From Pain Points to Design Requirements: A Qualitative Inquiry into User Interface Design for Furniture E-Commerce

Rui Zhu[1,*], Tsz-Ching Chow[2] and Tien-Li Chen[2]

[1] Doctoral Program in Design, College of Design, National Taipei University of Technology, Taiwan, China
[2] Department of Industrial Design, College of Design, National Taipei University of Technology, Taiwan, China

*raynezhu@gmail.com

Abstract. With the rapid expansion of e-commerce, the furniture industry has moved increasingly online. Yet furniture purchasing remains a high-involvement process due to experiential expectations, high prices, limited tactile feedback, and complex logistics, making interface design issues more likely to increase perceived risk. This study applies literature analysis and grounded theory to define core dimensions of e-commerce interface design and uses semi-structured interviews to uncover actual usage flows and pain points in furniture e-commerce.
A three-dimensional framework— "Information Integration," "Navigation System," and "Visual Perception"—was developed. Interviews with 12 Taiwanese consumers (aged 18–39) experienced in furniture e-commerce were analyzed using customer journey mapping and MAXQDA. Results reveal a six-stage user flow from homepage entry to payment, along with seven key pain points including "information presentation mismatch," "functional limitations," and "insufficient style consistency." Current Taiwanese furniture e-commerce sites often increase visual inconsistency and cognitive load due to varied presentation styles and inefficient navigation categorization.
The study recommends hierarchical intelligent navigation with intuitive labeling, the application of universal design to enhance visual consistency, and standardized information tables to reduce errors—measures expected to improve the overall user experience in furniture e-commerce.

Keywords: E-commerce, Furniture, User interface design, Customer journey map, B2C.

1 Introduction

The rapid expansion of e-commerce, accelerated by the COVID-19 pandemic, has fundamentally reshaped consumer behavior, with online shopping becoming a dominant consumption mode due to its convenience and flexibility [14]. In this context, e-commerce websites serve as critical communication interfaces between businesses and

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consumers, where usability and user experience directly influence consumer perceptions and decision-making [7].

In response to this trend, the furniture industry has increasingly adopted e-commerce models to provide more accessible purchasing channels. However, furniture products are characterized by high value, experiential consumption, and low purchase frequency, making online decision-making more complex [11]. Unlike physical retail, online platforms rely on visual and textual representations, which limit users' ability to evaluate tactile qualities and comfort [2]. Meanwhile, online furniture shopping experiences are influenced by perceived risk, emotional experience, and new technology interactions [11][17]. Kurt et al. point out that the primary reasons for this situation are the decision-making process and defects in e-commerce websites [9].

User Interface (UI) supports human–computer interaction and plays a key role in shaping user perception and engagement [7][16]. In e-commerce, usability is more critical than aesthetics, though both must be balanced to ensure user satisfaction [4]. Effective interfaces should be user-centered, intuitive, and efficient, with clear navigation and coherent visual design [6], while also reducing perceived risk and supporting task completion [3].

Despite the growing importance of interface design, existing research primarily focuses on general e-commerce behavior, trust, or technology adoption, with limited qualitative insights into UI/UX design specifically within the furniture context. Given the unique characteristics and higher decision complexity of furniture products, a deeper understanding of user behavior, interface interaction, and pain points is required. Therefore, this study aims to explore consumers' experiences with furniture e-commerce interfaces and to derive practical design implications that support improved user experience and platform competitiveness.

2 Methodology

This study adopted a qualitative approach to examine consumers' perceptions of furniture e-commerce interfaces. A systematic literature review was conducted to identify key interface components, followed by semi-structured interviews with consumers who had prior online furniture purchasing experience. Using a predefined guide with open-ended questions, the interviews enabled in-depth exploration of participants' experiences and perceptions.

Customer journey mapping was applied to capture participants' browsing processes, interaction behaviors, and emotional responses. As a visual analytical tool, it illustrates the end-to-end user experience—from initial interaction to post-purchase stages—supporting the identification of user needs and pain points.

Grounded theory was applied for data analysis, with MAXQDA used to assist in organizing and coding both literature and interview data. Through an iterative coding process, insights were progressively refined and abstracted into a structured framework and corresponding design requirements.

Given that user interface design has a positive correlation with consumers' purchase intention and directly affects branding and shopping experience in the furniture sector,

this study focuses exclusively on the B2C e-commerce model. In Taiwan, online shoppers are predominantly between the ages of 30–39, followed by those aged 18–29 [15]. This study adopted purposive sampling to recruit participants aged 18–39 in Taiwan with prior experience using furniture e-commerce platforms. A total of 12 participants (7 males, 5 females) were included.

