

Research on Interaction Design of Chinese Baijiu E-commerce Platforms Based on the Three-Level Theory of Emotional Design

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Abstract: *Objective:* As the e-commerce competition paradigm shifts from efficiency to experience, baijiu platforms urgently require emotional upgrades. This paper takes Norman's Three-Level Theory of Emotional Design (visceral, behavioral, and reflective) as the core framework to systematically study its application in the interaction design of baijiu e-commerce platforms. After explaining the significance of the theoretical framework, this paper examines the current dilemmas of mainstream domestic platforms in three aspects: sensory homogeneity, instrumental interaction, and superficial cultural representation. Subsequently, an integrated design strategy spanning the three levels is proposed: the visceral level focuses on differentiated visuals and immersive sensory interfaces; the behavioral level emphasizes scenario-based shopping guidance and emotional processes; the reflective level delves into cultural narratives and the construction of emotional communities. By conceptualizing the “JiuYun” (baijiu Charm) platform prototype for theoretical validation, it is preliminarily confirmed that this strategy can effectively enhance user experience across all levels. This study provides a systematic theoretical tool and design pathway for the experiential upgrade and cultural value transmission of baijiu e-commerce platforms.

Keywords: Three-Level Theory of Emotional Design; baijiu E-commerce; Interaction Design; User Experience; Design Strategy; Prototype Validation

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1. Lack of Emotional Experience and the Demand for Differentiation in baijiu E-commerce Platforms

Chinese baijiu culture has a long history and rich cultural heritage. baijiu consumption is not only about satisfying material needs but also serves as an important carrier for emotional communication, cultural inheritance, and social etiquette. In recent years, with the deepening of the internet economy, baijiu e-commerce platforms have gradually become a major channel for consumers to purchase baijiu. However, most current platforms still focus on functionality and transaction efficiency, showing significant shortcomings in emotional experience, cultural expression, and meeting users' deeper needs. How to enhance users' emotional experience through interaction design has become a key factor for baijiu e-commerce platforms to achieve differentiated competition.

Emotional design theory emphasizes that design should go beyond functionality to touch users' emotional and psychological levels. Donald Norman's Three-Level Theory of Emotional Design (visceral, behavioral, and reflective) provides a systematic framework for the experiential design of e-commerce platforms^[1]. The visceral level concerns users' immediate perceptions and emotional responses; the behavioral level focuses on efficiency and pleasure in use; while the reflective level involves cultural meaning, personal memory, and long-term identity. Guided by this theory and considering the cultural context of Chinese baijiu consumption, this paper explores emotional pathways for the interaction design of baijiu e-commerce platforms, aiming to enhance the depth of user experience and the cultural value of the platforms.

2. The Three-Level Model of Emotional Design and Its Structural Significance in baijiu E-commerce

Emotional design serves as a critical bridge connecting products to users' deep psychological needs^[2]. Donald Norman's Three-Level Theory of Emotional Design divides user experience into three interconnected, progressively deeper levels: visceral, behavioral, and reflective. This theory provides a highly explanatory and instructive systematic framework for understanding and shaping the holistic user experience of baijiu e-commerce platforms.

2.1. Visceral-Level Design is the Starting Point of Emotional Response

The visceral level is the starting point of emotional response, corresponding to users' most direct and rapid sensory and emotional feedback toward a design. In the digital interface of baijiu e-commerce platforms, this level is primarily manifested through the immediate impact of visuals and senses. Its core lies in establishing positive emotional anchors at the moment users encounter the platform through elements such as color, layout, imagery, motion effects, and sound design. For example, high-resolution images showcasing the crystalline texture of the baijiu body or the exquisite texture of the bottle, supplemented by dynamic visual effects of flowing baijiu, can directly evoke users' aesthetic pleasure and curiosity for exploration. The goal of visceral-level design is to achieve "love at first sight" by creating a sensory atmosphere that feels premium, trustworthy, or enjoyable, thereby laying a positive emotional foundation for subsequent interactions.

2.2. Behavioral-Level Design Focuses on the Experience During User-Product Interaction

The behavioral level focuses on the experience during the interaction process itself between users and products, with its core being functionality, usability, and efficiency. In baijiu e-commerce platforms, it permeates the entire interaction journey, from browsing, searching, comparing prices, and decision-making to payment and after-sales service. Excellent behavioral-level design entails clear navigation, intelligent search and recommendations, streamlined operational flows, and transparent, timely feedback. Its measure of success lies in whether the interactions are smooth, efficient, and empower users with a sense of control. The essence is to make users feel that the platform is "easy to use," allowing them to complete baijiu-purchasing tasks with ease, efficiency, and even enjoyment. This reliable and pleasurable operational experience is key to building user trust and fostering habitual usage (user stickiness).

