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Master Media Technology

Bridging Cultural UX Differences: Developing Design Guidelines for Western Designers Adapting Chinese Mobile Interfaces

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Abstract

This study builds on the field of cross-cultural user experience design by developing culturally informed design guidelines for Western designers working with Chinese mobile interfaces. Drawing on theoretical cultural models of Hall and Hofstede and a design pattern analysis of Chinese apps, a set of design recommendations were created. These developed guidelines were tested in a design workshop setting, examining their impact on the design thinking process and outcomes in comparison to a control group. The findings suggest that culturally informed guidelines can function as both support and constraint during the design process. This research demonstrates how theoretical cultural models can be translated into actionable design recommendations.

Introduction

This thesis is motivated by a personal experience that highlighted the profound impact of cultural differences on digital interface design and usability.

> *During my exchange semester in Beijing, I encountered an unexpected challenge: the seemingly straightforward task of ordering food delivery online turned into a puzzling experience the moment I opened a local app. Despite my background as a user experience designer and my familiarity with common design principles in Europe, I found myself confused by the interface that millions of Chinese users navigate effortlessly each day. What was intuitive to local users felt foreign to me, revealing a gap between my Western design sensibilities and Chinese user expectations that design knowledge alone could not bridge.*

This personal experience reflects the broader challenge in the field of user experience (UX) design. In this digital age, cultural ambiguity is increasingly common as more and more people navigate through life in multicultural settings. While humans eventually learn to adapt, successful digital interfaces should address immediate usability across cultural boundaries. As the global village expands, the generalization of user experience design fails to meet the usability needs of diverse cultures, challenging the general assumption that all interfaces should follow a certain path and adhere to conventional design standards.

The Chinese market, in particular, continues to grow in economic importance and technological innovation (Arora & Vamvakidis, 2011), presenting Western designers with the complex task of creating interfaces that align with Chinese users' cultural expectations and preferences. While research in cross-cultural UX design has established theoretical frameworks for understanding cultural aspects in interface design (Marcus & Gould, 2000; Reinecke & Bernstein, 2013) and subsequent studies by Li et al. (2022) have refined these frameworks specifically for Chinese

interfaces by identifying key elements influencing the interface design – there remains a significant gap in practical application. This gap is particularly evident in translating these theoretical insights into actionable guidelines for Western designers targeting the Chinese market. This research need is not merely theoretical. My personal experience struggling with a Chinese food delivery interface – that was both technically functional yet confusing in its information hierarchy and visual presentation – exemplifies how design approaches must go beyond technical functionality to embrace specific cultural contexts.

This thesis addresses this gap by developing and evaluating design guidelines to support Western designers in creating culturally adapted mobile UX interfaces for a Chinese travel application. The research is motivated both by personal experience and by the observation that Western designers often struggle to navigate Chinese applications – such as Temu or AliExpress – due to insufficient consideration of cultural preferences, interaction patterns, and visual design expectations.

The primary research question for this thesis is how design guidelines can be developed to support Western designers in creating culturally appropriate mobile interfaces for Chinese users.

This research question will be addressed by systematically reviewing current cross-cultural design literature and analyzing existing Chinese applications, followed by translating these findings into actionable design guidelines. The study examines cultural and design principles that should be incorporated, and how designers interpret and apply these guidelines. To test the effectiveness of these guidelines, the methodology includes two design workshops testing how design outcomes differ when using these guidelines versus a control group using conventional Western approaches.

Related Work

User Experience Design

UX design describes the design thinking process in which a product is developed to provide meaningful and relevant experiences to its users (Norman & Nielsen, 2018). Rather than focusing on a singular factor – e.g., user interface (UI) or usability – the term UX design encompasses all aspects of a user's perceived experience with a product, service, or website from the visuals to its usability. This comprehensive approach to design has proven critical as researchers have begun to quantify the impact of user experience on overall product success. Empirical evidence indicates that well-executed UX design correlates strongly with user satisfaction, retention, and commercial success (Hassenzahl & Tractinsky, 2006). Conversely, inadequate UX implementations often lead to diminished user satisfaction, increased task abandonment, and negative appraisals during longitudinal studies (e.g., Badran & AL-Haddad, 2018; Rizvi, 2022). Hence, investing resources in UX optimization is not just a matter of aesthetic consideration but a research-driven necessity. While UX design principles provide a foundation for product development, their application must consider the specific context in which users interact with products. Context encompasses numerous factors including user demographics, environment, and importantly, cultural background. Understanding these contextual elements is essential for creating genuinely user-centered designs that resonate across diverse user populations (Hassenzahl & Tractinsky, 2006).

Cross-Cultural Usability

Usability is a crucial part for the "survival" of the product – hence, if a product is troublesome to use, users will not bother with it (Nielsen, 2012). Usability is a qualitative attribute assessing the effectiveness of user interfaces. Assessing the quality of a product involves considering their context of use, which ISO (2024) outlines as a “collection of interacting factors” – such as users, goals, and environment. Consequently, culture is a fundamental component within “context of use” leading to a field of research about cultural influence and variability in usability as “Cross-Cultural Usability”.

Through a systematic investigation by applying the standardized usability engineering process outlined in ISO 9241-210, Heimgärtner (2014) examined the impact of cultural variability and interactive system design methodologies. The findings reveal potential for cultural factors to affect principles of human-centered design (Heimgärtner, 2014).

