

## *Retraction*

# **Retracted: Nonheritage Creative Product Design and Development and Marketing Strategies for Computer Vision and User Experience**

### **Security and Communication Networks**

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### **References**

- [1] C. Liu, Z. Pan, C. Zhang, and W. Miao, "Nonheritage Creative Product Design and Development and Marketing Strategies for Computer Vision and User Experience," *Security and Communication Networks*, vol. 2022, Article ID 9685280, 10 pages, 2022.

## Research Article

# Nonheritage Creative Product Design and Development and Marketing Strategies for Computer Vision and User Experience

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With the rapid development of economic and culture, intangible cultural heritage has gradually moved towards the public, and at the same time, many cultural and creative products have been derived. In the face of fierce market competition, nonheritage and creative products gradually occupied a certain market share with their unique cultural heritage and won the love of some consumers. However, at the same time, the development of nonheritage and creative products cannot keep up with the market that is changing with each other, and the design and development of cultural and creative products are far behind market changes. Moreover, the recognition of some consumers cannot improve the booming development of nonheritage creative products, and the future development of nonheritage and creative products is facing a serious crisis. Computer vision has absolute advantages in image processing, which can help nonheritage products for development and design, and further improve the quality of the product. In the process of designing and developing a certain product, our commonly used research method is user experience. User experience strategies can help us design cultural and creative products that fit the characteristics of the times from the perspective of consumers. This article introduces the basic architecture and guidelines of the user experience strategy. In addition, the main research object of this article is nonheritage and creative products, which aims to explore how to use various design thinking methods to develop more valuable products. On this basis, this article integrates computer vision technology in the process of designing and development of nonheritage cultural and creative products and supplemented by user experience strategies to further innovate the design concept of cultural and creative products. Experiments show that the design and development of intangible cultural heritage products based on computer vision and user experience can effectively improve product quality, and the product qualification rate basically reaches 90%. At the same time, this move can further stimulate consumers' desire to purchase, and their purchase intention can reach up to 72%.

## 1. Introduction

With the development of society, people's pursuit of beauty has been changing, which has also led to higher and higher requirements for product design. At the same time, since the development of intangible cultural heritage products, they have received widespread attention from the society, so people have high expectations and pursuits for them. However, the development of nonheritage creative products is far from the pace of the times, and its design and

development links are seriously disconnected from the times. In this case, nonheritage and creative products must take advantage of the latest science and technology in order to adopt great development. Computer vision is one of the current hotspots, which can quickly respond to objects to the object. At the same time, computer vision also has a wide range of applications in image design. The connection between intangible cultural heritage and tourism, cultural and creative industries is very close. This is mainly reflected in the fact that the inheritance and innovative development of

intangible cultural heritage are closely related to the design and packaging of cultural creativity, and intangible cultural heritage is also the material and source of inspiration for the development of tourism cultural and creative enterprises. The two of them set off each other, and through the combination and collision of traditional and modern elements, cultural and creative tourism products have made great development. The development of nonheritage creative products can bring new opportunities to the development of the tourism industry, which has enabled the development space of the tourism industry. The research on nonheritage cultural and creative products is also conducive to the development of tourism.

After a series of experimental analysis, we can know that users are not very satisfied with the current experience of nonheritage creative products, with an average score of 3.35. At the same time, users have high recognition of cultural and creative products, and the recognition experience scores of nonheritage cultural and creative products are only 1.25. This shows that the product must have a good user experience and product recognition to be favored by users. The quality of computer vision and creative products has been strictly controlled. Among them, the qualification rate of the product has reached 80%. Among the products of the same batch, products based on computer vision often have a relatively low rate of residual, and the number of residual products is less than 10. In addition, different subjects hope that the product has different characteristics. From the perspective of indicators, users' concern about price is 7.2, which shows that the cheap products are often favored by consumers. But at the same time, we also see that consumers also attach great importance to the intrinsic value of products, and their level of care has reached 6.9. This fully shows that for nonheritage cultural and creative products, merchants must first ensure the quality of their products, and then further explore their intrinsic value in the process of design, and continuously enlarge the cultural connotation projected on the products to attract consumers to pay.

## 2. Related Work

Some scholars have made relevant analysis on the theme of the strategy in the process of product design and development and marketing, as shown in the following:

Fregidou-Malama M aims to handle the marketing of products and analyze how to achieve standardization and network development when marketing products. He applied the qualitative methods and semi-structural interviews, directly observes official documents and collects data. His research showed that the cultural and market environment can standardize the quality of the product and make the marketing components meet the needs of consumers. He contributed marketing literature based on context, trust, network, and adaptive product marketing model [1].