2.3. Reflective-Level Design is the Highest Level of Emotional Experience

The reflective level represents the highest tier of emotional experience, involving users' deep personal associations, cultural understanding, and value identification^[3]. It transcends immediate sensory perception and operation, connecting closely with users' self-image, memories, cultural background, and sense of social belonging. For baijiu e-commerce, reflective-level design is central to building differentiated advantages and emotional loyalty. It is realized through in-depth narratives of brand history and brewing techniques, emotional enhancement of specific consumption scenarios (such as gifting or celebration), community resonance formed through user tasting and sharing, and the personal emotional expression embedded in customized services. When users not only purchase a product through the platform but also gain

cultural insight, a sense of community belonging, or a unique emotional memory, the platform successfully reaches the reflective level, thereby fostering a lasting and stable user relationship.

In summary, the three levels of emotional design do not exist in isolation; rather, they form a progressive and cyclical holistic experience loop. The appeal of the visceral level stimulates interaction, the smooth experience of the behavioral level lays the groundwork for reflective acceptance, and the deep identification constructed at the reflective level, in turn, reinforces users' preference for and tolerance of the previous two levels. For baijiu e-commerce, the systematic application of this theory is a key pathway to transitioning from "selling products" to "providing experiences" and from "completing transactions" to "building relationships." The following sections will conduct specific analysis based on this framework.

3. Analysis of Interaction Design in Chinese baijiu E-commerce Platforms Based on the Three-Level Theory

Examined through the framework of the Three-Level Theory of Emotional Design, the current interaction design of mainstream Chinese baijiu e-commerce platforms (such as Jiuxian.com, 1919, JD.com baijiu, etc.) shows an uneven development pattern. There exist experience gaps at all three levels that urgently need optimization, and a complete emotional experience loop has yet to be formed^[4].

3.1. Visceral Level: Sensory Homogenization and Lack of Immersion Weaken Initial Appeal

At the visceral level, which pursues immediate sensory pleasure, most platforms have fallen into conservative and homogenized visual expression. In terms of color usage, there is a general reliance on safe palettes like red (symbolizing celebration), gold (symbolizing luxury), and black (symbolizing classicism). While these align with the traditional tone of baijiu, they lead to a blurring of brand visual identity, making it difficult to create a distinctive memory point at first glance. In the core product presentation stage, the primary method remains static, flat images. Users cannot examine bottle details from multiple angles, observe the baijiu's legs (tears) on the glass, or appreciate packaging textures, severely limiting the acquisition of sensory information. This singular, passive presentation method lacks the enhancement of audiovisual elements like dynamic baijiu flow, light and shadow effects, or bottle-opening rituals, creating a significant gap between the online browsing experience and the tangible, hands-on sensory experience offline. Consequently, it fails to spark aesthetic delight and exploratory desire at the visceral level, weakening the initial emotional impetus for "love at first sight."

3.2. Behavioral Level: Functional Orientation and Absence of Emotional Feedback Hinder Smooth Experience

At the behavioral level, which focuses on the efficiency and fluidity of the usage process, existing platforms possess a complete e-commerce functional skeleton. However, their interaction logic tends to be coldly instrumental, lacking the infusion of emotional warmth and scenario-based intelligent guidance. Firstly, the information architecture centers on product attributes (such as classification by aroma type, alcohol percentage, or origin), neglecting users' real and diverse consumption scenarios (e.g., "wedding banquet," "gift for elders," "personal enjoyment"). This forces users to undergo complex self-translation and filtering processes, increasing their decision-making burden. Secondly, the core search and recommendation systems lack sufficient intelligence, struggling to understand natural language queries (like "smooth on the palate") or personalized taste preferences, significantly compromising interaction efficiency. More importantly, throughout the entire journey from browsing to payment and logistics, the interaction feedback is mechanical and monotonous. A successful order yields only a cold order number, and delivery completion triggers a standard SMS notification. The entire process lacks any emotionally resonant information design based on baijiu culture or personalized well-wishes, reducing the shopping act to a purely functional transaction and severing the inherent link between behavioral efficiency and emotional pleasure.

