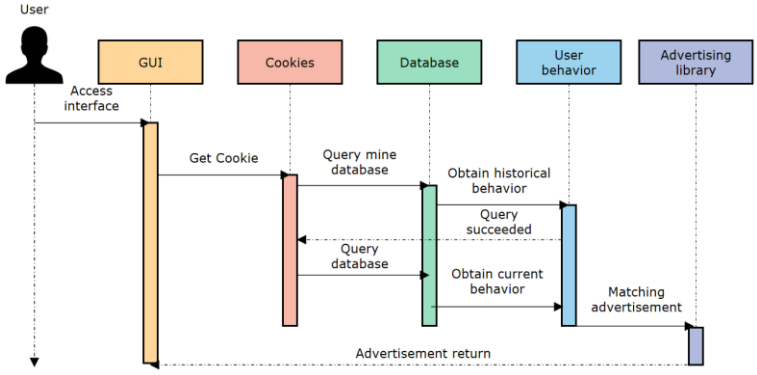

Figure 1: Timing diagram of the advertisement extraction process.

Among them, the observation value, the mean, and the standard deviation are key components. Typically, if an observation value deviates significantly from the mean, it is classified as an outlier.

(2) The objective of extracting user behaviour characteristics through data transformation is to convert raw data into more meaningful representations, facilitating subsequent model construction. Various feature extraction methods exist, including statistical analysis, clustering analysis, association rule mining, and more. This article specifically employs the cluster analysis method. Cluster analysis is an unsupervised learning algorithm designed to categorize unlabeled

data points into distinct groups, ensuring high similarity within groups and low similarity between groups. One commonly used clustering algorithm is the hierarchical clustering algorithm, which does not necessitate pre-specification of the number of clusters. Its implementation involves the following steps:

Each data point serves as an initial cluster.

Calculate the similarity between each pair of clusters and merge the most similar clusters.

Update the similarity between clusters.

Repeat steps ⊜ and ⊛ until the preset number of clusters is reached or all data points are merged into one cluster.

Cluster similarity calculation (using minimum distance method):

$$d\ C_i,C_j\ = \min_{p\in C_i,q\in C_j} d\ p,q \tag{6}$$

Where C_i and C_j are two clusters, and $d\ p,q$ is the distance between data points p and q.

Through this method, features that have an important influence on user behaviour can be extracted from a large number of data.

3.3 Construction Method of User Behavior Model

Constructing a user behaviour model is the primary focus of this section. With the constantly changing aesthetic trends and the prevalence of rich media, people no longer worship complex and cumbersome design patterns and structures but prefer cool dynamic effects that collide with simple design patterns. Information minimalism is about reducing unnecessary information output to users and being more focused. Expressing minimalism means expressing information as simply, directly, and clearly as possible in design. Overly complex information can cause users to lose focus. Minimalist aesthetics gradually evolved into flat design aesthetics and large-scale design aesthetics. In design, it is necessary to apply minimalism in desire, information, and expression. Minimalism in desire means understanding what the user's true desires are and focusing all energy on expressing their desires. Most graphic designs refer to minimalism, which is used to express the subject matter very clearly and distinctly. The flat design increases the sense of hierarchy and preserves the tangible world of meaning, making the picture simple yet expressive. No longer limited to minimalist expressions, I prefer to incorporate appropriate animation effects into simple visuals. The dynamic plane is currently one of the most popular design trends. The design of large sections can effectively highlight key content without losing beauty, elegance, and power through the combination of large images and large fonts. Its motion effect is usually in the form of perpetual motion, and without starting and ending actions, it is easy to immerse the user in it. The emergence of dynamic posters has made people's eyes light up. It can quickly and powerfully convey information, bringing people a visual impact in a short period of time. With the advent of the era of integrated media, people's aesthetic perception of design has undergone changes. The use of dynamics in advertising is more frequent, as it can turn static pages into vivid and flexible images, enriching content while capturing users' attention and effectively conveying information. The structure of the BP neural network is presented in Table 1.

