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Research on Digital Publishing Products from the Perspective of User Experience: A Case Study of the Xianyu App (Postprint)

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Abstract

In recent years, with improving living standards and growing purchasing desire, an increasing number of people have developed a stronger inclination to sell idle goods. Second-hand idle platforms have emerged during the nascent stage of the sharing economy to meet this demand, with Xianyu distinguishing itself through its backing by the Alibaba Group's credit system. This paper examines the Xianyu APP based on James Garrett's five elements of user experience, exploring its user experience and interaction design from the strategic, scope, structure, framework, and presentation layers, which holds significant importance for optimizing the user experience of Xianyu APP and guiding the development and improvement of other second-hand trading APPs.

Full Text

A Study on Digital Publishing Products from the Perspective of User Experience: A Case Study of the "Xianyu" APP

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Abstract: With the improvement of living standards in recent years, people's purchasing desires have intensified, leading to a stronger inclination to sell idle goods. Second-hand trading platforms have emerged during the budding stage of the sharing economy, with Xianyu, backed by Alibaba Group's credit payment system, standing out among them. Based on Jesse James Garrett's five elements of user experience, this paper investigates the Xianyu APP, exploring its user experience and interaction design from the strategic, scope, structure, skeleton, and surface layers. This research holds significant importance for optimizing

the user experience of Xianyu APP and guiding the design of other second-hand trading applications.

Keywords: User Experience; Digital Publishing Products; Xianyu

In recent years, with China's growing economic strength and the development of e-commerce, people's purchasing desires have intensified, leading to frequent impulse and retaliatory consumption. This has spurred the sale of idle products post-consumption, fueling the booming second-hand trading market. Moreover, as product life cycles continue to shorten, many consumers choose to sell their "useless items" for cash, reinvesting the money into new purchases and creating a virtuous cycle. Compounded by the COVID-19 pandemic over the past two years, demand for online second-hand transactions has grown even stronger, making the second-hand market one of China's most promising economic sectors with significant growth potential. The launch of the "Xianyu APP" has capitalized on this rapid growth period in the second-hand market, meeting its demands. Therefore, from a user experience perspective, this paper selects the "Xianyu APP" as its research subject to analyze its user experience and interaction design, which holds practical significance for improving, guiding, and standardizing the second-hand trading app market.

1. Basic Concepts

1.1 Xianyu

"Xianyu" is a second-hand idle goods trading APP under Alibaba Group. Unlike Taobao, it does not require users to open a shop to conduct transactions [1]. Xianyu holds a prominent competitive advantage in the second-hand trading market. Through a comparative analysis of several popular second-hand trading apps in mobile application stores, including Zhuanzhuan and Aihuishou, the author found that Xianyu's download volume far exceeds that of its competitors, making it an ideal subject for user experience research. Its free and convenient communication model, along with its safe and efficient transaction model, enhances user engagement, improves user retention, and increases user stickiness [2]. Based on this analysis, examining Xianyu APP from a user experience perspective holds significant importance for product research and provides crucial guidance for the future design of second-hand goods apps, while also benefiting practical design work.

1.2 User Experience

The term "user experience" was first coined by American cognitive psychologist Donald Norman in the 1990s, referring to people's feedback on products or services they are using or anticipate using—in essence, whether the product or service satisfies users. Therefore, user experience is a subjective process that emphasizes the effects produced during actual application.

In 2008, Jesse James Garrett articulated in his book *The Elements of User*

Experience: User-Centered Design for the Web that user experience comprises five layers from abstract to concrete: strategy, scope, structure, skeleton, and surface. Each layer is interconnected in a top-down sequence.

The strategy layer forms the foundation and most fundamental component of user experience elements, serving as the steering wheel that guides the product's overall direction. It primarily addresses user needs and product objectives—namely, “what can the enterprise gain from the product” and “what can users gain from the product.”