3.3. Reflective Level: Superficial Cultural Narratives and Weak Community Building Constrain Deep Identification

The reflective level is currently the weakest link for baijiu e-commerce platforms. Most platforms engage with baijiu culture only superficially. Brand stories often fall into clichés like “millennia-old heritage,” presented through static text and images. There is a notable absence of immersive storytelling techniques such as documentaries, artisan interviews, or VR tours, making it difficult to foster deep empathy and value identification among users. Simultaneously, platforms generally lack mechanisms to activate user participation and build communities. User reviews are mostly confined to simple feedback like “tastes good,” with no structured modules (e.g., “tasting notes”) to guide the sharing of drinking experiences or pairing suggestions. This hinders the formation of community interaction based on taste or culture. Furthermore, for emotional needs like gifting or commemoration, platforms often offer only standard gift boxes, lacking personalized services such as custom labels, handwritten cards, or exclusive packaging. This prevents the consumption from evolving into a meaningful, warm emotional connection with a story, making it difficult for users to establish reflective-level identification tied to “community belonging” or “emotional expression.”

4. Integrated Interaction Design Strategies for baijiu E-commerce Platforms Based on the Three Levels of Emotional Design

To systematically enhance user experience, baijiu e-commerce platforms should be guided by the Three-Level Theory of Emotional Design and implement an integrated design strategy that progresses from sensory perception to behavioral interaction and finally to meaningful reflection, thereby constructing a coherent, interlocking emotional experience loop.

4.1. Visceral-Level Strategy: Creating Distinctive Visual Narratives and Immersive Sensory Interfaces

For the visceral level, the core of the design is to create brand-distinguishable visual impact and immersive sensory previews. Firstly, it is essential to break free from traditional color constraints and establish a differentiated visual system^[5]. For instance, a platform focusing on high-end cultural baijius can draw inspiration from the artistic concept of “blank space” and the subtle, elegant tones of traditional Chinese painting, complemented by dynamic ink-wash elements. A platform targeting younger demographics might adopt a vibrant, minimalist modern design language to cultivate a fresh, trendy aesthetic. Secondly, product presentation technology must be upgraded by fully incorporating 720° interactive panoramic models, high-definition short videos for tasting demonstrations (showcasing pouring, legs/tears, and color), and Augmented Reality (AR) “try-on” features that allow users to preview virtual baijiu bottles placed in their real-life dining environments. These strategies aim to maximally replicate, or even surpass, the sensory experience of offline baijiu purchasing, instantly capturing user attention and stimulating visceral-level pleasure and curiosity through intuitive, vivid, and interactive visual storytelling.

4.2. Behavioral-Level Strategy: Embedding Scenario-Based Intelligence and Emotionalized Interaction Flows

To address the pain points at the behavioral level, the design should focus on integrating scenario-based intelligence and emotionalized feedback to enhance the warmth and efficiency of interactions. Firstly, the information architecture should be restructured to include guided pathways such as “Scenario-Based Shopping,” which intelligently recommends baijiu products, pairing suggestions, and related cultural knowledge based on authentic needs like hosting banquets, gift-giving, or personal enjoyment. Secondly, technologies like Natural Language Processing should be leveraged to improve the search and recommendation systems’ understanding of colloquial descriptions (e.g., “suitable for elders”). Furthermore, emotionalized design must be embedded at key points throughout the user journey. Examples include generating customized digital greeting cards infused with festival or baijiu culture themes upon successful order placement, and

sending warm delivery updates featuring brand IP characters. This transforms an efficient transactional process into a coherent, considerate emotional experience journey.

4.3. Reflective-Level Strategy: Deepening Cultural Narratives and Building Emotionally Resonant Communities

For the reflective level, the design core lies in imbuing consumption behavior with cultural significance and emotional meaning. Platforms should move beyond text-and-image introductions to create immersive brand story spaces, deeply communicating brewing philosophy and brand spirit through mediums like mini-documentaries and live factory tours. It is crucial to build vibrant user co-creation communities by providing structured tools (e.g., guided “tasting note” templates) to encourage sharing of drinking experiences and establishing discussion groups based on flavor profiles or cultural themes to foster a sense of belonging. Simultaneously, deep personalization service modules should be developed, such as custom label creation, handwritten card options, and exclusive packaging for special occasions, transforming products into unique emotional carriers. Ultimately, through an emotionalized membership growth system that grants identity titles like “Tasting Novice” or “Cultural Ambassador,” user participation can be converted into tangible cultural recognition, achieving deep-level emotional bonding.