Layer	*Number of Nodes*	*Activation Function*
Input Layer	10	None
Hidden Layer 1	128	ReLU
Hidden Layer 2	64	ReLU
Hidden Layer 3	32	ReLU
Output Layer	2	Sigmoid

Table 1: BP Neural Network Structure Parameter Table.

The activation function ReLU formula is as follows:

$$f\ x\ = \max\ 0, x$$
$$f'\ x\ = \begin{cases} 1\ if\ x>0 \\ 0\ otherwise \end{cases} \tag{7}$$

Output layer error:

$$\delta_k^{\ 2}\ =\ \hat{y}_k - y_k\ \cdot \sigma' \left(\sum_{j=1}^{m} w_{jk}^{\ 2} a_j^{\ 1}\ + b_k^{\ 2} \right) \tag{8}$$

Where $\delta_k^{\ 2}$ is the error of the k neuron in the output layer and σ' is the derivative of the activation function.

Hidden layer error:

$$\delta_j^{\ 1}\ = a_j^{\ 1}\ \cdot \left(1 - a_j^{\ 1}\ \right) \cdot \sum_{k=1}^{o} w_{jk}^{\ 2}\ \delta_k^{\ 2} \tag{9}$$

Where $\delta_j^{\ 1}$ is the error of the j neuron in the hidden layer.

3.4 Validation and Optimization of User Behavior Models

Dynamic effects are the most effective way to enhance users' visual and tactile experience in advertising, using techniques similar to animated advertising to give the page vitality. Animation refers to the use of GIF animations, animated advertisements, and videos as elements without interactivity, which serve to enhance the auxiliary content of a webpage. This type of animation is often used to enrich the page and make it no longer monotonous and correspond to the page content, such as loading interface bars, scene illustrations, and so on. Based on human physiological characteristics, it has been found that dynamic things are more visually appealing to humans compared to static ones, indicating that motion is an essential part of user experience. Figure 2 illustrates the model's training process.

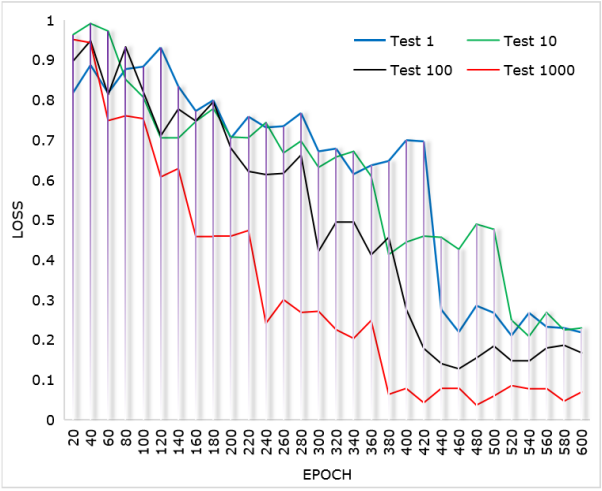

Figure 2: Model training process.

When the page design of an advertisement cannot be separated from animation, without animation to assist, the page will make users feel dull and bored. Bored copy and a single image

cannot provide users with a good emotional experience. Interactive animations rely on user gestures or actions, such as clicking, rotating the screen, long pressing, shaking, sliding the slider, and other interactive actions, to achieve animations. This type of interactive motion effect is achieved through code and technologies such as mobile phone cameras and gyroscopes. In interaction design, dynamic elements can enhance user engagement and improve user experience. Animation effects can be divided into animation and interactive categories in terms of form. Interactive animations emphasize user engagement and provide timely feedback to users through their actions, enhancing their experience during the interaction process. Figure 3 depicts the model's accuracy and error metrics.

