# Research on the Design of Aviation IP Trendy Toy Products for Young Users

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**Abstract.** Aviation cultural and creative products need to break through the predicament of homogenization and precisely meet the demands of young people. This study takes Zhengzhou Airport as an example, combines semiotics and the KANO model, analyzes the value of aviation cultural IP symbols and user demands, and explores the root causes of "high attention and low recognition" of traditional products. Research shows that the accumulation of technical symbols, the abstraction of spiritual narratives and the shallowness of regional cultural integration are the main factors restricting the cultural identity of young people. Propose a design strategy centered on empowering experience upgrades with technology and strengthening emotional connections through cultural narratives, promoting the transformation of aviation cultural and creative products towards "cultural identity", and providing references for the industrialization of aviation IP and the innovation of national trends. [1]

**Keywords:** Aviation culture IP ; Trendy toy design ; Young users ; Semiotic analysis; KANO model。

## 1 Introduction

As national trend culture thrives, aviation cultural and creative products face severe homogenization, failing to meet young users' demands for personalization and emotional resonance. Generation Z, the main consumer group, values interactive experiences and cultural integration, yet traditional products show a "high attention, low recognition" paradox. This study uses Zhengzhou Airport as a case, applying semiotics and the KANO model to analyze aviation IP symbols and user needs. It aims to break homogenization by merging technology with cultural narratives, guiding aviation trendy toys toward cultural identity.

## 2 Research Background

With the rise of national trend culture, the market demand for aviation cultural and creative products has grown. However, the products are highly homogeneous, and enterprises adopt similar designs and functions, resulting in a lack of uniqueness[2].


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Although aviation technological innovation provides more design support, it also puts forward higher requirements for cultural connotations. As the main consumers, Generation Z pays more attention to personalization, experience and social value. They are eager for interactive products and hope to integrate familiar cultural elements to create resonance. A thorough understanding of its demands is crucial for breaking through homogenization and achieving innovation.

# 3 Research Overview

## 3.1 Current Situation

Under the impetus of national trends and aviation strategies, aviation cultural and creative products are facing a contradiction of high attention but insufficient recognition. Young users are concerned about growth, but the homogenization of products and the superficial cultural expression have led to a lack of emotional resonance. The annual foot traffic of the cultural and creative store at Zhengzhou Airport is 500,000, but the repurchase rate is less than 18%. Semiotic analysis reveals that aviation IP encompasses three dimensions: technology, spirit, and region. The technology symbol serves as the explicit entry point, the spirit symbol requires concrete narrative, and the region symbol integrates cultural roots to break through homogenization. This system breaks through "symbol stuffing" through hierarchical value mining and builds the foundation of cultural identity.

## 3.2 Research Framework Design

This research will take the KANO model as the core of the aviation cultural and creative product design strategy framework (as shown in Figure 1)[3].

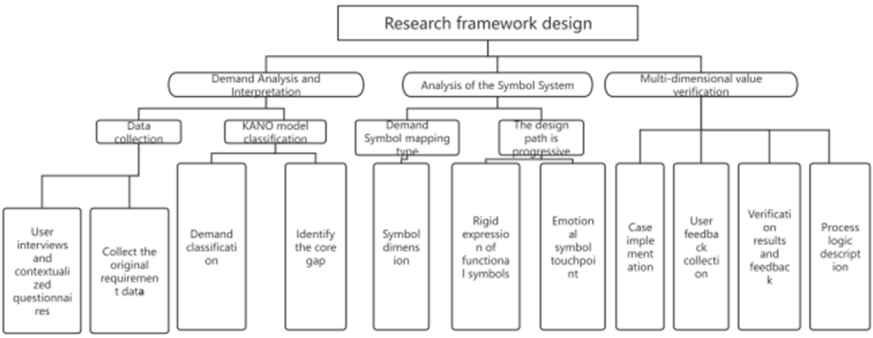


**Fig. 1.** Research framework design

# 4 Empirical Research and Data Analysis

## 4.1 Data Collection and Sample Characteristics

This research was conducted on young users aged 18 to 35 in the cultural and creative stores at Zhengzhou Airport Economic Zone, providing data support for subsequent studies (As shown in Table 1).