The scope layer represents the detailed elaboration of user needs and product objectives, generally divided into functional specifications and content requirements. This layer clarifies what the product needs to accomplish and in what sequence, while determining product functions. It requires a user-centered, needs-oriented approach to form a preliminary plan.

The structure layer serves as the abstract expression of the skeleton layer, focusing on information architecture and interaction design. It organizes complex product functional requirements, clarifies user operation logic, ensures smooth user experience rhythm, and enables accurate and reasonable function classification and arrangement.

The skeleton layer summarizes and refines product structure, determining its basic visual form and transforming abstract conceptual structures into concrete representations, primarily through wireframes. It includes interface design, navigation design, and information design, providing guidance for visual design.

The surface layer occupies the topmost position in user experience, emphasizing the first impression the interface creates for users—also known as perceptual design. As content on this layer is visible to users, it requires investigation of icon design, overall color schemes, typography, and other factors to attract user attention, ultimately presenting a coordinated and aesthetically pleasing visual form [3].

Product design and development typically proceed sequentially through the strategy, scope, structure, skeleton, and surface layers. However, the order in which users perceive these layers during use is generally reversed: surface, skeleton, structure, scope, and strategy. This paper will investigate the user experience of Xianyu APP based on these five elements of user experience, analyzing user needs and identifying directions for user experience optimization, which will benefit the improvement of Xianyu APP and other second-hand trading applications.

2. User Experience Research on Xianyu APP

2.1 Strategy Layer

2.1.1 Product Objectives Before investigating Xianyu APP, the first step is to segment the market, precisely position the product, and categorize user

groups to understand their needs and establish a foundation for overall design. Xianyu APP targets users who wish to sell second-hand idle goods and those who want to acquire them. The product aims to build a second-hand trading platform on the Internet, tapping into users' second-hand transaction value and providing a secure and trustworthy communication and trading platform. The primary direction involves retaining users and expanding the user base through basic functions such as second-hand goods information publishing and authentic transactions, then converting a large number of new users through additional features like social scenario elements.

2.1.2 User Needs Xianyu APP initially served users who wanted to sell and purchase second-hand idle goods and those seeking to earn pocket money by selling idle items. However, with the rapid development of mobile Internet payments and the gradual rise of various shopping festivals that have become consumer carnivals, we have entered an era of overconsumption. People's desire to sell impulsively purchased goods has grown increasingly strong. Xianyu APP's core function—second-hand goods trading—fully satisfies user needs through its mobility, low barriers to entry, and fast goods turnover. Additionally, concerns about product quality, whether items are worth purchasing, and niche product communities are addressed through Xianyu APP's community communication services.

2.2 Scope Layer

2.2.1 Functional Specifications The scope layer provides appropriate functions and content based on identified user requirements. According to the product objectives defined in the strategy layer, basic functions such as publishing idle goods, purchasing restricted items, product categorization within the Fish Pond feature, communication interfaces, Alipay Sesame Credit authorization, and Taobao binding satisfy users' core need for second-hand goods trading. For the module addressing product quality, purchase worthiness, and niche product communities, the Huiwan (Play Zone) feature module—with its Circles, Square, and Hot sections—meets these needs by building social attributes. This primarily relies on User-Generated Content (UGC) to establish user communication communities and produce high-quality content, helping users achieve better experiences.

2.2.2 Content Requirements On one hand, Xianyu APP establishes Fish Ponds where UGC publishes second-hand restricted goods to form product categories, including product descriptions, prices (including original prices), classifications, brands, conditions, and more, satisfying users' trading needs. On the other hand, it builds a UGC user communication community where content is primarily shared through videos or images. Based on social habits and content display characteristics, adjustments are made to the content format, with image-based production being predominant. Shared content includes product recommendations and reviews (similar to Xiaohongshu), niche community

discussions (similar to Baidu Tieba), short video hot lists, and more. This approach fosters second-hand goods community communication while satisfying users' social needs.