Shokrani used the structural equation model to study the effects of the relevant factors related to the service marketing portfolio on customer satisfaction. Then, the statistical methods such as Friedman's inspection and structural equation model were systematically compared, as well as

decision-making technologies such as hierarchical analysis methods to determine the priority of the service marketing portfolio elements. In addition, he also used SPSS, expert selection, and smart PLS software to understand the role of effective marketing portfolio evaluation technology on marketing strategies [2].

Halme used the perspective of criticism analysis, and the theoretical framework of four legal strategies to analyze the legitimacy of a local marketing project implemented in North Carrelia, Finland, and how to use the strategic document of the project to use the way of discourse is built. The survey results show that several discourse strategies have been recognized. He introduced discourse as the core element of legitimacy, and put forward unique insights on the legitimacy of the marketing project [3].

Jan aimed to understand why traditional leading telecommunications equipment companies, such as Alcatel News have stagnated from the perspective of new product development (NPD), while the newcomers Huawei has achieved steady growth. He adopted the form of comparative case research. The survey found that the two companies had three significant differences in the development of new products. He emphasized some key NPD strategic issues and provided some inspiration for NPD managers [4].

The above research results involve problems, such as network-based marketing combination strategies, but we can see the one-sidedness and single nature of its results. Therefore, the article uses computer vision and user experience to study product development strategies, and also refers to some documents.

CW Dong used AdaBoost's improved ELM (extreme learning machine) hybrid algorithm (Ada-ELM) to clarify the nonlinear quantitative analytical relationship between the appearance of tea leaves and human sensory perception. He adopted the smallest daily multiplication and Ada-Artm, and established a linear and nonlinear prediction model for the appearance of chipy bar-shaped green tea, respectively, and compared the model performance. The results showed that the adaboost integrated algorithm can further improve the prediction accuracy and generalization of the ELM model [5].

WLD Chen aimed to comprehensively analyze and compare the preliminary study of computer visual methods of plant species. He described the application methods of the plant organs studied, as well as the characteristics of the research, is the shape, texture, color, edge, and leaf vein structure. In addition, he compared the method of classification accuracy based on the public dataset [6].

KADIR proposed a simplified computer vision application based on multilayer perceptrons (MLP), which is used to accurately classify wheat particles into bread or hard alloys. First, he used image processing technology (IPT) to obtain the main visual characteristics of four-dimensional, three colors and five textures. Then he copied a total of 21 visual features from the 12 main features to diversify the input group and used for training and testing ANN model [7].

DECOST developed a powder raw material representation system for metal additive manufacturing (AM)

through application of computer vision and machine learning methods. When applied to eight commercial raw powders, the system classified powder images as the correct material system with over 95% accuracy. The system can also identify atypical powder images. These results showed that the microstructural characteristics of the powder are associated with the performance of AM process performance and define objective material standards based on visual images [8].

The above scholars have studied computer vision algorithms in plant species, wheat particles and commercial powder raw materials. The scope of research is very wide, providing a certain reference and reference for the research of this article. However, in the process of research, they only paid attention to the use of computer vision in image recognition and ignored other uses of computer vision.

### 3. Intangible Cultural Heritage Products and User Experience and Computer Vision

*3.1. Intangible Cultural Heritage Products.* Cultural and creative products have always been an effective carrier of traditional culture and an important communication channel for traditional culture. The design of intangible cultural heritage products is of great significance, and has a great role in promoting the inheritance and innovative development of intangible cultural heritage projects. It also provides a certain foundation for the establishment of local cultural and creative brands, which can effectively enhance the influence and popularity of urban culture [9]. Modern cultural and creative design needs to integrate the genes of intangible cultural heritage, and the premise is to retain the connotation of intangible cultural heritage elements. It then packs and promotes it through a series of creative designs to spread it to the masses, thereby generating economic value. At the same time, the business operation mode of intangible cultural and creative products can develop sustainably.

In recent years, the development of cultural and creative industries has shown a rapid and vigorous trend. Governments of various local governments have also actively guided and supported their development, and the creative atmosphere is great. But at the same time, there is still room for the improvement in the development of intangible cultural heritage products, brand building and operation, which requires a lot of time and energy. If the nonheritage creative products have reached a certain brand influence, it can become a business card and image spokesperson for a certain city [10]. According to the existing nonheritage creative product design cases, we can know that in the design process, we need to follow the principles of cultural nature, the principles of innovation, and the principles of practicality. According to the mapping relationship of the construction principle, we can get a framework of a cultural and creative product, as shown in Figure 1.