The initial focus of researchers and practitioners were centered around visible, surface-level cultural artifacts – e.g., text orientation, typographic characteristics, linguistic elements, and colors – due to their tangible, accessible nature. However, this effort showed significant limitations, failing to encompass the more complex and intricate dimensions of culture – e.g. assumptions, cultural values, and patterns of thinking that shape human perception and interaction (Zhu, 2015). These deeper cultural elements, though less immediately apparent, have profound implications for how users interact with and perceive digital interfaces.

The Influence of Culture and Cultural Models

As a result of the expansion of globalization and localization, digital interfaces, including websites and mobile applications from around the world, have become universally accessible with increasing ease. This has shaped the landscape of Human-Computer Interaction (HCI) across cultural boundaries. In response to this global accessibility, HCI researchers have extensively investigated the effects of cultural differences on user interactions and design requirements. The studies include topics such as the cultural impact on user interfaces (Auinger et al., 2011; Reinecke & Bernstein, 2013), the cultural differences in UX evaluation (Walsh et al., 2010), and cultural translation of design preferences (Alexander et al., 2016).

These cross-cultural HCI studies highlight a fundamental challenge: defining "culture" itself. While no definitive or universally accepted definition exists, researchers have applied various theoretical frameworks – such as Hofstede's cultural dimensions and Hall's context theory – to interpret cultural phenomena and analyze their effects on usability and interface design (Ford, 2005). These theoretical frameworks serve as analytical lenses through which researchers can systematically examine how cultural factors influence user expectations and behaviors.

Among the various cultural frameworks available to researchers, this thesis focuses specifically on Hall (1959) and Hofstede (2010) models. These two models were chosen due to their complementary perspectives. Hall's model addresses dimensions such as communication patterns in relation to context that directly impact information presentation in UI design, while Hofstede's dimensions offer insights into deeper cultural values – such as individualism versus collectivism – that significantly affect user expectations. Hofstede's (1991) dimensions of culture were also the "most quoted theories in relation to cross-cultural usability" (Smith et al., 2004) – due to its extensive empirical foundation, covering the largest number of analyzed countries in comparative models (Zhu, 2015). Table 1 and Table 2 provides definitions and explanations for each dimension within Hall's and Hofstede's cultural models, which will inform the development of culturally sensitive design guidelines later in this thesis.

Table 1.

The Dimensions and Descriptions of Hall's Cultural Model. Adapted from Hall, E. T. (1959)

Dimension	**Explanation**
Context (High-Context versus Low-Context)	The communication style in culture can be distinguished between high-context and low-context communication. High-context cultures have an implicit communication style, relying on subtle nonverbal cues, and shared cultural understanding. Low-context cultures prioritize explicit, direct verbal communication with precise and detailed information.
Time (Monochronic versus Polychronic)	The perception and management of time vary between cultures. Monochronic cultures view time as linear, sequential, and schedule-driven, emphasizing punctuality and structured planning. Polychronic cultures perceive time as more flexible with multiple tasks and relationships taking precedence over strict timelines.

Table 2.

The Dimensions and Descriptions of Hofstede's Cultural Model. Adapted from Hofstede, G., Hofstede, G. J., & Minkov, M. (2010).

Dimension	Explanation
Power Distance Index (PDI)	PDI measures the attitude of the culture towards hierarchical authority. This dimension is defined as the extent to which the less powerful members within a country expect and accept that power is distributed unequally.
Individualism versus Collectivism (IDV)	This dimension represents the degree of interdependence a society maintains among its members such as whether people prioritize personal goals or group loyalty.
Motivation towards Achievement and Success (MAS)	Formerly titled as masculinity versus femininity, this dimension indicates a focus on competition and achievement versus care and quality of life.
Uncertainty Avoidance (UAI)	This dimension describes how comfortable a culture is with ambiguity and risks. It is the extent to which the members of a culture feel threatened by unknown situations.
Short-Term versus Long-Term Orientation (LTO)	This dimension represents the priorities of a society when it comes to future planning versus immediate results. It also describes how society deals with its past while also dealing with challenges of the present and future.
Indulgence versus Restraint (IVR)	IVR shows the extent to which people try to control their desires and impulses, based on the way they were raised.

These theoretical frameworks have been systematically applied to user interface design, enabling researchers to establish measurable connections between cultural dimensions and specific design elements. While these models provide valuable analytical lenses, their application to UX design requires careful translation from abstract cultural dimensions to concrete design guidelines. The following section examines how researchers have operationalized these theoretical constructs into practical design principles.

Application to User Interface Design

Extensive research over the past two decades has established significant correlations between cultural dimensions and UX design principles. Marcus and Gould (2000) were among the first researchers to systematically connect Hofstede's cultural dimensions to UI design features, establishing a foundational framework in this domain. Subsequently, Marcus expanded this framework through a series of empirical studies (e.g., Marcus, 2002; Marcus & Baumgartner, 2004; Marcus, 2011). Building upon this foundation, Reinecke and Bernstein further validated the relationship between cultural dimensions and interface usability outcomes in their works (Reinecke & Bernstein, 2008; Reinecke & Bernstein, 2011; Reinecke & Bernstein, 2013), making a significant contribution by adopting a user-centered perspective that added new depth to the field. Following these seminal works, numerous researchers have extended this line of inquiry: Callahan (2005) examined cultural patterns in educational websites, Mousavi & Khajeheian (2012) explored implications for mobile interfaces, and Reinecke & Bernstein (2008, 2013) developed adaptive systems responding to cultural preferences – collectively synthesizing their findings into comprehensive frameworks that continue to guide contemporary cross-cultural design practices. To illustrate the practical application of cultural dimensions to interface design, Table 3 shows the key relationships between Hofstede's cultural dimensions and specific UI elements based on Reinecke and Bernstein's (2013) influential framework. This mapping demonstrates how abstract cultural concepts can be translated into concrete design decisions.

