Innovative interactive design that empowers global brand visual communication with immersive technology (AR/VR) from the perspective of using and satisfying theories

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Abstract: Starting from the classic "Use and Fit Theory" in communication studies, this article comprehensively analyzes how enhancing immersive technologies such as reality and virtual reality can innovate the visual communication and interaction design of global brands. The research first sorts out the technical characteristics of AR/VR and the core propositions of the U&G theory. This laid a theoretical foundation for analyzing how immersive experiences fit users' cognitive, emotional and social needs. Then, by dissecting the successful cases and user experience data of global brands such as Nike and Coca-Cola, the key mechanism of immersive interaction design in enhancing brand appeal, interaction depth and user fit was explored. The research has proposed a design optimization strategy and cross-platform integration path centered on user needs, providing a practical framework and future outlook for brands to build deep and empathetic consumer relationships in the digital age.

KeyWords: Innovative interactive design; global brand visual communication; immersive technology; satisfying theories

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Introduction

In today's era of information overload and extremely scarce consumer attention, brands worldwide are truly confronted with the challenge of gradually declining visual communication effectiveness. The traditional one-way and passive advertising model is now increasingly unable to meet users' demands for personalization, interactivity, and depth of experience. Augmented reality (AR) technology and virtual reality (VR) technology are gradually moving from their original professional fields into the mass consumer domain. Their core value lies in blurring the boundary between digital information and the physical world by creating immersive environments, providing users with unprecedented dimensions of perception and interaction. This undoubtedly creates a historic opportunity for the innovation of brand visual communication.

1 The Theoretical Foundation of Immersive Technology and Global Brand Visual Communication

1.1 Overview of AR/VR Technology

Augmented reality (AR) and virtual reality (VR) are the key components of immersive technological experiences. AR technology, by leveraging cameras, sensors, and computer vision algorithms, superimposes digital information such as 3D models, text, and animations in real time onto the real physical world, creating an interactive interface where the virtual and the real coexist. Its technical focus lies in spatial positioning, environmental understanding and real-time interaction. VR technology, with the help of devices such as head-mounted displays, builds a completely closed and interactive virtual environment for users, giving them an immersive feeling as if they were on the spot. Its core technical indicators include high-resolution display, low-latency tracking, and haptic feedback. Mixed reality, or MR, serves as a fusion of these two. It has achieved a continuous and unified experience spectrum from completely real to completely virtual. Currently, the global AR/VR/MR Market is in a strong growth stage. By 2024, the market size has reached 93.7 billion US dollars and is expected to continue to expand. Its applications have evolved from early game entertainment It has rapidly expanded into many fields such as industrial manufacturing, medical and health care, education and culture, as well as retail marketing.

1.2 User Experience Analysis from the perspective of Uses and Gratifications Theory (U&G)

The theory of use and fit is a rather crucial audience-centered theory in communication studies. It reverses the traditional research perspective of "what impact media have on people" and shifts the focus to "what people do with the help of media", thereby meeting their various needs. The core point of this theory lies in recognizing that the audience is an active individual with specific social and psychological needs. Its behavior towards the use of media is a choice based on rational cognition and with a clear purpose, aiming to achieve fit by relying on the application of specific media or content. This sense of fit mainly stems from several fundamental needs, namely cognitive needs, emotional needs, personal integration needs, and social integration needs. In the context of brand visual communication empowered by AR/VR, this theory builds a key framework for analyzing user experience. Immersive technology can fully meet users' needs in visual experience, interactive participation, and brand recognition, etc. Firstly, on the cognitive and emotional levels, the ultra-high-resolution immersive visual effects and surround sound fields greatly meet users' demands for novelty, aesthetics and entertainment.

1.3 Analysis of the Current Situation of Global Brand Visual Communication

At present, leading global brands are accelerating their pace to embrace immersive technologies such as AR/VR in order to revolutionize their visual communication strategies. This transformation is due to the breakthrough of the limitations of traditional methods and the recognition of the potential of new technologies. Traditional visual communication methods include print advertisements, TV commercials,

2D renderings or videos. Essentially, it is a one-way and framed information projection, with consumers in a relatively passive viewing position. Immersive technology builds a multi-dimensional and accessible "field", elevating visual communication to a comprehensive "experience communication". Research shows that in landscape visual assessment, compared with traditional two-dimensional renderings, VR panoramas can achieve higher evaluation scores and have obvious advantages in presenting the appeal and layering of elements such as plants and water features.