Nonheritage creative products mainly include text graphics, patterns, and cultural connotations. Generally speaking, the design strategies of nonheritage and creative products are mainly the following: first of all, in-depth market research, first understand the needs of consumers,

and then design the corresponding design, including their daily production and life and emotional demands. The nonheritage creative products designed according to these elements can meet the trend of the times, and form a certain market competitiveness to win the favor of consumers. Of course, consumers who need to study are mainly people's masses, non-genetic inheritors, designers, and salespersons. It should be noted here that the designer should give the project a correct understanding. They need to design cultural and creative products that are in line with modern aesthetics, rather than the reproduction of the nonheritage project itself. Next, it needs to determine a specific theme, and then combine it with nonheritage, so as to take the purpose and plan for effective creation. This theme is the external manifestation of the spiritual core that designers want to tell the public [11]. In addition, the most important thing is to ensure the quality of design products, and then marketing under this premise. Nowadays, the rapid development of online media has brought a new opportunity to the sales of cultural and creative products. At the same time, the characteristics and essence of nonheritage products can also be displayed by establishing nonheritage cultural and creative industrial parks.

*3.2. User Experience.* The user experience is generated by the interaction between users and products through interaction. When it comes to user experience, we generally think of user experience strategy and user experience design. The basic philosophies of these two fields are different. Among them, the former refers to the analysis of the entire architecture of the product during the development stage; the latter focuses on the various needs, experience and feelings of users. In fact, there will be a lot of uncertain factors in the process of product development. Therefore, if these two can be cleverly combined, then you can achieve the business goals and attempts of the product more efficiently, so as to plan for the next plan [12]. Table 1 analyzes the user's experience needs based on the changes in the relationship between the user's user. From the table, it can be seen that the needs of the user experience can be divided into five levels: feeling, interaction, emotion, society, and self-needs.

In addition, the essential attributes of user experience strategy and experience design are also different. The essence of the former lies in critical thinking, while the latter focuses on thinking in design. In the design and development process of a set of products, the first key step is to determine the user experience strategy of this product. This can be explained at four levels: target users, market value, product features, and user experience. Specifically, the first step is to identify and verify target users, and then to conduct a competitive research to discover the value of product development. The third step is to pay attention to the primary and basic functions of the product. Finally, the result of analyzing the survey and improving the interaction of suppliers and users [13]. The quantitative model method of user experience is shown in Figure 2.

There are four basic principles that we need to adjust to when developing our UX strategy. The first is the successful

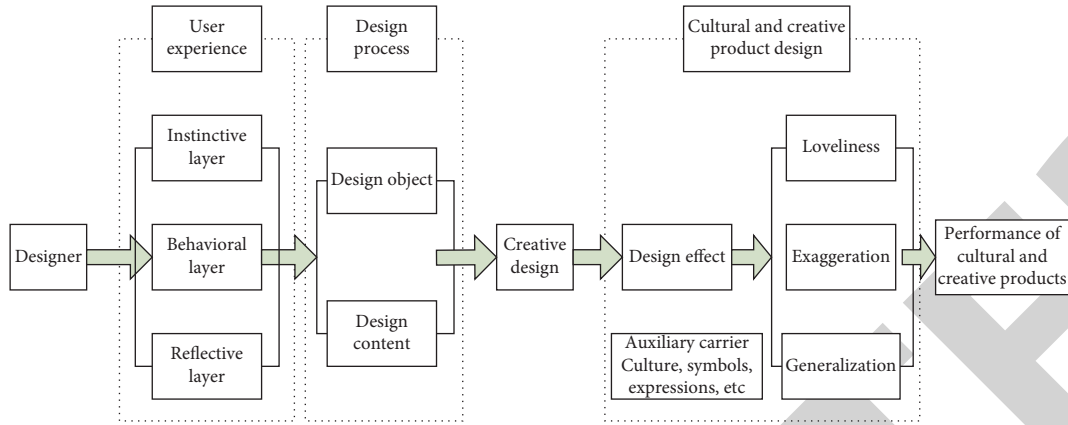


FIGURE 1: Cultural and creative product design framework.

TABLE 1: User-based product experiences demand analysis.