Table 3.
Relationships between Hofstede's Dimensions and UI Aspects. Adapted from Reinecke, K., & Bernstein, A. (2013).

Dimension	**UI Design – Low Score**	**UI Design – High Score**
Power Distance Index (PDI)	Non-structured data	Structured data
	Friendly error messages	Strict error messages
	Support is rarely needed	Provide strong support with help of wizards
	Images often show the country's leader or whole nation	Images often show people in their daily activities
Individualism versus Collectivism (IDV)	Traditional colors and images	Use colors to encode information
	High image-to-text ratio	High text-to-image ratio
	High multimodality	Low multimodality

	Colorful interface	Monotonously colored interface
	Little saturation, pastel colors	Highly contrasting, bright colors
Motivation towards Achievement and Success (MAS)	Allow for exploration and different paths to navigate	Restrict navigation possibilities
Uncertainty Avoidance (UAI)	Most information at surface level, shallow hierarchy of information	Little information at surface level, more layered hierarchy of information
	Nonlinear navigation	Linear navigation
	Code colors, typography, sound to maximize information	Use extra cues to reduce ambiguity
Short-Term versus Long-Term Organization (LTO)	Reduced information density	Most information at interface level
	Content highly structured into small units	Content can be arranged around a focal area

While these frameworks provide valuable design insights, it is important to acknowledge their limitations. Cultural dimensions represent statistical aggregates that may not account for individual variations, regional differences, or evolving cultural norms. Additionally, the direct mapping between cultural dimensions and design elements sometimes risks oversimplification of complex cultural phenomena. As Kamppuri et al. (2006) note, treating culture as a static variable rather than a dynamic process can lead to stereotypical design solutions.

Chinese UX Design

Chinese UX design exhibits fundamental variations in information structure, and user engagement approaches compared to Western UX design. Understanding these differences is crucial for Western designers, as conventional Western design principles often prove inadequate when applied directly to Chinese markets without cultural adaptation. This section examines the key elements defining Chinese UX design through its mobile-centric evolution, traditional cultural influences, core Chinese values, and systematic differences from Western interface characteristics.

Mobile Technology Adoption in China

Research by Zhang and Crompton (2021) and Lee (2021) provides compelling evidence regarding China's accelerated adoption of mobile technology, highlighting a distinctive preference for mobile devices over traditional computers. Since 2013, China has experienced a significant increase in mobile technology usage for educational purposes, coinciding with the

widespread adoption of smartphones (Zhang & Crompton, 2021). Lee (2021) discusses this phenomenon through the concept of "leapfrogging," suggesting that China's "stage-skip" of personal computers for more economically accessible and convenient smartphone technology led to China's current mobile-centric usage patterns. This technological context is essential for understanding the unique parameters within which Chinese UX design has evolved.

Traditional Chinese Cultural Elements in UX Design

When examining Chinese UX design, traditional Chinese elements have a considerable influence on the design approach and aesthetic considerations (Long, 2017). These elements include cultural values, metaphors, and distinctive cultural representations such as Chinese calligraphy and ink paintings. Empirical evidence supports this claim, as demonstrated by a comparative study of a personal digital assistant incorporating aspects of the Chinese cultural concept of "Guānxi" (关系, relationship-building). This culturally informed design outperformed similar products from other countries in all aspects within the Chinese market (Marcus & Baradit, 2015). The integration of cultural values into features and interface design has been shown to enhance user engagement and satisfaction among Chinese users, demonstrating that culturally informed approaches yield measurable benefits.

Traditional Chinese Values

Romeo (2016) identified three predominant traditional Chinese values that significantly impact UX design effectiveness. The first is "Guānxi" (关系), which refers to the establishment and maintenance of social relationships through personal, particularistic ties between individuals. The second is "Rénqíng" (人情), encompassing the moral obligation within Chinese communities to reciprocate favors and observe established social norms in interpersonal interactions. The third is "Miànzi" (面子), representing social "prestige" or "honor" that individuals accumulate by adhering to societal expectations. Understanding and incorporating these cultural values into UX design has become increasingly important for both domestic and international companies targeting the Chinese market.

Comparison of Chinese and Western Interface Design

The information architecture and complexity of Chinese digital interfaces present a stark contrast to Western interfaces. Marcus and Baradit (2015) characterize Chinese interfaces with a high content density, consisting of "hundreds of items (images, links, buttons, text)" within a single display. This observation highlights the fundamental differences between the Chinese design philosophy of "More is More" and the Western design philosophy of "Less is More" (Qing, 2022).

Alexander et al. (2017) and Li et al. (2022) substantiate these observations through their comprehensive research on Chinese-Western website design comparisons. Their analysis yielded several consistent findings: Chinese interfaces consistently feature higher element density and more interactive components with high use of links, demonstrate a statistically significant preference for bright traditional colors such as blue and red, and frequently incorporate imagery associated with authority figures and ceremonies. Conversely, Western interfaces show distinctive characteristics, including more extensive use of footer sections,

predominance of whitespace and visual hierarchy, and imagery that typically depicts everyday scenarios of daily life or nature.