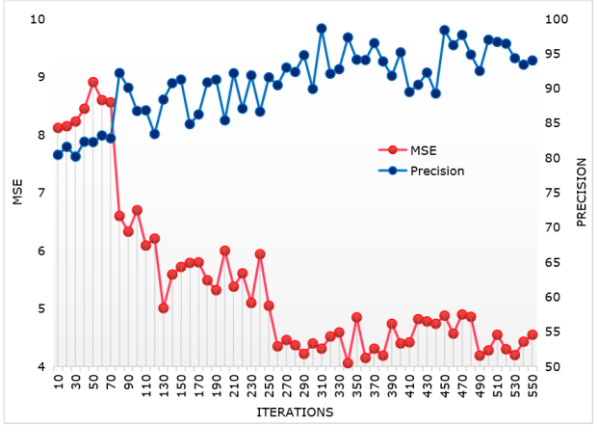

Figure 3: Accuracy and error of the model.

Figure 3 reveals that the model's prediction accuracy on the test set attains 95%, which is notably high. Additionally, the MSE is approximately 0.42, indicating the model's proficiency in accurately describing and predicting user behaviour.

Subsequently, the model's stability is verified to ensure consistent prediction capabilities across various scenarios. Figure 4 presents the outcomes of the model's stability test.

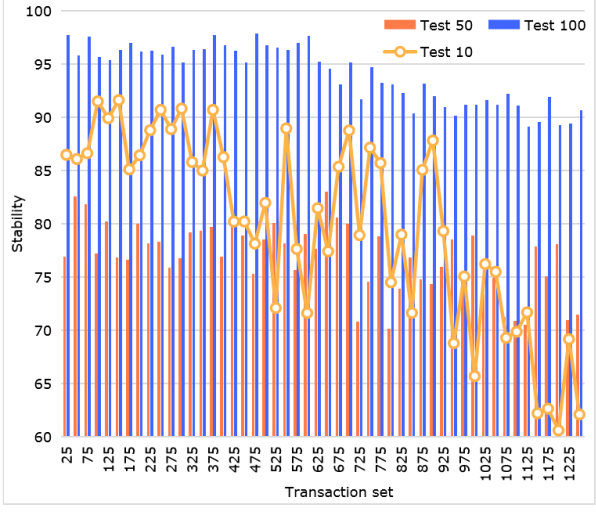

Figure 4: Stability test results of the model.

This article provides an important research direction for art designers to create more economic value for society and businesses. The purpose of this study is to take retail food advertising as the starting point and improve the public's acceptance of new forms of e-commerce advertising through innovative design expressions. At the same time, the competition between e-commerce platforms is becoming increasingly fierce, and advertising promotion has become particularly important. The massive amount of e-commerce advertisements leave people overwhelmed, and while experiencing a lot of visual impact, it is easy to feel numb and confused about how to capture consumers' attention through advertising design in the e-commerce field. With the emergence of more and more e-commerce advertising designs, the aesthetic level of the public continues to improve with the development of the times. Guided by the multimodal discourse theory, this study proposes the research topic of "E-commerce Advertising Design from a Multimodal Perspective - Taking the Retail Food Advertisement of 'Night Companion Little Tiger' as an Example" based on its existing theoretical achievements.

4 TEACHING STRATEGIES FOR ADVERTISING ART DESIGN

4.1 Innovation of Instructional Method Based on User Behavior Model

The user behaviour model offers robust data support for advertising art design teaching. By examining user behaviour characteristics, teachers can comprehend the needs and preferences of the target audience, enabling them to tailor the instructional content and focus accordingly. This includes incorporating courses that align closely with user behaviour, such as user portrait construction and user behaviour prediction. Moreover, the course structure and instructional methods can be refined based on the user behaviour model's outcomes, empowering students to excel in practical advertising design skills. Figure 5 illustrates a schematic diagram depicting the inverted index from keywords to advertisements.