User process Demand type	First use	Continuous use	Stop using	Recycling
Basic demand	Good sensory experience	Timely information feedback	Fault to be eliminated	Provide recycling channels
Expected demand	Easy to use and learn	Efficient human-computer interaction	New and more valuable choices	Provide methods for recycling
Surprise demand	Natural one-step	Accurate perception and recommendation	Free trial service for new products	Intimate door-to-door service



FIGURE 2: Quantitative model of user experience.

business cases and strategies on the market. Business strategy is an important guarantee for a company’s sustainable and healthy development. In terms of design, business strategies play a very critical role in the extremely intense market environment. It can guide the entire direction of product design, so as to clarify the market positioning of a certain product and achieve the business goals of the product [14]. Product development and design principles based on user experience strategies mainly include the following points: value claims must be reasonable, value innovation must be reasonable, user research must be reliable, and user experience must be improved. Product developers should consider costs and prices, and integrate the practicality and innovation of the product, and develop based on potential users.

The user experience drives the future development direction of the product and determines the commercial vitality of the product. However, the key to successfully formulate an effective business strategy is the business model that conforms to the operating status of the enterprise. Under normal circumstances, designers based on user experience need to help products developers to study and analyze, and each element in the business model is interconnected and exist in the form of a list, as shown in Figure 3. This can be prepared for the later product

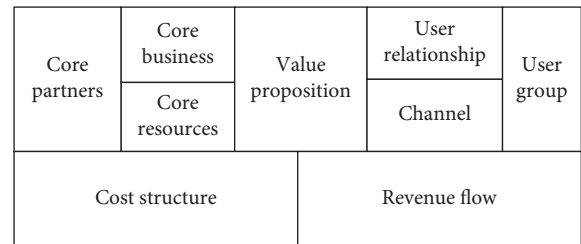


FIGURE 3: Business model canvas.

experience, and can ensure that it occupies a certain position in the market, thereby achieving the sustainable development of the product. In the process of product development and design, most enterprises usually use the innovative theory of the existing user experience business model on the market to obtain the data value of users and clarify the loyalty to use household groups [15].

With the development of the market, people have begun to combine product design and marketing. In traditional sense, the design of user experience is mainly concerned about user interaction and art design, and ignores the development of customers, the participation of users, and the effective construction of business models, which just determines the success of product marketing. The main tasks of

the user experience designer are: designing and designing the artistic beauty of the product's control interface and user conversion route, in-depth market research and learning and improved user experience satisfaction [16]. Based on different experience levels, the needs of users' attention are different, which will also have a certain impact on the design of the product. The specifics are shown in Table 2.

In the market environment, the quality of the product will play a vital role in the success or failure of the product, but in addition to the factors, other factors of the product will bring different experiences to users. Among them, the four important elements that directly affect the user experience are shown in Figure 4. The brand, culture, functionality, and usability of a product are four important elements that directly affect the user experience [17]. Among them, the brand's brand represents the quality of the product to a certain extent. The culture of the product reflects the inherent value condensed in the product. The functionality and availability of the product are the core elements that directly affect the user experience.

**3.3. Computer Vision.** The main scientific research of computer vision is how machines can "see" like people. Specifically, the use of cameras and computers and other devices instead of people's eyes, thereby conducting a series of operations on the target, including identification, tracking and measurement, and then transmitting the processing results to the instrument for detection. The study of computer vision aims to establish an artificial intelligence system that can obtain the desired information from pictures and data. The information mentioned here refers to the information that can be used to help make a decision, so it is also a perceptual science. Computer vision has very strong autonomy, objectivity, and repeatability. This technology began in the 1950s, and the main purpose at that time was to identify and analyze images. Over time, it has developed to the level of analysis of object structures that can be analyzed. Today, the fusion application of computer vision and graphics is increasingly reflecting advantages [18].

Computer vision simulation objects are mainly creatures, and three-dimensional information is obtained by simulation. Once the machine is equipped with a visual application effect, then its prospects can be imagined that it must be very broad. Computer vision is both the engineering field and a challenging important research area in the science field. Today, computer vision has become one of the focuses of relevant researchers. There are many ways to classify computer vision, and the factors are different, and the classification is different. Its application field is very wide, including fingerprint technology, chromosomal identification on the organism, detection of integrated circuits, intelligent robots, medical CT, which are built in two-dimensional images and three-dimensional objects [19]. For example, in the field of robotics, if it needs to study the parts of the machine, it can be used in the form of X-rays and laser. It describes the target, including its texture, color, and shape, and a model is established.