**Table 1.** Frequency analysis results

| Name | Option | Frequency | Percentage (%) | Cumulative percentage (%) |
|---|---|---|---|---|
| Age | <18 | 2 | 2.00 | 2.00 |
| | 18~25 | 43 | 43.00 | 45.00 |
| | 26~30 | 45 | 45.00 | 90.00 |
| | 30> | 10 | 10.00 | 100.00 |
| Occupation | Student | 13 | 13.00 | 13.00 |
| | White-collar worker of the company | 35 | 35.00 | 48.00 |
| | Professional | 9 | 9.00 | 57.00 |
| | Public official | 12 | 12.00 | 69.00 |
| | Freelancer | 31 | 31.00 | 100.00 |
| Annual income | <50,000 | 29 | 29.00 | 29.00 |
| | 50,000 to 100,000 | 46 | 46.00 | 75.00 |
| | 100,000 to 200,000 | 14 | 14.00 | 89.00 |
| | 200,000> | 11 | 11.00 | 100.00 |
| Educational background | Junior college | 8 | 8.00 | 8.00 |
| | Undergraduate | 32 | 32.00 | 40.00 |
| | Master's degree | 47 | 47.00 | 87.00 |
| | Doctor | 13 | 13.00 | 100.00 |
| Gender | male | 43 | 43.00 | 43.00 |
| | female | 57 | 57.00 | 100.00 |
| Consumption range | Less than 100 yuan | 22 | 22.00 | 22.00 |
| | 100-300 yuan | 49 | 58.00 | 80.00 |
| | 300 to 1,000 yuan | 18 | 17.00 | 97.00 |
| | 1,000 to 2,000 yuan | 6 | 2.00 | 99.00 |
| | More than 2,000 yuan | 5 | 1.00 | 100.00 |
| | Total | 100 | 100.0 | 100.0 |

## 4.2 Demand Classification and Application of KANO Model

Based on questionnaire and interview data, the research focuses on three symbolic dimensions: technology, spirit, and region. Through text analysis, high-frequency demand word frequencies are extracted, and ultimately 12 core demands are formed[4]. The forward and reverse problem design of the KANO model is adopted, and the requirement attributes are classified in combination with user feedback.

As can be seen from (Table 2), it indicates that the consumer group recognizes and expects the design of aviation IP trendy toy products for young users.

**Table 2.** Summary of analysis results of KANO model

| Function/Service | A | O | M | I | R | Q | Classification result | Better | Worse |
|---|---|---|---|---|---|---|---|---|---|
| Stable foundation (Positive) & Stable Foundation (Negative) | 8% | 3.00% | 41% | 21.00% | 27.00% | 0% | Essential attributes | 15.07% | -60.27% |
| Material Safety (Positive) & Material Safety (Negative) | 16% | 2.00% | 37% | 23% | 22% | 0% | Essential attributes | 23.08% | -50.00% |
| Lightweight materials (positive) & Lightweight materials (negative) | 15% | 5% | 15% | 46% | 19% | 0% | Undifferentiated attribute | 24.69% | -24.6% |
| Multi-device compatibility (positive) & Multi-device compatibility (negative) | 12.00% | 4.00% | 40.00% | 17.00% | 27.00% | 0.00% | Essential attributes | 21.92% | -60.27% |
| Packaging Design (Positive) & Packaging Design (Negative) | 17.00% | 3.00% | 12.00% | 45.00% | 23.00% | 0.00% | Undifferentiated attribute | 25.97% | -19.48% |
| Cultural Symbol Metaphor Design (Positive) & Cultural Symbol Metaphor Design (Negative) | 72.00% | 17.00% | 2.00% | 5.00% | 1.00% | 3.00% | Charm attribute | 92.71% | -19.79% |
| User Co-creation Customization (Positive) & User Co-creation Customization (Negative) | 54.00% | 6.00% | 11.00% | 12.00% | 14.00% | 3.00% | Charm attribute | 72.29% | -20.48% |

Note: A: Charm attribute,O: Expectation attribute,M: Essential attribute,I: Undifferentiated attribute,R: Reverse attribute,Q: Suspicious attribute

# 5 Design and Application

## 5.1 Design Strategy Summary and Problem Focus

The core contradiction of aviation cultural and creative products is "high attention but low recognition". The KANO model shows that the demands of young users are divided into three layers: basic stability, material safety and multi-device compatibility are essential demands; Expect demand to lead the smoothness of the experience;

Co-creation of cultural symbols, as a demand for charm, is the key to enhancing emotional resonance[5]. Lightweight materials and packaging are classified as undifferentiated attributes, confirming that users place more emphasis on the depth of cultural narratives. The conclusion indicates that aviation IP collectible toys need to take "technology as the foundation, spirit as the core, and region as the vein", and reconstruct emotional connections through technological empowerment (as shown in Figure 2).