Table 4 presents a comprehensive comparison of these design characteristics based on Li et al.'s (2022) systematic analysis. This comparison not only highlights surface-level design differences but also reveals how deeper cultural values manifest in visual presentation and information architecture choices.

Table 4.
Consistent Differences in Web Design on Chinese and Western Websites. Adapted from Li, Y., Karreman, J., & De Jong, M. (2022)

Category	Chinese Websites	Western Websites	Cultural Explanations
Layout	Denser with more items		PDI; LTO; Chinese ideograms
	More (floating and clickable banners)		UAI; high/low context
Navigation		More footer navigation	Monochronic/polychronic time perception
Links	Links opening in new windows		High/low context; Monochronic/polychronic time perception
	Font or color change to mark links	Underlining links	Chinese ideograms
Multimedia	More pop-ups, videos and animations		High/low context; UAI
Color	More use of red and blue	More white	High/low context
	Low saturated colors	High saturated colors	IDV
Visual Representation	Images often show leaders, families, ceremonies, iconic symbols, accomplishments and monuments	Images often show individuals, daily life and nature	PDI; IDV; MAS; High/low context

Research Approach

Building upon the theoretical frameworks of cross-cultural interface design (Reinecke & Bernstein, 2013), Chinese-Western UI pattern differences (Li et al., 2022), and Chinese cultural values (Romeo, 2016), this research addresses the practical challenges faced by Western designers when creating mobile interfaces for Chinese users. As mentioned in the related works section, there are significant differences between Chinese and Western UX paradigms – from information density (Marcus & Baradit, 2015) to visual elements (Long, 2017). While extensive research exists on cultural dimensions and their implications on UI design, there remains a significant gap in translating these insights into actionable guidelines for Western designers. Current research predominantly focuses on identifying cultural differences in UX design rather than providing practitioners with specific strategies to address these differences in their design. Furthermore, there is limited empirical evaluation of culturally informed design guidelines in controlled design contexts, particularly regarding their effectiveness for Western designers creating interfaces for Chinese users. This thesis aims to bridge this gap by investigating how cultural dimensions manifest in Chinese interfaces and how the designers can effectively incorporate these considerations into their work.

Design guidelines broadly serve as frameworks helping practitioners make informed decisions throughout the design process (Hartson & Pyla, 2018b). Within the context of this thesis, these guidelines are specifically defined as structured recommendations that translate theoretical cultural knowledge into practical design considerations. Unlike rigid rules, guidelines are intended to be adaptable principles that inform the design process while allowing for creative interpretation based on specific project requirements. They function as a decision-making tool that assists designers in making culturally appropriate choices regarding interface elements, information architecture, visual design, and interaction patterns when designing across cultural boundaries.

The primary focus of this thesis is to develop and evaluate design guidelines that support Western designers in creating culturally appropriate mobile interfaces for Chinese users. The following research questions guide this study:

1. How can design guidelines be developed to guide Western designers in creating culturally adapted mobile UX interfaces for Chinese travel apps? This question addresses the methodological approach to translating cultural theory into practical design guidance. The focus on travel applications provides necessary scope limitation for research feasibility while offering a domain with rich cultural interaction patterns.
2. What cultural and design principles should be incorporated to support Western designers in adapting mobile UX for Chinese travel apps? This question examines the specific content needed for effective guidelines.
3. How do designers interpret and apply the guidelines when designing for Chinese users? This question explores the practicality and implementation of the guidelines.
4. How do design outcomes differ between designers using the guidelines and those without it? This question evaluates the impact and the underlying usefulness of the

guidelines by comparing the experimental, culturally informed design approach with a conventional Western approach.

To address these questions, this thesis is split into two distinct stages. The first stage focuses on the development of the culturally informed design guidelines and the second stage evaluates the effectiveness of these guidelines through comparative design workshops with Western UX designers.

Development of Design Guidelines

The vision of the guidelines was to develop a set of culturally informed recommendations that serves as a reference point for designers seeking to develop contextually appropriate mobile interfaces for Chinese users. These guidelines aim to bridge the gap between Western design paradigms and Chinese cultural expectations by providing the cultural context necessary for creating meaningful and engaging mobile experiences.

The methodological approach to developing the guidelines is divided into two complementary phases. The first phase incorporates findings from existing research in cross-cultural interface design to establish a theoretical foundation for cultural adaption. The second phase conducts a design pattern analysis of existing apps within the Chinese market, analyzing interface patterns, and visual elements of these mobile applications. This approach ensures that the resulting guidelines provide both theoretical insights and practical applicability – maintaining academic integrity and professional relevance.

The guidelines are composed of four key components. First, they establish a foundation based on Hall’s and Hofstede's cultural dimensions framework with specific attention to dimensions relevant to the Chinese cultural context. Second, they incorporate descriptions of cultural values unique to Chinese society and articulate their implications in design. Third, they identify interface preferences based on existing research and the design pattern analysis findings, highlighting elements such as information density, and interaction patterns. Fourth, they provide recommendations for design approaches that resonate with Chinese users' expectations and behavioral patterns.

The guidelines specifically target mobile interfaces, reflecting the documented preference for mobile technology among Chinese users (Zhang & Crompton, 2021; Lee, 2021). The guidelines serve as recommendations intended to function not as rigid rules but rather as culturally sensitive considerations that can assist designers when creating adequate user experiences for the Chinese market. The following sections detail the development process for each component of the guidelines and present the resulting recommendations for cultural adaptation in mobile interface design.