The three main tasks of computer vision lie in the recognition, detection, and division of goals, which are

TABLE 2: Product design factors at different experience levels.

Experience level	Product design factors
Sensory experience	Beautiful appearance Comfortable material Reasonable process Reliable structure
Behavioral experience	Comfortable and efficient use Easy and fun to operate Reasonable function
Emotional experience	Cultural needs Aesthetic needs

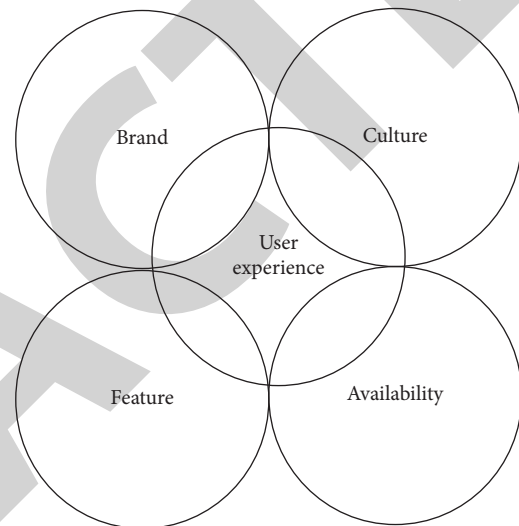


FIGURE 4: Four elements of user experience.

currently recognized by academic circles. First, image recognition is also called image classification, which is to identify and classify an object of research based on its characteristics. Its specific process is: enter the picture that needs to be recognized first, and then output the category of this image. For example, the machine at the high-speed intersection recognizes and charges your license plate number; there are also face recognition of people common in daily life, such as WeChat and Alipay's face payment function. Second, the target detection is mainly to detect the specific location and attributes of the target. It is developed on the basis of image recognition [20]. Third, the target segmentation consists of the two parts: semantic segmentation, and individual segmentation. The difficulty of these three major applications has gradually upgraded to simulate and track human behavior. However, computer vision also faces certain challenges and problems.

Products often need to conduct a final quality inspection before the market, but in a complex environment, artificially difficult to distinguish the subtle color differences of the product and the defects of the product [21]. Therefore, the use of computers for automatic identification and tracking can maximize saving manpower and material resources and improve the product's qualification rate. Before the product is tested, the graphics of the product need to be collected. The division and collection of graphics can be functionalized to:

$$g(i, j) = \frac{\sum f(m, n)}{M}. \quad (1)$$

$g(i, j)$  means the collected image,  $g(i, j)$  represents the pixels in the area. However, the graphs directly collected by the camera often have much noise. In order to improve the accuracy of recognition, a certain strategy needs to be used for noise reduction and optimization of graphics. The pre-processing process of graphics is shown as follows:

$$f(m, n) = \frac{Q}{A} [f_A(i, j)], \quad (2)$$

$$Q = \frac{M}{A} \left[ f_A \left( i + x - \frac{m+1}{2}, j + y - \frac{n+1}{2} \right), (x, y) \in A \right].$$

Among them, the original graphic is represented by  $f(i, j)$ , and the optimized image indicates  $f(m, n)$ ,  $Q$  represents the median filter module. During the processing process of the image, under the action of the medium value filter, the pixels of the image are divided into odd points and even points, where  $A$  represents the collection of even points.

After simply preparing the image, we need to further enhance the details of the image. Compared with the filter, the sharpness makes the details of the image richer and enhance the overall effect of the image. The process of image sharpness can be described as:

$$\nabla^2 f = \frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2},$$

$$\frac{\partial f(i, j)}{\partial x} = \Delta_x f(i, j) = f(i, j) - f(i-1, j), \quad (3)$$

$$\frac{\partial f(i, j)}{\partial y} = \Delta_y f(i, j) = f(i, j) - f(i, j-1).$$

In the above formula,  $f(x, y)$  represents the image before sharpening,  $\nabla^2 f$  indicates the difference, and its physical interpretation is the difference of unit coordinates in the vertical direction. However, in the process of image acquisition, the color of the image is easily affected by light, so we also need to eliminate the trouble caused by light.

The estimation algorithm of illumination can be expressed as:

$$f(x) = \omega^T \phi(x) + b. \quad (4)$$

Among them,  $\phi(x)$  represents the objective function, and  $\omega$  represents the weight. This method of illumination estimation uses the least squares method, which aims to establish a regression model.