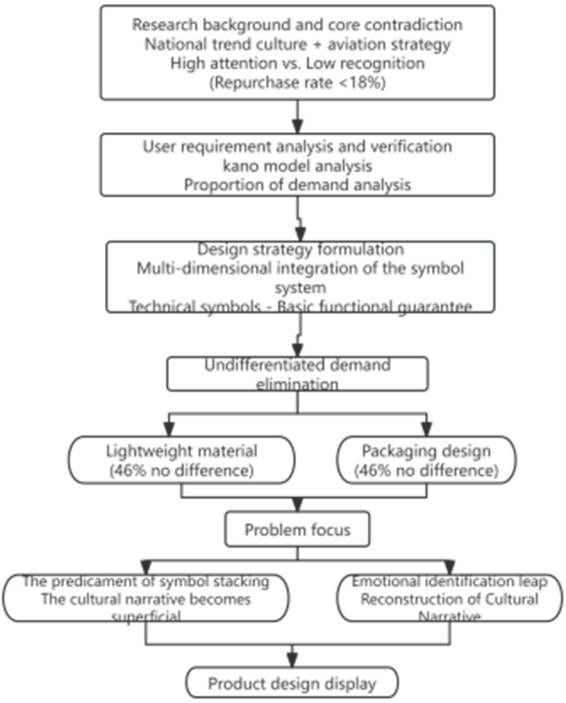


**Fig. 2.** Design concept framework

## 5.2 Design Practice: Aviation-Themed Mobile Phone Stand Blind Box

### 5.2.1 Design Concept and Symbol Deconstruction.

This design takes the aviation culture IP as the core and relies on the three-dimensional symbol system of technology, spirit and region to construct the cultural core of the product:

The design inspiration comes from the aesthetics of aviation engineering. The aircraft model is abstracted as a frame structure element, combined with matte metal and high-precision injection molding process (as shown in Figure 3), highlighting the aesthetic appeal of technological industry. The base of the bracket adopts a streamlined wing contour, and the support structure integrates the geometric texture of clouds, combining functionality with the visual identity of an aviation theme.

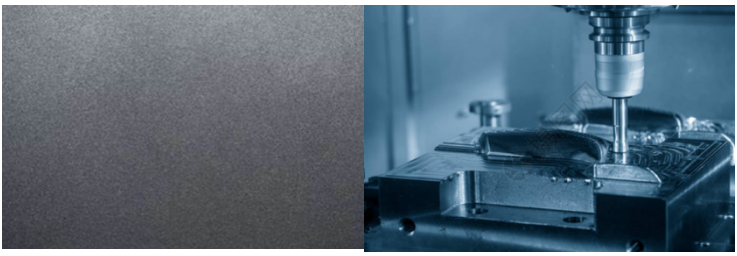

**Fig. 3.** Matte metal and high-precision injection molding process

The character designs are based on the aviation profession, and each role embodies different spiritual dimensions - such as the pilot's spirit of exploration and the awareness of ground crew collaboration. Through the concretized expression of clothing and tools, the abstract values are transformed into perceivable cultural narratives (as shown in Table 3)[6].

**Table 3.** Product Corresponding Model

| Cargo aircraft Y-20 | Passenger aircraft C919 | Helicopter "Straight 20" | Fighter jet J-20 | Amphibious aircraft AG600 |
|---|---|---|---|---|
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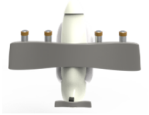
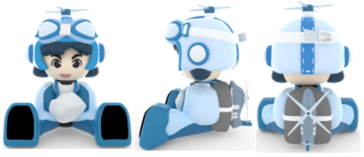
|  |  |  |  |  |
|  | | | | |

Regional symbols: In line with Zhengzhou's positioning as the "Silk Road in the Air", regional cultural symbols are integrated into the design details [7]. Realize the local integration of aviation culture and the historical context of Central Plains, and avoid the superficial collage of cultural elements.