2.3 Structure Layer

2.3.1 Information Architecture Building upon the scope layer, the structure layer must provide the underlying foundation for function implementation. This is achieved by designing hierarchical habitual and novel interactions to reduce user time costs and enhance user experience [4], thereby gaining user recognition and affection. Xianyu APP's structure comprises five sections: "Xianyu," "Huiwan (Play Zone)," "Sell Idle Items," "Messages," and "My Profile." The "Xianyu" section primarily features waterfall-style product displays. The "Huiwan" section helps users find like-minded friends through their idle goods, facilitating more professional exchanges and using products as a medium for social interaction, thus possessing social attributes. The "Sell Idle Items" function, positioned in the central C-spot, represents the product's core feature. The "Messages" section mainly contains historical communication records, and its separate listing highlights the product's transaction communication function. Finally, the "My Profile" section is similar to those in other apps. The specific information architecture is shown in Figure 1 [Figure 1: see original paper].

2.3.2 Interaction Design The overall interface interaction design of Xianyu APP aims for ease of operation, featuring a clear, unambiguous, and unique process planning. Its interaction design is largely similar to that of Taobao APP, respecting users' established usage habits and maintaining consistency with Taobao and other apps, which reduces the learning burden. Simultaneously, it provides users with more intuitive operation guidance, where feedback is presented through clicks or gestures. Even deviations and erroneous operations caused by cognitive or comprehension issues can be reversed to return to the original state [4].

2.4 Skeleton Layer

2.4.1 Interface Design For any software product, interface design plays a crucial role as it forms the basis for information exchange between users and the product; therefore, interface usability is paramount. In interface design, functionally similar pages are grouped under single buttons. For instance, under the "Xianyu" button are Follow, Recommend, and Location-based divisions, which constitute the app's basic pages and the interfaces most frequently browsed and used by users. These are hierarchically structured with a fixed search bar at the top, followed by a section navigation bar, and finally personalized second-hand idle goods recommendations based on daily searches and purchases. All three components aim to guide users, display second-hand idle goods information, and quickly convey information through various product images to attract user views and browsing, presenting the richest information in the smallest possible

space.

Similarly, the Circles, Square, and Hot sections under the “Huiwan” button—distinguished as community exchange, image-text browsing, and video browsing respectively—all aim to provide social functions, with primary content including content communities, topic operations, and topic planning. For a product centered on second-hand trading, its core function features a simple operation process positioned in the middle of the page layout’s navigation bar. Upon clicking, users can quickly complete the second-hand goods selling process following the instructions. The Messages interface is divided into Notification Messages, Interactive Messages, and Chat Messages, where Notification Messages are officially released announcements, and Interactive Messages include notifications for comments, favorites, and likes between users. Finally, the “My Profile” interface contains numerous functional layouts, flexibly using cards and optimized categorization to pursue clarity and ease of understanding and operation. The overall page design enables users to quickly grasp the product’s main core functions, familiarize themselves with other features, and master the product in the shortest possible time.

Figure 2 [Figure 2: see original paper] “Xianyu” Sub-interfaces

Figure 3 [Figure 3: see original paper] “Huiwan” Sub-interfaces

Figure 4 [Figure 4: see original paper] “Sell Idle Items,” “Messages,” and “My Profile” Interfaces

2.4.2 Navigation Design Navigation design can reasonably and perfectly display product functions while quickly guiding users, helping them clearly answer the questions: “Where did I come from?”, “Where am I now?”, and “Where can I go?” Xianyu APP employs combined navigation: rudder-style navigation + grid-style navigation (as shown in Figure 5 [Figure 5: see original paper]). Rudder-style navigation resembles a ship’s steering wheel used for command, with other operation buttons on both sides. Compared to traditional tab-style navigation, rudder-style navigation places the core function in the center, making the label more prominent and conspicuous while also extending the main function label’s capabilities. Grid-style navigation concentrates some entrances on the main page, with each entrance being independent of others, making the entry points clearer, operation paths shorter, and extensibility better. Organizing these two navigation methods together enables clear presentation of Xianyu APP’s functions.