The representation of the Lagrange polynomial of the regression model is as follows:

$$L(w, b, e, a) = J(w, e) - \sum_{i=1}^M [a_i \phi(x)], \quad (5)$$

$$w = \sum_{i=1}^M \phi(x_i), \quad (6)$$

$$a = y_k y_l \phi(x_k)^T \phi(x_l). \quad (7)$$

In the Lagrang Japanese style (for the power equation expressed in a broad system),  $a$  is the Lagrange multiplier. According to the minimum structure of the structure, we can get regular parameters and random errors  $e$ .

By solving the above Lagrange Japanese style, we can get:

$$y = f(x) = \sum_{i=1}^M a_i K(x, x_i) + b, \quad (8)$$

$$K(x, x_i) = \exp \left\{ -\frac{\|x - x_i\|^2}{2\sigma^2} \right\}.$$

Among them,  $a$  here is a solution of the formula (6), which represents the light factor at this time.  $\sigma$  is the width of the core function, and its value is greater than zero. However, we noticed that in the formula (7), there is no exact expression of  $\phi(x)$ , so we use the feature vector to get the value of its approximation, which can be expressed as:

$$\phi(x) = \sqrt{\frac{1}{n} \sum_{j=1}^n (y_{ij} - x_{ij})^2}. \quad (9)$$

Among them,  $y_{ij}$  represents the predicted light angle and conditions,  $x_{ij}$  represents the real light angle. After getting relevant data, we use the weighted method to integrate the light model. The weighted algorithm can be expressed as:

$$H(x) = \sum_{i=1}^T w_i h_i(x), \quad (10)$$

$$w^T = \left( \int \left| \frac{\partial^n f^\sigma(x)}{\partial x^n} \right|^\rho dx \right)^{1/\rho}.$$

Based on this, the estimation model of light has begun to take effect, and it can achieve unsupervised self-operation. Among them,  $T$  represents the number of training,  $w$  represents weight.

On the basis of the light estimation model, we can identify the color differences and flaws of the color of the image based on the relatively accurate computer vision. Products exposed to light often produce differences in color, but the way in which differences are recorded varies from product to product. In order to standardize the difference and unify the data structure, we adopt a more authoritative color difference evaluation system to represent the color difference. The color difference evaluation standard is depicted in Table 3.

#### 4. Product Strategy Resolve Based on Computer Vision and User Experience

In order to promote nonheritage creative products targeted, we first need to understand the experience and choice of users' current nonheritage creative products. Then, on this basis, product adjustment and upgrades are made targeted to

TABLE 3: Color difference evaluation standard.

Chromatic aberration	Color difference	Perception	Grade
0~0.5	Subtle	Extremely small	1
0.5~1.5	Small	Slight	2
1.5~3.0	Generally	Obvious	3
3.0~6.0	Larger	Extremely obvious	4
>6.0	Big	Strong	5

fully meet consumers' expectations for nonheritage and creative products. Among them, the user's experience in nonheritage and creative products is given in Table 4.

As given in the table, users are not very satisfied with the current experience of nonheritage creative products, with an average score of 3.35. In addition, users have high recognition of cultural and creative products, and the recognition experience scores of nonheritage cultural creative products are only 1.25. This shows that the product must have a good user experience and product recognition to be favored by users.

Different populations will have different psychology of nonheritage and creative products, which will directly affect their choice of products. Therefore, it is necessary for us to understand the degree of acceptance and love of consumers of different occupations for nonheritage creative products. Among them, consumers of different occupations on nonheritage and creative products are given in Table 5.

This table shows that consumers of different occupations have different choices for nonheritage and creative products. Among them, for students and cultural groups, they are more willing to pay for nonheritage in-cultural products, and their degree and acceptance have basically reached 6.9. In addition, for non-genetic staff, they are the crowds who are most willing to create and purchase nonheritage creative products. However, not all groups have a positive attitude towards nonheritage and creative products like the above two groups. Among them, for some freelancers, they are more reluctant to invest money into nonheritage and creative products, and for some small and microenterprises, they are not willing to make related consumption.

In the product design and development stage, product design based on computer vision can maximize product quality and reduce product defect rates. In order to further improve the quality of the product, we also need to strictly control the quality inspection of the product to minimize the color difference of the product. Comparison of computer vision recognition accuracy under different methods is shown in Figure 5.

This figure shows that the average recognition accuracy of DE-GWO-SVM is the highest, and it can reach 97.14%, which shows that it has the most detailed distinguishing color difference. Among them, the recognition accuracy of GWO-SVM is slightly better, and the comprehensive recognition accuracy can reach 95.17%. In addition, we can see that the recognition accuracy of ELM is relatively low, which shows that it has a certain shortage of non-linear relations.