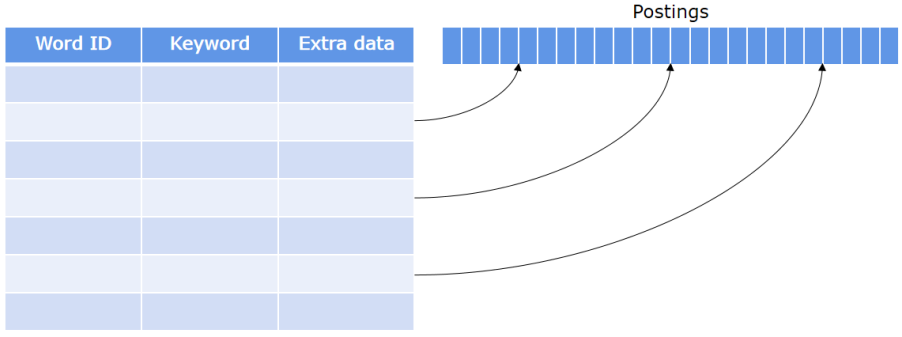

Figure 5: Schematic diagram of advertisement inverted index.

In the teaching of advertising art design, innovative instructional methods are very important for cultivating students' innovative thinking and practical ability. Combining user behaviour models with instructional methods can create a more targeted and effective teaching model. Furthermore, modern instructional methods such as multimedia technology and virtual reality can be used to enhance the interactivity and interest of teaching.

4.2 Analysis and Discussion of Teaching Cases

In order to demonstrate more specifically how to use user behaviour models to guide advertising art design teaching, this section provides a classic teaching case analysis.

Teaching Case Background:

In a certain university's advertising art design course, teachers hope to use user behaviour models to optimize instructional content and methods, in order to better meet students' learning needs and enhance their practical abilities. Therefore, the teacher chose an advertising art design project closely related to the current market hot topics as a teaching case.

Implementation process of teaching cases:

Data collection and preprocessing

Teachers first guide students to collect behavioural data about the target user group, including their browsing habits, click behaviour, purchase history, etc.

Subsequently, the teacher engages in preprocessing the collected data, which encompasses data cleaning and feature extraction, to guarantee data accuracy and consistency.

Construction of User Behavior Model

Based on preprocessed data, teachers guide students to use BP neural networks to construct user behaviour models.

Through training and adjustment, the model can accurately describe and predict the behaviour patterns of the target user group.

Model Application and Teaching Design

Teachers will apply the constructed user behaviour model to advertising art design teaching, guiding students to optimize advertising design based on the predicted user behaviour patterns of the model. For example, according to model predictions, users are more likely to click on advertisements with a certain colour or layout, so teachers emphasize the importance of these design elements in teaching.

Practical operation and feedback

Students carry out practical operations based on teaching design, design and produce advertising works that conform to user behaviour patterns.

Teachers evaluate students' works and provide feedback and guidance to help students further improve their advertising design skills.

Case Effect Assessment

By comparing the instructional effectiveness before and after applying the user behaviour model, it can be found that students have significantly improved their advertising design and practical abilities. The assessment of student work is shown in Figure 6.

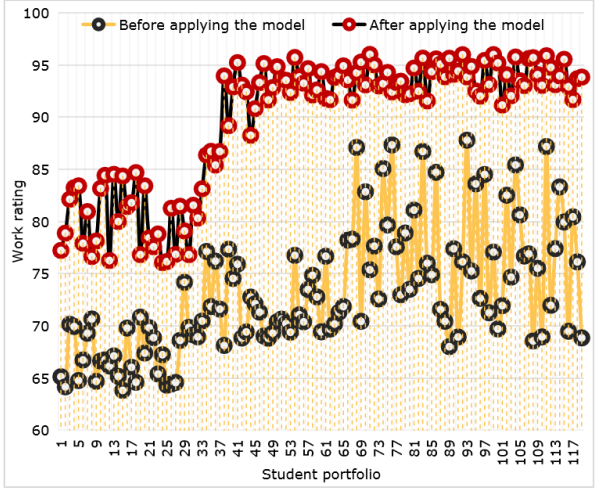

Figure 6: Assessment of students' works.

It can be seen that after applying the user behaviour model, students' works are more in line with market demand and user preferences, and get higher assessment.

Through case analysis and discussion, readers can have a deeper understanding of the application value and implementation methods of user behaviour models in advertising art design teaching. Furthermore, this case can also provide a reference for other teachers in actual teaching.