Figure 5 [Figure 5: see original paper] Xianyu APP Navigation Design

2.4.3 Information Design Product information design should be based on functional requirements, organizing and categorizing functional information, and hierarchically structuring information according to functional priority to provide primary information for users’ main operations and facilitate quick decision-making [5]. Different information types should be presented differently. For instance, text information on Xianyu APP is made conspicuous through font

size changes and bolding, or by adding simple patterns like ellipses or squares beneath the text to attract user attention. Image information, inherently rich in intuitive content, is sometimes set to icon-sized ellipses or becomes new focal points through positional differences. Data information is directly converted into icons such as favorites and comments for clarity. All these information settings indicate importance through scaling, color substitution, and positioning.

2.5 Surface Layer

2.5.1 Icon Design As the visual expression of a product's service and brand communication, icons should feature clean and concise visual effects, convey brand characteristics, and facilitate user recognition and usage. Xianyu APP's icon (as shown in Figure 6 [Figure 6: see original paper]) uses a yellow background with only the simple text "Xianyu" on top. Though simply designed, it possesses strong identifiability. The two characters for "Xianyu" have been innovatively designed in terms of typography, creating a strong overall visual experience. The use of yellow also strongly attracts users' attention and enhances visual impression. Therefore, Xianyu APP's icon can be described as simple yet elegant, with a clear visual image that leaves a deep product memory for users and helps them quickly identify and recognize the app.

Figure 6 [Figure 6: see original paper] Xianyu APP Icon

2.5.2 Overall Color Scheme Color is a crucial component of the product's surface layer. Effective brand colors can quickly capture user attention, occupy users' cognitive awareness, and create associations between the product and its color. As a second-hand goods trading product aiming to provide secure transactions for users, Xianyu APP seeks to convey characteristics of safety, stability, warmth, and happiness. Therefore, in its color design, Xianyu APP employs bright yellow, consistent with its icon color, because yellow resembles sunshine and can bring warmth and happiness to people. It also generates positive associations, allowing users to envision a happy life after purchasing good products. Moreover, Xianyu APP's overall yellow tone aligns with the orange-yellow of Alibaba's Taobao APP, providing users with a sense of familiarity and adaptability.

2.5.3 Typography Text is an indispensable part of product interfaces, serving as a primary manifestation that beautifies the interface, explains images, and carries information. Current APP products primarily use fonts differentiated by mobile phone type—for example, iPhones generally use Pingfang, while Android phones use Hanyi Qihai 45W, Hanyi Qihai 55W, Huakang Jingang, etc. Xianyu APP follows this practice, using consistent fonts and styles throughout the app to create a refreshing, clean, and quiet page feeling while preventing reading fatigue. The text for "Sell Idle Items" features the most distinctive font design in the entire Xianyu APP, immediately noticeable when users open the software and emphasizing the information and functions users should focus on

most. This differentiated text information design provides users with a good visual experience when reading.

With the further development of mobile Internet technology, second-hand trading apps will receive increasing attention, and related literature will continue to grow. Based on the theory of user experience elements, this paper presents innovative content and user experience in Xianyu APP's design practice.

At the strategy layer, the research identified the product objective as facilitating second-hand restricted goods transactions and meeting users' second-hand trading needs. At the scope layer, it determined Xianyu APP's functional specifications and content requirements, including second-hand goods publishing and selling, second-hand goods recommendation functions, and niche community sharing features. At the structure layer, it established the APP's information architecture and interaction design, comprising five sections: "Xianyu," "Huiwan (Play Zone)," "Sell Idle Items," "Messages," and "My Profile." At the skeleton layer, it analyzed interface design, navigation design, and information design in detail, examining Xianyu APP's various pages and identifying the navigation bar as combined navigation. At the surface layer, it analyzed Xianyu APP's icon color, overall color scheme, and typography.

The research findings will help improve Xianyu APP's user experience and provide design methods and references for other second-hand trading products.

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Note: Figure translations are in progress. See original paper for figures.

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