TABLE 4: User experience of non-legacy creative products.

Project	Feedback	Score1	Score2	Average score
Experience	Fine	3.1	3.6	3.35
Resolution	Not good	1.1	1.4	1.25
Reducibility	Very good	7.2	6.6	6.9
Features	Good	4.5	4.0	4.25
Quality	Fine	4.1	3.9	4.0

TABLE 5: Consumers of different occupations' choice of non-legacy cultural and creative products.

	Degree of liking	Acceptance	Level of worry	Purchase index
Entrepreneur	5.2	6.6	1.2	0.6
Student	4.3	6.9	2.4	5.6
Educators	5.1	7.2	5.1	6.1
Heritage bearer	7.9	8.9	6.1	9.2
Freelance	2.1	3.4	0.6	0.5
Other	3.4	4.1	1.1	1.2

In the process of product design, we often need to process various colors, so clustering and dividing colors can effectively reduce the misuse of colors. At the same time, with the help of computer vision, we can further strengthen the division of colors and reduce the impact of light on product color. The final pass rate and quality inspection of the product are shown in Figure 6.

Figure 6 shows that the quality of computer vision and creative products has been strictly controlled. Among them, we can clearly see that the product's qualification rate has reached 80%. And in the same batch of products, products based on computer vision often have relatively low residual rates, and the number of residual products is less than 10.

The product can officially enter the market after completing the final quality testing and factory packaging. But unlike the quality inspection session, this time it is not professional quality inspectors but our consumers that test the practicality and applicability of products. Cultural and creative products themselves have strong cultural attributes, so this determines its product positioning and market positioning. The quality of the product can only illustrate the characteristics of the product itself, but the ultimate mission of the product still needs to be favored by users. The quantitative index based on user experience is shown in Figure 7.



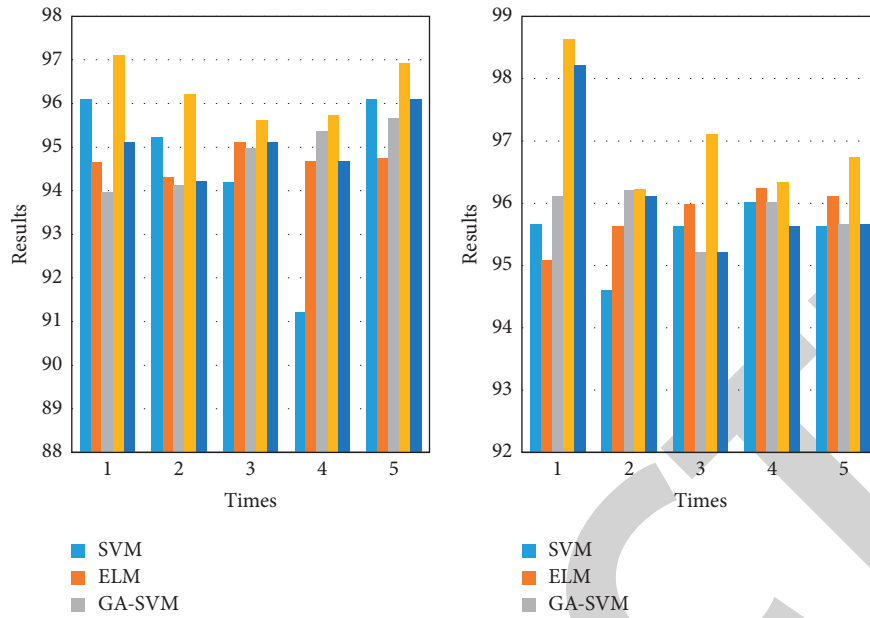


FIGURE 5: Comparison of recognition accuracy of different methods.