5. Design Concept and Preliminary Validation of Effectiveness Using “JiuYun” as a Prototype

To verify the feasibility and effectiveness of the aforementioned integrated strategies, this study conceptualized a design prototype for a baijiu e-commerce platform named “JiuYun” (baijiu Charm), aiming to test the integration of the three-level strategies.

At the visceral level, the main interface of “JiuYun” adopts an elegant “celadon-and-white” color scheme inspired by Song Dynasty aesthetics, with subtly integrated landscape patterns in the background. The core interactive feature is the “Dynamic Cellar,” where all baijiu products are presented as 3D models. Users can swipe with their fingertips to appreciate the flowing light, shadow, and textural details of the baijiu within the bottle. The homepage features a “Sip of the Day” short video column, where professional sommeliers demonstrate uncorking and tasting in a highly engaging manner.

At the behavioral level, a “Why Drink Today?” scenario selector is prominently placed at the top of the platform’s homepage. If a user selects “Gift for a Mentor,” the system not only recommends suitable baijius but also intelligently suggests complementary gift options like tea sets or books, accompanied by gift etiquette guidance and sample card messages themed around “Peaches and Plums” (a Chinese idiom denoting a teacher’s silent influence). The search bar supports natural language queries such as “a mellow, non-pungent Maotai-flavor liquor.” From adding items to the cart to successful payment, each step is accompanied by micro-animations and gentle sound cues that evoke the artistic conception of classical Chinese poetry.

At the reflective level, below each product page is an immersive narrative zone titled “Journey of Craftsmanship,” allowing users to take a “cloud tour” of the cellars and production workshops. The platform’s core community, named “Elegant Gathering,” encourages users to publish tasting notes tagged with flavor wheel descriptors and matches them with potential “baijiu Friends” based on note content. The customization center offers a rich library of label design templates and calligraphic fonts, enabling users to create personalized labels for special occasions. Membership tiers are named poetically, such as “Appreciating the Aroma,” “Knowing the Taste,” and “Comprehending the Tao.” High-level members may receive invitations to offline tasting events or new product co-creation sessions.

Through usability testing and in-depth interviews with recruited target users using this high-fidelity prototype, preliminary feedback indicates that compared to existing platforms, the “JiuYun” prototype received significantly higher user ratings across three dimensions: visual appeal (visceral level), task completion efficiency and enjoyment (behavioral level), and perception of cultural value and willingness to share (reflective level). This validates the effectiveness of the

integrated design strategy based on the Three-Level Theory of Emotional Design.

6. Conclusion and Outlook

This study systematically applies Norman's Three-Level Theory of Emotional Design to the research on interaction design for Chinese baijiu e-commerce platforms. It constructs a comprehensive analytical framework and design pathway that progresses from sensory attraction to behavioral fluency, ultimately achieving cultural identification and emotional resonance. The research reveals that the current experience shortcomings of baijiu e-commerce platforms lie in the fragmentation and individual deficiencies across the three levels: homogenization at the visceral level, instrumentalization at the behavioral level, and superficiality at the reflective level. To address this, the proposed integrated strategy emphasizes that the visceral level must cultivate unique appeal through differentiated visual language and immersive media technology; the behavioral level must achieve efficient yet warm interactions via scenario-based intelligent shopping guidance and emotionalized process feedback; and the reflective level must build emotional and identity connections that transcend mere transactions through deep cultural narratives, user co-creation communities, and personalized customization services. These three-level strategies are not isolated but form a mutually reinforcing closed loop: visceral attraction promotes behavioral exploration, fluent behavior paves the way for reflective acceptance, and deep-seated identification, in turn, solidifies user preference for the overall platform brand.

Looking ahead, future research can delve into the following directions: First, combining the three-level theoretical framework with the cultural characteristics and consumption behaviors of different market segments—such as Baijiu, baijiu, and craft beer—to develop more targeted sub-strategies. Second, exploring quantitative evaluation tools and indicator systems for measuring the effectiveness of experiences at the visceral, behavioral, and reflective levels, thereby shifting emotional design from qualitative analysis to precise measurement. Third, closely monitoring cutting-edge technologies like the metaverse and generative artificial intelligence to study their application potential in constructing fully immersive sensory experiences at the visceral level, providing highly anthropomorphic behavioral guidance, and generating personalized reflective-level narrative content. This will continuously expand the theoretical boundaries and practical applications of emotional design within baijiu e-commerce and the broader experience economy.

Disclosure statement

The author declares no conflict of interest.

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