Theoretical Foundation

The theoretical foundation for the design guidelines are based on Hall's (1959) and Hofstede's (2010) cultural models and are further enhanced by incorporating research findings from existing mappings (Marcus & Gould, 2000; Reinecke & Bernstein, 2013; Alexander et al., 2017; Li et. al., 2022) and Chinese cultural values (Romeo, 2016).

Cultural Dimensions and Chinese Design

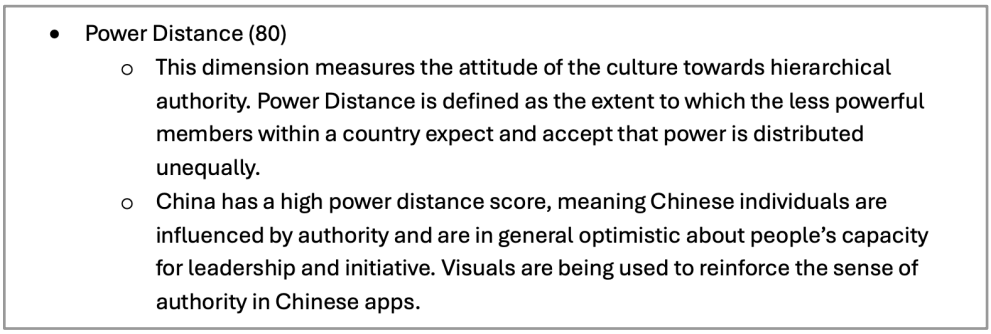
Hofstede's research has quantified cultural dimensions across over 100 countries, providing scores ranging from 0 to 100 for each dimension (Minkov & Kaasa, 2022). As visualized in Figure 1, China exhibits distinctive patterns across these dimensions that influence user expectations and preferences. China's high Power Distance Index (PDI) score of 80 represents how society is more susceptible to a hierarchical order and are generally more receptive to leadership and initiative. In UI design, this manifests in the form of clear hierarchical structure (Marcus & Gould, 2000). The Individualism (IDV) score of 43 depicts China as a collectivistic culture, where Chinese people's self-image is defined as a group rather than the individual. This collectivist orientation influences design preferences towards community values rather than individual achievement (Reinecke & Bernstein, 2013). The relatively high score of 66 in Motivation towards Achievement and Success (MAS) reflects a society driven by competition, achievement, and success – qualities that are reinforced through recognition and status elements in interface design (Li et al., 2022). China's low Uncertainty Avoidance (UAI) score of 30 indicates a culture comfortable with ambiguity. This cultural characteristic manifests in interface designs that may incorporate more implicit navigation patterns, hence, relying on their users' ability to discover functionality through exploration rather than explicit instruction (Alexander et al., 2017).

Figure 1.
China's Scores in each Dimension of Hofstede's Model

While Hall (1959) did not quantify his cultural dimensions with numerical scores, his qualitative classification of cultures provides valuable insights for understanding Chinese communication patterns. Hall categorized China as a high-context culture, where communication relies on implicit understanding, common cultural knowledge, and contextual cues. This contrasts with low-context Western communication styles that prioritize explicit, detailed information exchange. China's high-context communication is reflected in the Chinese language itself, which often convey meaning through context rather than explicit statements (Fu, 2021). China exhibits polychronic time patterns where multiple activities occur simultaneously – a stark contrast to the monochronic patterns typical in many Western cultures. In design, the polychronic orientation manifests in multimodality of layered interfaces and flexible interactions that allows users to engage with multiple functions simultaneously (Zhang, 2020).

Figure 2 illustrates how this information is presented in the guidelines, showing the definition of each dimension, the connection to Chinese culture, and a general characterization in design. This serves as background information for the designer to gain a deeper understanding of Chinese culture. For the full guidelines, refer to Appendix Guidelines.

Figure 2.
Snippet from the Guidelines – Cultural Dimensions



Chinese Cultural Values and Their Design Implications
Building on Hofstede's and Hall's cultural dimensions, the guidelines are further enriched by incorporating traditional Chinese cultural values that shape design preferences (Romeo, 2016). Research has identified China's culture of abundance (Wang, 2024) as a key influence on its user experience design. Hence, the design philosophy of "more is more" plays a central role (Qing, 2022) in UI design. Thus, Chinese interfaces often feature high information density and dynamic elements. This display of abundant information and options reflects the collectivist nature of Chinese culture and aligns with its low uncertainty avoidance, which enables Chinese users to navigate complex interfaces with ease.

The three traditional Chinese values according to Romeo (2016) have significance for interface design. First, "Guānxi" (关系, relationships) influences the prominence of social features in Chinese applications, where relationship-building is often an integrated functionality across the user experience rather than compartmentalized (Marcus & Baradit, 2015). Hence, with China's

collectivistic nature, user comments and popular topics within the community are often highlighted features in Chinese applications. Second, "Rénqíng" (人情, moral obligation) shapes interaction patterns in interface design, such as social features and community engagement mechanisms (Romeo, 2016). Third, "Miànzi" (面子, face as in social prestige) manifests through features such as allowing users to display achievements and social status, reinforcing users' social standing within their community (Li et al., 2022).

The functional scope of Chinese mobile applications often follows a holistic “everything-in-one” approach (Romeo, 2016; Qing, 2022). Rather than modular apps focusing on specific needs and tasks – as is typical with Western apps, Chinese users favor convenience in the form of multifunctional platforms with a broad range of functionalities within a single platform (Romeo, 2016). This approach is consistent with China’s polychronic time orientation of multitasking.