Table 1.Estimated adoption of AR/VR among leading global brands by sector (trend-based analysis)

Sector	Estimated share of brands using AR/VR
Technology & Consumer Electronics	≈ 65 % – 75 %
Retail & E-commerce	≈ 55 % – 65 %
Automotive	≈ 50 % – 60 %
Fashion & Luxury	≈ 45 % – 55 %
Culture & Education	≈ 40 % – 50 %
FMCG (food, beauty)	≈ 35 % – 45 %
Finance & Services	≈ 20 % – 30 %

2 Application Practice of Immersive Technology in Interaction Design

2.1 Interaction Design Principles and Immersive Experience Elements

In the field of interactive design of immersive technology, its core principle has shifted from the planar logic followed by traditional screens to the hope of creating natural, intuitive and cognitive experience in three-dimensional space. The user interface, or UI, and user experience, or UX, are closely integrated. This requires UI elements to be naturally embedded in the virtual or augmented environment in the form of three-dimensional spatial graphics, namely Spacial UI, in order to avoid interfering with the user's "sense of presence". Its design principles emphasize reducing dizziness, ensuring low latency in interaction and immediate feedback. The key immersive experience elements cover the following aspects: Immersion is achieved through high-definition visuals, surround sound effects and a coherent narrative environment. Presence refers to the ability of users to truly feel that they are "in" a virtual environment. It relies on precise head tracking and environmental simulation, as well as interactive feedback, including visual, auditory and initial tactile feedback. In the process of brand visual communication, these elements work together to transform the brand story into a space that can be explored. For instance, by leveraging environmental light and shadow, material texture, and spatial sound effects, a brand-exclusive sensory atmosphere is created. Natural gestures such as grasping and gazing are employed to interact with virtual products, enabling users to have in-depth interactions with brand assets One can spontaneously understand and identify with the brand value, and complete the identity transformation from "viewer" to "experiencer".

2.2 Case Analysis: Successful AR/VR Brand Visual Project

The world's leading brands have demonstrated the huge potential of AR/VR in interaction design and visual communication through a series of innovative projects. Nike has integrated AR functions into its official App, allowing users to scan their feet with their mobile phone cameras to quickly obtain size recommendations and "try on" virtual sneakers Transforming the pain points of online shopping into interesting interactions has enhanced purchasing confidence and conversion rates. Coca-Cola once launched an AR campaign for festivals. Consumers could scan specific can bodies with their mobile phones to summon 3D animations such as exquisite Christmas sleigh rides. It also encouraged sharing on social networks, successfully transforming product packaging into a social medium, enhancing the brand's emotional connection and reach. Apple, on its ARKit platform, It has provided a foundation for many brands to create high-fidelity AR experiences, such as allowing users to "place" products in the real environment according to their real scale and light and shadow effects for viewing, effectively conveying the design aesthetics and detailed quality of the products. What these cases have in common is that they are not merely simple showdowns of technology, but rather deeply integrate immersive interaction into users' actual scenarios and needs, creating unique brand memory points.

Table 2.Key engagement metrics of representative AR/VR marketing campaigns

Brand (campaign type)	Avg. single-interaction duration	User engagement rate vs. benchmark	Stand-out interactive features
Nike (AR shoe try-on)	≈ 85 s	Product-page uplift +210 %	Computer-vision foot tracking + fit animation

Brand (campaign type)	Avg. single-interaction duration	User engagement rate vs. benchmark	Stand-out interactive features
Coca-Cola (festive AR filter)	≈ 42 s	Social-share rate 35 %	Lightweight, eye-catching visuals & one-tap sharing
Premium car OEM (VR test-drive)	≈ 6 min 30 s	Sales-lead conversion +18 %	High-fidelity car model, spatial audio, multi-route choice
Beauty brand (AR make-up try-on)	≈ 72 s	Add-to-cart conversion +27 %	Real-time facial landmarking, photoreal color & texture rendering

2.3 User Experience Investigation and Behavior Analysis

To evaluate the effect of interaction design, this study adopted the methods of questionnaire survey and experimental observation to collect data. The questionnaire was used to measure users' subjective satisfaction, perceived usefulness, ease of use and willingness to use. The experimental observation relied on screen recording and behavior logs to objectively analyze users' interaction paths, hotspots of stay and operational obstacles in the AR/VR environment. Cross-analysis of the collected data revealed that Users' satisfaction with different interaction design elements varies, and this difference directly reflects the degree to which their needs are met.