3 Results and Discussion

3.1 Components E-commerce Website Interface Design

This study conducted a comprehensive document review on topics related to e-commerce websites and interface design. A total of 25 academic sources were collected and analyzed. Using MAXQDA analytical tools, these publications were systematically coded and categorized. Through this process, 68 distinct codes were extracted and subsequently organized into three overarching dimensions: Information Integration, Navigation System, and Visual Perception.

1. Information Integration

The "information integration" dimension comprises two elements: information organization and content integration. Information organization focuses on layout, visual presentation, and search functionality to enable efficient information retrieval and maintain a clear, logical structure. Content integration emphasizes intuitive architecture and high-quality, user-oriented content, ensuring clear terminology and precise language so users can accurately understand the information presented, as presented in Table 1.

2. Navigation System

The "navigation system" dimension comprises two components: layout guidance and usability. Layout guidance emphasizes clear information architecture and intuitive interaction options to support effective user navigation and task completion. Usability focuses on goal-oriented interaction, efficiency, learnability, and system status visibility, enabling users to understand processes, reduce cognitive load, and achieve tasks with greater ease and confidence.

3. Visual Perception

The "visual experience" dimension comprises text presentation and interface style. Text presentation focuses on readability, appropriate density, and clear typographic hierarchy to ensure a comfortable reading experience. Interface style emphasizes coherent color schemes, distinctive visual identity, and high-quality imagery, shaping users' aesthetic perception and overall impression of the brand.

Table 1. E-commerce website interface design.

Dimension	Elements	Content
Information Integration	Information Organization	Layout and Visual Presentation (4)
		Search Functionality for Efficient Information Retrieval (4)
		Deliver authentic, user-interest-driven content (6)

Navigation System	Content Integration	Intuitive Website Architecture (2)
	Layout Guidance	Clear Information Architecture (7)
		Actionable Options with Effective User Guidance (3)
	Usability	Goal-oriented Interaction with High Task Efficiency (12)
		Learnability (4)
		Clear System Status Visibility (3)
Visual Perception	Text presentation	Text Readability (4)
		Appropriate Text Density and Spacing (1)
		Attention-capturing Headlines (1)
		Well-designed Color Palette (10)
	Interface style	Distinctive Visual Style (4)
		Rich Photographic or Visual Content (3)

3.2 Customer Journey and Pain Points in Furniture E-Commerce Websites

Drawing on the design elements identified for furniture e-commerce websites, this study aims to thoroughly explore users' real-world shopping flows and pain points to facilitate targeted design improvements. Semi-structured interviews were conducted with 12 Taiwanese consumers possessing prior furniture e-commerce experience. The three core dimensions derived from the literature—Information Integration, Navigation System, and Visual Perception—served as an analytical framework to prompt participants to reflect on their past interactions. The consolidated interview findings were then visualized as a customer journey map.

1. Customer Journey

Based on the synthesis of interview data, this study identifies the typical user flow on furniture e-commerce websites, comprising six sequential stages, as shown in Figure 1:

The first stage, "Entering the Homepage," most participants reported that upon landing on the homepage, they do not explore deeply. Some look for promotional banners or ongoing sales, while others quickly leave due to excessive advertisements and visual clutter.

The second stage, "Searching for Target Products," the majority of participants prefer browsing product categories to locate relevant items. Only when they have a specific product name or model in mind do they resort to the search bar.

The third stage, "Filtering and Sorting Target Products," after entering a category, most users immediately apply filters (e.g., price, size, style) or sorting options to narrow down results. A smaller group first scans thumbnail images from search results before deciding whether to engage filtering tools.

The fourth stage, "Viewing Detailed Product Information," participants typically click on desired items to access detailed product pages. Several users open multiple tabs simultaneously to compare specifications, materials, and reviews across different products before making a decision.

The fifth stage, "Adding Target Products to the Shopping Cart," once a product is selected, most users add it directly to the cart. Some, however, first add items to the cart or wishlist for later comparison before finalizing their choice.

The sixth stage, "Proceeding to Payment," after confirming selections, the majority proceed to payment. A portion of users first remove unwanted items from the cart before completing the transaction.

In addition, after completing the purchase process, some consumers will enter the "Checking Order Details" stage to confirm successful submission and track delivery information.

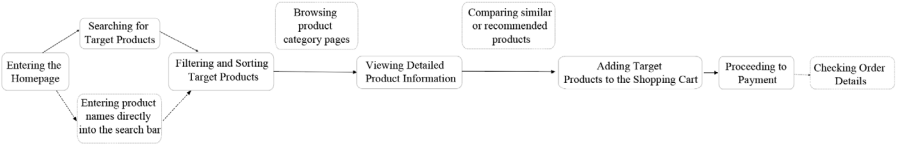

Fig. 1. Customer journal of furniture e-commerce websites interface.