These cultural dimensions and values provide the theoretical foundation for developing the culturally informed guidelines. The following section will examine how these cultural factors manifest in specific interface elements through a design pattern analysis of Chinese travel applications.

Design Pattern Analysis of Chinese Travel Apps

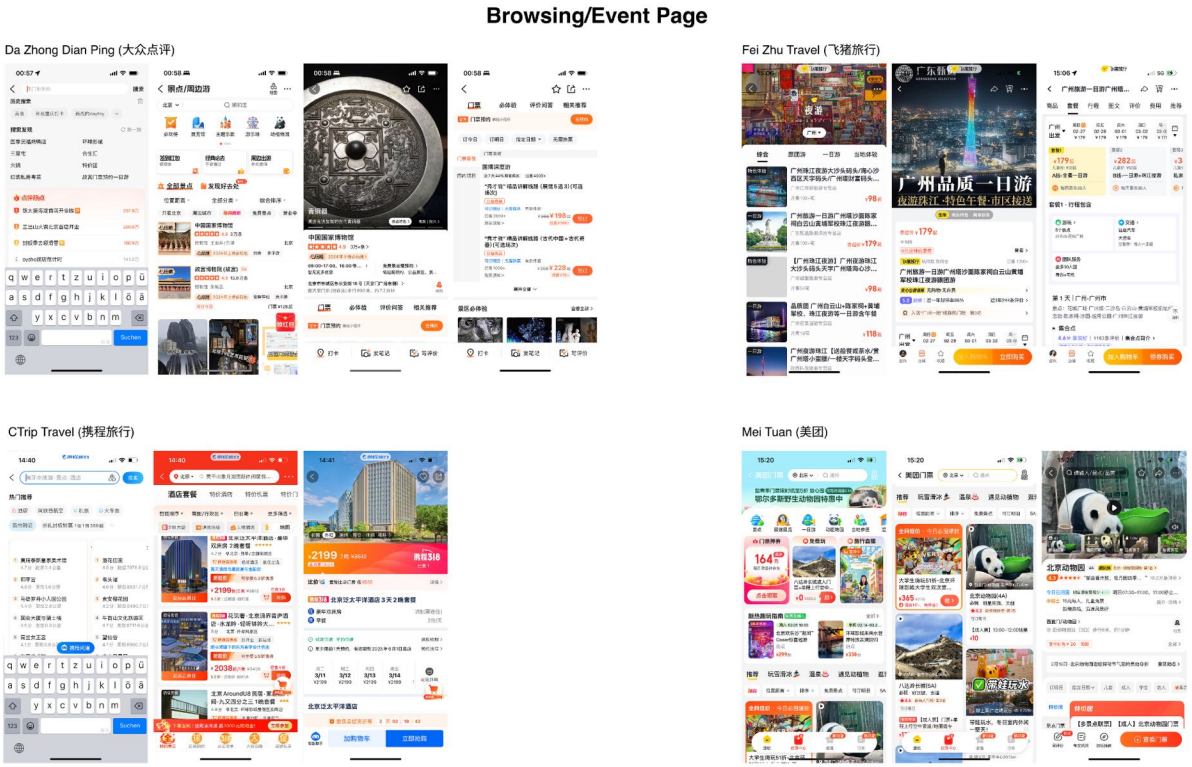
A pattern analysis of Chinese travel apps was conducted to identify culturally-specific design patterns that inform the guidelines. The decision of working with travel applications was made to establish necessary boundaries for research feasibility – by focussing the analysis on a defined application category rather than attempting to address all possible interface types across all domains. Another reason is the versatility of this domain since travel applications typically incorporate a diverse set of interaction patterns – from information browsing to transaction completion. This range of interaction patterns yield a comprehensive overview into the cultural design differences between Chinese and Western travel apps. This focused context also enables a more controlled comparison between the participants’ design outcomes in the subsequent design workshops.

For the interface analysis, four representative Chinese travel and lifestyle apps were selected: Dà Zhòng Diǎn Píng (大众点评), Fēi Zhū Travel (飞猪旅行), CTrip (携程旅行) and Měi Tuán (美团). These applications were selected based on their popularity among Chinese users and their comprehensive feature sets that exemplify Chinese design approaches.

The analysis focused on five key interface segments – representing the core steps of the user journey of a travel application – landing pages, community content, browsing interfaces, search functionality, and event detail pages. These segments were selected because they encompass the primary interaction patterns users engage while also providing a comprehensive overview of cultural design differences. For each segment, the analysis examined visual elements – such as layout, color, visual representation –, navigation patterns, and interactive components.

Screenshots of each application were systematically captured and organized by interface segment – an example can be seen in Figure 3, refer to the Appendix Design Patterns Analysis for the complete overview. The visual elements were compared to identify recurring patterns and distinctive features that appeared consistently across the applications. Each pattern was analyzed in relation to the cultural dimensions and values discussed in the theoretical foundation to establish connections between observed design elements and underlying cultural factors.

Figure 3.
Example of Organization of Browsing Segments



Key Design Patterns

The analysis revealed several consistent design patterns across the examined applications that reflect Chinese cultural preferences. These findings are organized by interface segment and presented with visual examples and their relation to the theoretical foundation.

Landing Page Design – Content Abundance and Categorization

A prominent characteristic was the representation of content abundance through comprehensive category visualization – usually in form of icons – on the landing pages, see Figure 4. This extensive content was consistently complemented by an infinite scroll functionality that directed users into either community-generated content or trending events.