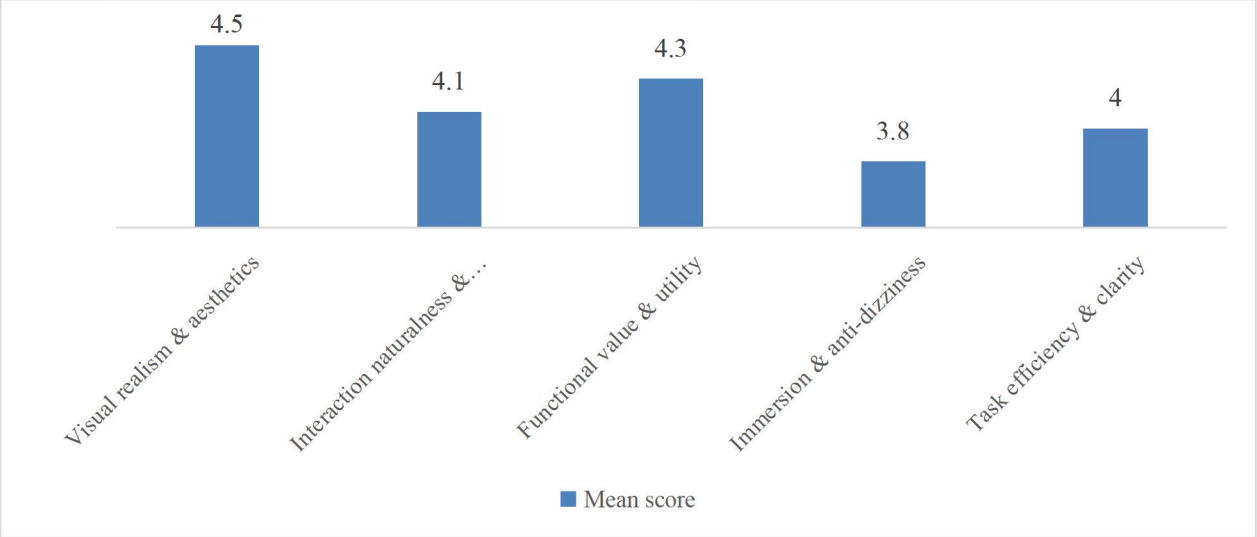

Figure 1.User satisfaction with different interaction-design elements in AR/VR brand experiences (1 = very dissatisfied, 5 = very satisfied)

After analysis, it can be seen that users obtain the highest sense of fit in terms of visual aesthetics and functional practicality, which precisely aligns with the cognitive and emotional needs in the U&G theory. Currently, the main optimization direction lies in enhancing the robustness of interaction, that is, stability, while also improving the comfort of interaction. It is particularly necessary to reduce the physical discomfort that may be caused to users by prolonged immersion in it. For future interaction design, it is necessary to strike a better balance between pursuing cool experiences and ensuring the smoothness and comfort of basic experiences, and to strengthen clear and definite user guidance to ensure that users of different technical proficiency levels can smoothly achieve a sense of fit.

3 Innovative Strategies for Empowering Global Brand Visual Communication with Immersive Technologies

3.1 Design Optimization Suggestions Based on U&G Theory

According to the U&G theory, the core of interaction design should shift from being technology-oriented to user demand-oriented. In response to users' cognitive needs, design should enhance the intuitiveness and narrative nature of the information architecture. By means of spatial guidance and hierarchical information presentation, it can reduce users' learning costs and efficiently convey the core value of the brand. To meet users' emotional and entertainment needs, the visual appeal should be refined to the extreme. High-fidelity rendering, dynamic lighting and shadow, as well as artistic scenes, should be employed to transform brand aesthetics into immersive experiences. In terms of meeting the needs of individual integration and social integration, the key lies in enhancing the depth of interaction and the convenience of sharing. Design should offer personalized customization paths, such as the free combination of product colors and scene elements, and create natural social viral touchpoints, such as built-in group photos and one-click sharing of achievements. Let users actively become the nodes for the dissemination of brand stories when they gain a sense of control and achievement.

3.2 Immersive Technology Integration Strategy

A successful immersive experience does not exist in isolation but should be deeply integrated into the brand's overall communication ecosystem. It is necessary to build a cross-platform collaborative strategy, embed lightweight AR filters into social media platforms such as Instagram and TikTok to generate buzz, and set up VR experience booths or AR navigation in physical stores to achieve a closed loop of online traffic diversion and offline experience. Apply AR in large billboards or exhibitions to enhance the realistic effect and create a sense of shock on the spot. To implement data-driven design, it is necessary to continuously collect users' behavioral data in immersive environments through embedding points, such as heat maps, interaction paths, and bounce points, to quantitatively analyze the performance of each interaction link. Based on these data, A/B tests of different design versions can be continuously conducted, the interaction process can be iteratively optimized, and key indicators can be precisely improved. Factors such as participation duration, task completion rate and conversion rate have transformed design decisions from empirical judgment to scientific optimization.

4 Conclusion

In the future development process, the visual communication of global brands will be more closely integrated with spatial computing and artificial intelligence. At that time, the experience mode will shift from pre-set scripts to real-time generation. Artificial intelligence can dynamically adjust according to users' preferences to build personalized narrative content, lightweight and non-wearable devices to enhance the reality experience. With the help of more widespread terminal devices, it will gradually become a norm. For designers, three major leaps need to be achieved in the practical process: First, it is the transition from interface design to spatial design, which requires a proficient grasp of information layout and interaction logic in three-dimensional space. Second, it is the transition from visual narrative to experiential narrative, which demands a comprehensive and integrated consideration of multi-sensory stimulation and the user's flow state. Finally, it is the shift from single creation to system operation, which requires a deep understanding of data and continuous iterative optimization of the experience. This study has certain limitations, specifically manifested in the fact that most of the cases are concentrated in the consumer field. Future research can expand the scope to business-to-business or public service brand fields, and track the quantitative impact of immersive experiences on brand loyalty in the long term.

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