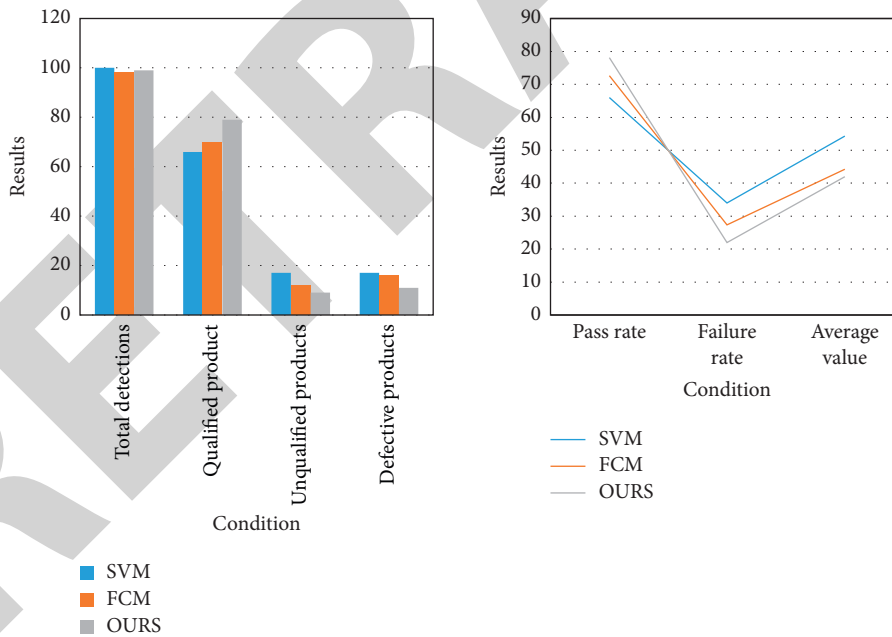


FIGURE 6: Qualification rate and quality inspection.

The figure shows that different subjects hope that the product has different characteristics. Among them, users mainly hope that products can gather ornamental and practicality, and the price of best products is not too expensive. From the perspective of indicators, users' concern about price is 7.2, which shows that the cheap products are often favored by consumers. But at the same time, we also

see that consumers also value the inherent value of the product very much, and their attention has reached 6.9. This shows that for ordinary products, merchants need to make choices between value and cost. At the same time, for cultural and creative products, merchants should further tap their internal value, continuously enlarge the cultural connotation projected by the product, and attract consumers to pay.

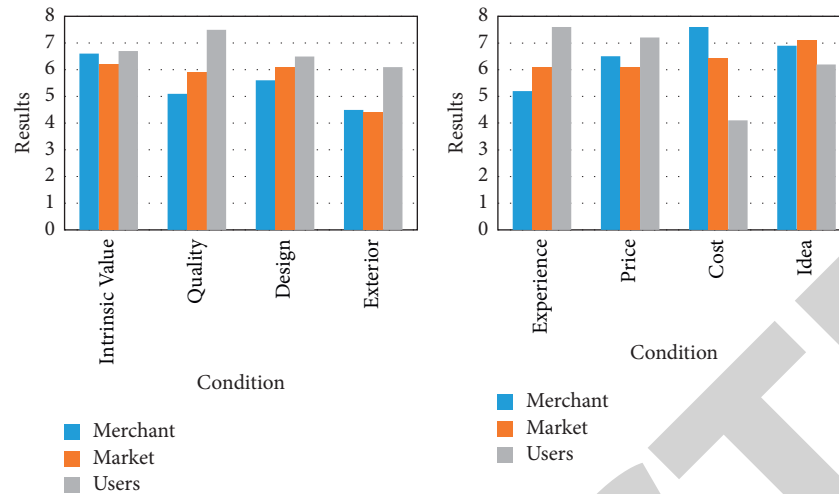


FIGURE 7: Quantitative indicators of products based on user experience.

## 5. Conclusion

During the design and development of the entire product, the user experience strategy plays a support and dominant role. It contains business strategies, marketing strategies, product strategies, and other related plans and plans. The article starts from nonheritage and creative products, which first introduces its core concepts and related development status, and then the article is based on user experience strategies. From this level, relevant suggestions are made for the development of nonheritage-based creative products. Secondly, the article focuses on analyzing the role of computer vision in the design and development of intangible cultural heritage products, and innovates the quality inspection method for it. Based on this, the article further proposes to amplify the cultural connotation of intangible cultural heritage products and tap their core values. This provides a certain reference for product development designers, which can make them develop better products in the development of better products, and also promote the protection and reasonable development and utilization of nonheritage cultural relics. The design and development of cultural and creative products cannot be limited to the level of industrial efficiency, but should also improve the uniqueness and market share of the product. However, due to time, the article did not study the consumer psychology of consumers when buying nonheritage creative products. In the future, this article will analyze the factors that affect the development of nonheritage and creative products from multiple levels, and are committed to promoting the development of nonheritage culture.

## Data Availability

No data were used to support this study.

## Conflicts of Interest

The authors declare that there are no potential conflicts of interest in this study.

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