5 APPLICATION OF CAD TECHNOLOGY IN THE TEACHING OF ADVERTISING ART DESIGN

5.1 CAD Technology in Advertising Art Design

The arrival of the intelligent revolution has brought a great impact on the production mode of the traditional advertising industry. Next is creative divergence. In the era of intelligent advertising, creative production will no longer be dominated by the experience and abilities of traditional creative personnel. Machine learning and model training will become important means of expanding and improving creative levels. The creative foundation has shifted from small-scale advertising information to massive platform-wide and sample data. The logic of the entire advertising industry, which has been maintained for decades, has been overturned by technological forces, transforming the way advertising is created from creative foundations and creative divergence to creative production. And extract accurate user profiles and product benefits through algorithms and models, generate a creative database, and provide raw materials for creativity. The application of intelligent consumer insights in advertising can mine large-scale and diverse user and product information. The change in the communication environment under the intervention of technology has made precision the core of advertising and marketing activities, without precise advertising communication. Through large-scale data training and deep learning, machines can autonomously understand and judge advertising creative concepts, thereby creating unique creative ideas and combinations. Finally, creative production has shifted from small-scale single content production to large-scale personalized content production. In order to meet the precision requirements of advertising campaigns, the creative production process must have the ability to produce large-scale personalized content for a massive number of individual users. The production cycle needs to be rapidly shortened to meet the requirements of instant delivery and real-time modification.

Figure 7: Student advertising art design case (before application).

5.2 Integration Practice

In order to better integrate CAD technology and user behaviour models into the teaching of advertising art design, teachers can carry out a series of practical activities. For example, students

can be organized to conduct market research, collect the behaviour data of target users, and then use CAD software to analyze the data and design and create. In the design process, teachers can guide students to carry out creative conception and scheme design according to user behaviour characteristics and use CAD software tools and resources to realize it. Finally, students can be organized to show and evaluate their work, and the instructional methods and design strategies can be further optimized through practical feedback. As shown in Figure 7 and Figure 8, students' advertising art design cases before and after applying the user behaviour model are shown respectively.

Figure 8: Student advertising art design case (after application).

Combining CAD technology with user behaviour models in advertising art design teaching can significantly improve students' design ability and work quality. Through a series of practical activities, such as market research, data analysis, creative conception and design realization, students not only mastered the application skills of CAD software but also learned how to design advertisements according to user behaviour characteristics, thus improving the effectiveness and attractiveness of advertisements. Furthermore, teachers can constantly optimize instructional methods and design strategies through practical feedback to further improve instructional effect.

6 CONCLUSIONS

After systematic research and practice, this article deeply discusses the application value of CAD technology and user behaviour models in advertising art design teaching. The research results show that CAD technology and user behaviour models provide a new perspective and method for advertising art design teaching. By introducing user behaviour data, teachers can more accurately understand the market demand and consumer behaviour, thus adjusting the instructional content and strategies, so that students can better master advertising design skills in practical applications. Furthermore, CAD technology and user behaviour models also promote the innovation of instructional methods, such as introducing case analysis and project practice, which enhances the interactivity and interest of teaching and improves students' learning effect and innovation ability.

Specifically, the application value of the user behaviour model in teaching is mainly reflected in the following aspects:

(1) Accurately locate market demand: By analyzing user behaviour data, teachers can accurately grasp market trends and consumer demand, make instructional content closer to reality, and cultivate students' market sensitivity and adaptability.

(2) Optimizing instructional contents and methods: The user behaviour model provides a scientific basis for updating and optimizing instructional content, makes instructional methods more flexible and diverse, and can better stimulate students' creative thinking and practical ability.

(3) Enhance students' employment competitiveness: CAD technology and teaching combined with user behaviour models enable students to have stronger market analysis and design capabilities and enhance their employment competitiveness and career development potential.

The application of CAD technology and user behaviour models in advertising art design teaching has broad prospects and potential. Future research should continue to deepen the application of models, innovate instructional methods, and improve the instructional effect in combination with emerging technologies so as to provide strong support for training advertising art design talents that meet the market demand.

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