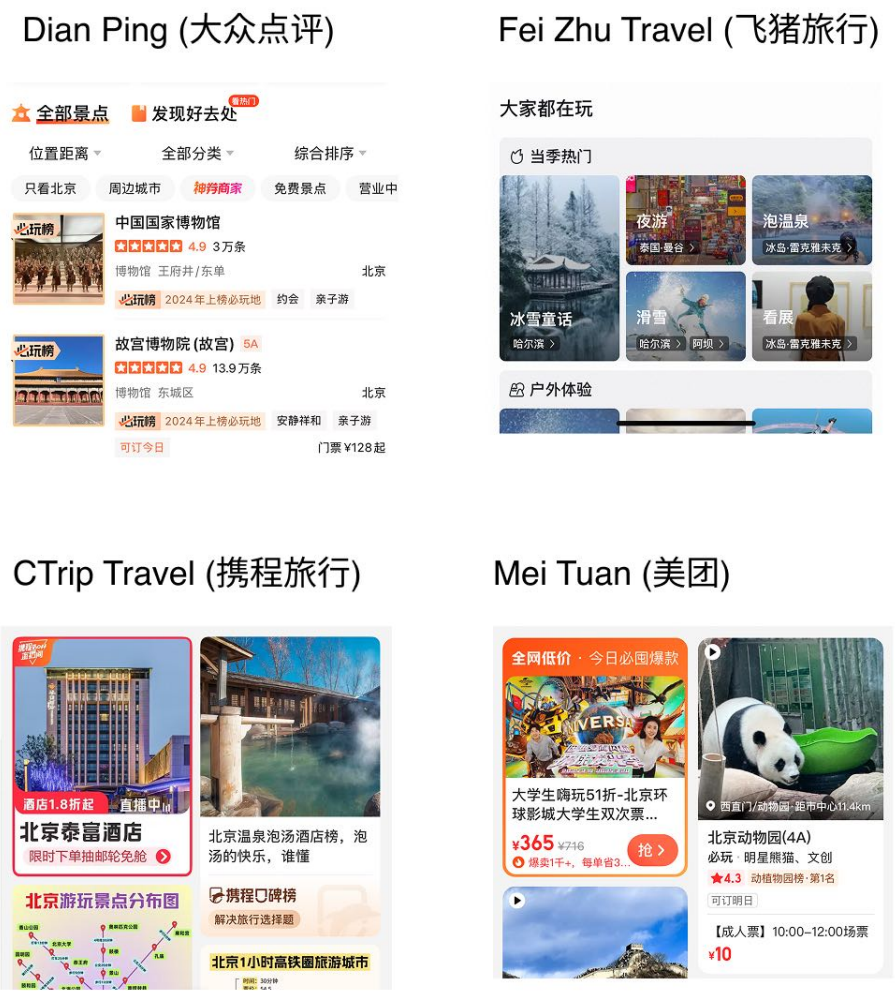
Figure 4.
Category Icon Grids on Landing Pages

This design approach addresses both content discovery and social connection priorities simultaneously. The extensive category display reflects China's cultural orientation towards abundance (Wang, 2024) and aligns with the "more is more" design philosophy identified by Qing (2022). The high information density observed in these interfaces corresponds with China's low uncertainty avoidance, implying that Chinese users are comfortable navigating complex interfaces with multiple options presented to them (Alexander et al., 2017).

Community Content – Collective Preferences and Social Validation

The collectivistic aspects of Chinese culture are evident in how community consensus and popular content are emphasized across interfaces. Trending events – often titled as "hot trends" ("热门") and presented with colored highlights and/or extra added labels – and community posts receive significant visual prominence within the interface hierarchy, as shown in Figure 5.

Figure 5.
Trending Events and Community Content



This prioritization of collective preference indicators aligns with China's collectivistic orientation and cultural emphases of Guānxi (关系), where social validation play an important role in the user's decision-making (Romeo, 2016). Labels such as "大家都在玩", translated as "Everyone is playing (doing) this" – the label is seen in Figure 5 on Fei Zhu Travel – further substantiate the importance of group affirmation within China's collectivistic culture (Hofstede, 2010). The prominence of user ratings, and reviews reinforces the importance of social validation in Chinese interfaces.

Browsing Interfaces – Exploration Emphasis

The analyzed applications consistently emphasized browsing capabilities for the user – evident by the prominent placement of category navigation and curated content sections (see Figure 4). This pattern reflects a preference for exploration, allowing users to discover options they might not have explicitly searched for. When the search bar is present, it frequently presents

suggestion prompts, displaying the popular searches – see Figure 6. This encourages users to engage with community-validated content, aligning with both the collectivistic mindset and Guānxi (关系).

The browsing emphasis aligns with China's polychronic time orientation (Hall, 1959), where users might engage in multiple activities simultaneously – e.g., browsing across several categories – rather than having a single search task.

Figure 6.
Search Bar with Suggestion Prompts

Notably, Chinese applications frequently incorporate alternative search input methods, with camera and voice search icons prominently positioned alongside traditional text input fields. This design pattern enhances accessibility for users across different technological comfort levels and aligns with research by Xie (2005) indicating that older Chinese people often struggle with text-inputs.