### 5.2.2 Functional and Experience Innovation.

Based on the demand stratification of the KANO model, this design meets the core demands of young users through the following paths [8].

Essential: Use high-quality ABS resin and silicone anti-slip pads for sturdiness, durability, and stability. Modular design supports multi-angle adjustment, adapting to various phone sizes and scenarios, solidifying functionality.(as shown in Figure 4).

**Fig. 4.** Usage scenarios

Through differentiated design of professional roles, such as the limited edition "Space Commander" styling and scenario-based packaging (as shown in Figure 5), the collection value and social dissemination ability are enhanced, meeting users' demands for personalization and a sense of ceremony.

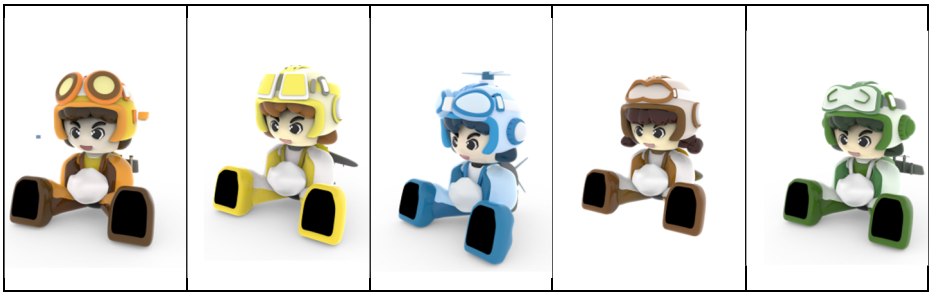


**Fig. 5.** Five types of pilot models

Charm demand: Integrate cultural symbol metaphor design into product details. Take the "mobile phone stand blind box" as an example to achieve the transformation of theoretical models into products, promoting the industrialization of aviation IP and the innovation of national trends (as shown in Figure 6).


**Fig. 6.** Mobile phone stand corresponding to the decorative box

## 6 Conclusion

This study examines the "high attention but low recognition" of aviation cultural products, considering national trends and aviation power construction. Using Zheng-

zhou Airport products as an example, semiotics and KANO model analyze cultural IP value and youth demands. Homogeneity stems from technical symbol accumulation and insufficient spiritual-regional culture integration. Proposed strategy: "technological foundation - spiritual empowerment - regional activation" for value resonance through tech interaction and cultural narrative.

Empirical evidence shows stratified youth demands: basic functions for competition bottom line, interactive social for experience, cultural metaphors and customization for identification. Verified collaborative innovation via "Aviation Career Blind Box", providing a practical aviation IP model.

## References

1. Xiang Yong. "Creator Economy" Leads the New Era of Digital Cultural Industry [J]. People's Forum,2020,(19):130-132.
2. Wang Hongping. Research on Product Innovation of Property Insurance Companies [J]. Times Finance,2016,(23):229+239.
3. Chen Xiaofei. Research on Cultural and Creative Product Design Based on User Demands from the Perspective of Service Design [J]. New Meiyu,2024,(05):88-92.
4. the rain. Guizhou long shun digital wen gen product experience design [D]. Beijing university of posts and telecommunications, 2023. The DOI: 10.26969 /, dc nki. Gbydu. 2023.003039.
5. Liu Wei, Yan Manqing. Individual change under the contemporary youth collectivism education path optimization analysis [J]. Journal of China youth academy of social sciences, and 2023 (01) : 50 and 58. DOI: 10.16034 / j.carol carroll nki. 10-1318 / c. 2023.01.011.
6. Zhang Xiaopeng. Research on the Path of Building an "Air Silk Road" Comprehensive Pilot Zone in Inland Areas [J]. Regional economic review, 2021 (01) : 155-160. The DOI: 10.14017 / j.carol carroll nki. 2095-5766.2021.0019.
7. Wu Yanjun. Research on the Experience Design of Small Household Appliances for Young People Living Alone [D] The northern industrial university, 2024. DOI: 10.26926 /, dc nki. Gbfgu. 2024.000904.
8. Dai Zhengzong, Ma Ying. "Future City" plays a Bright Card [N]. China Finance and Economics News, April 29,2025 (005).