2. User Pain Points

Using the customer journey maps generated from the 12 participants' experiences with furniture e-commerce websites, this study applied grounded theory to code key statements related to pain points extracted from the verbatim interview transcripts and journey maps. These three-dimensional framework of e-commerce website interface design ("Information Integration," "Navigation System," and "Visual Perception") was used as the overarching coding structure. Through iterative open, axial, and selective coding in MAXQDA, recurring pain points emerging during the actual usage flow were systematically identified and categorized, as presented in Table 2.

In the Information Integration dimension, the primary issues are Information Presentation Mismatch and Information Deficiency. Specific manifestations include irrelevant content appearing on product detail pages, and insufficient product information.

In the Navigation System dimension, the dominant problems are Inefficient Navigation Categorization, Navigation Obstruction, and Functional Limitations. Users frequently complained of excessively cluttered product categories with too many options, product information omitted because categories are not expanded by default, filtering and sorting functions fail to meet user needs, and more.

In the Visual Perception dimension, the core issues are Insufficient Style Consistency and Readability Issues. The most prominent complaints were inconsistent product preview image styles, product information hard to locate due to inconsistent layout, and font size too small.

Table 2. E-commerce website interface user pain points.

Selective coding	Axial coding	Open coding
	Information presentation mismatch	Irrelevant content appearing on product detail pages (4)

Information Integration	Information deficiency	Insufficient product information (3)
	Functional limitations	Filtering and sorting functions fail to meet user needs (4)
		Dimensions displayed only in text form (2)
		Unable to select parameter units according to actual needs (1)
Navigation System	Navigation obstruction	Forced membership registration interrupting the shopping flow (2)
		Subcategory menu disconnects from parent category after expansion (1)
	Inefficient navigation categorization	Excessively cluttered product categories with too many options (7)
		Product information omitted because categories are not expanded by default (4)
		Excessively fragmented categorization (3)
Visual Perception	Insufficient style consistency	Inconsistent product preview image styles (5)
	Readability issues	Product information hard to locate due to inconsistent layout (5)
		Font size too small (3)

3.3 Discussion

This study integrates literature analysis and grounded theory to identify three core dimensions of e-commerce interface design: Information Integration, Navigation System, and Visual Perception. These findings align with prior research, which similarly emphasizes content, navigation, and visual design as key elements [1][7][12], supporting the generalizability of this framework.

Navigation design should be user-centered, reflecting users' behavioral patterns and preferences. Prior studies highlight issues such as illogical structures and difficulty locating products [10], consistent with this study's finding that Navigation System is the primary pain-point dimension, particularly in inefficient categorization. Simplified structures, reduced click depth, and intuitive labeling are therefore essential [10].

From a usability perspective, clarity in language, guidance, flexibility, and visual presentation are critical [5]. Among these, language clarity closely corresponds to observed issues such as inconsistent layouts and small font sizes, suggesting that the high information density of furniture e-commerce exacerbates readability challenges.

Furthermore, consistent layout and visual design enhance usability and user familiarity [13], while universal design principles support efficiency and satisfaction [8]. However, furniture e-commerce platforms often adopt brand-aggregated structures, resulting in inconsistent visual styles and information presentation. Accordingly, this study highlights the importance of improving visual consistency and readability to reduce cognitive load and enhance user experience.

4 Conclusion

This qualitative study identifies key e-commerce interface design elements that address user pain points in furniture platforms and proposes targeted optimization strategies for this high-involvement product category. The findings indicate that the primary issues lie in the Navigation System, followed by Visual Perception.

Furniture purchasing relies heavily on spatial and tactile evaluation, making its transition to e-commerce particularly challenging. Inefficient navigation structures, limited functionality, and unclear categorization increase complexity, reduce usability, and weaken user trust and satisfaction.

Additionally, the prevalent brand-aggregation model leads to inconsistent visual styles and poor readability. Issues such as inconsistent product images, varied layouts, and small font sizes significantly increase cognitive load and abandonment rates. This study provides empirical evidence of these visual challenges within the furniture e-commerce context, extending prior UI/UX research.

Accordingly, three design recommendations are proposed: (1) optimize hierarchical navigation by reducing click depth and improving category labeling; (2) establish unified visual standards based on universal design principles to ensure cross-brand consistency; and (3) standardize information presentation to enhance clarity and trust. These strategies translate identified pain points into actionable design guidelines, supporting improved user experience and competitiveness in furniture e-commerce.

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