Search Functionality – Contextual and Location-Aware
The search functionality is consistently supplemented with location-based parameters – such as a location tag or icon for easy navigation (see Figure 6). This pattern reflects the practical considerations of travel applications but is implemented with particular emphasis in Chinese interfaces. The search bars have integrated location parameters as contextual information. This aligns with Hall's (1959) classification of China's high-context communication style – meaning users expect the system to understand and incorporate information rather than requiring explicit input.

Event Detail Page Design – Information Density

The event detail pages across the analyzed applications characteristically showcase dense information presentation. This typically begins with a prominent image gallery followed by details – such as a description, price, address – and user ratings (see Figure 7).

Figure 7.

Information-Dense Event Details Pages

Dian Ping (大众点评)

Fei Zhu Travel (飞猪旅行)

CTrip Travel (携程旅行)

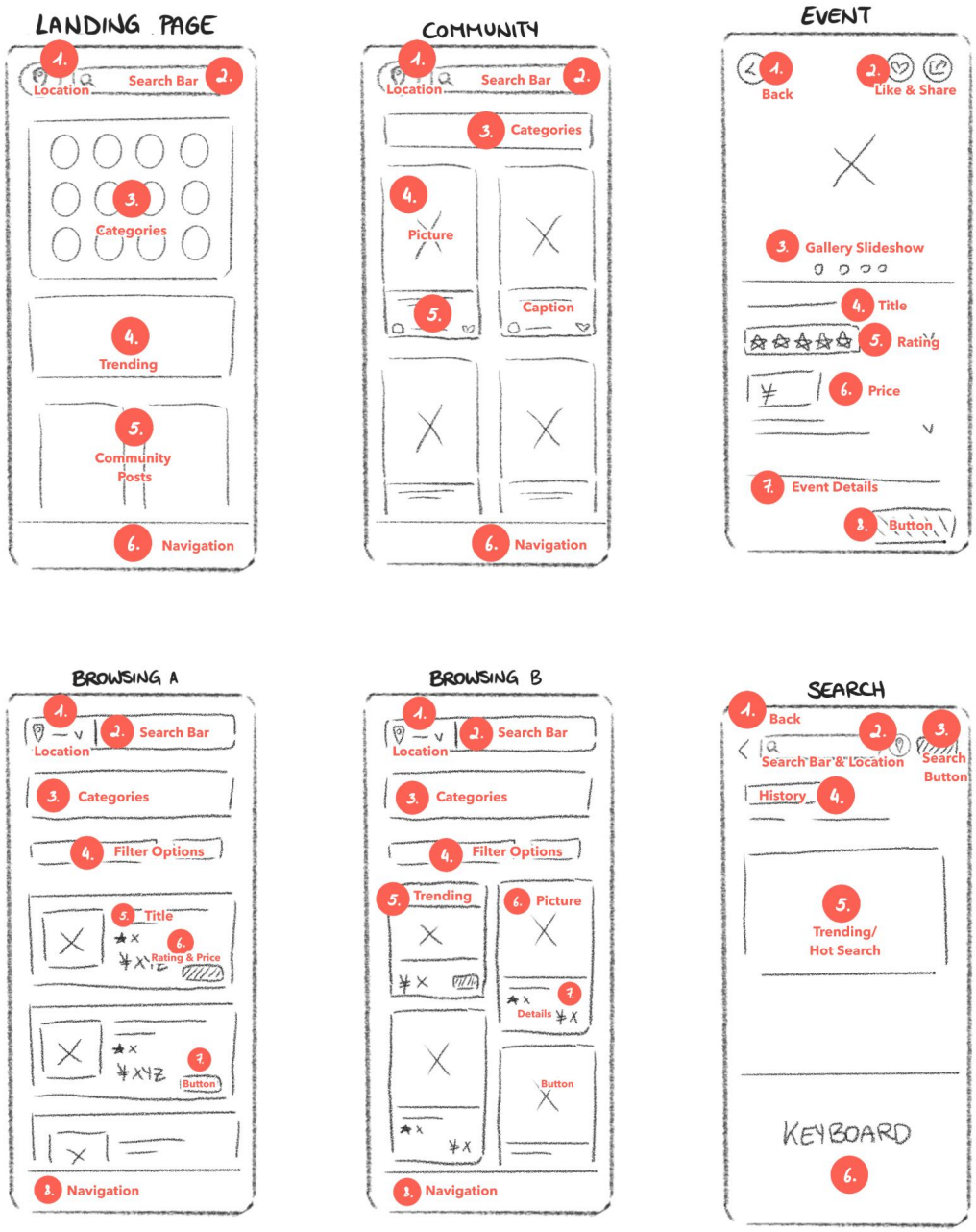
Mei Tuan (美团)

The information density on these pages reflect the “more is more” design philosophy (Qing, 2022) and complements China’s low uncertainty avoidance, suggesting that users are comfortable with processing complex information displays (Hofstede, 2010).

Visual Summary

Figure 8 is a series of low-fidelity wireframe illustrations created to summarize the recurring patterns identified across the analyzed applications. These visualizations showcase the consistent structural elements and visual hierarchy. Each wireframe represents the typical arrangement and prioritization of elements highlighting the common design patterns reflecting Chinese cultural preferences.

Figure 8.
Synthesized Wireframe of showcasing Common Design Patterns and Visual Hierarchy



These identified patterns along with the theoretical foundation form the basis for developing culturally informed design guidelines. This combination of pattern identification and cultural interpretation doesn't only show what Chinese interfaces look like, but creates a deeper understanding of why they are designed that way.

Design Recommendations

Based on the theoretical foundation and design pattern analysis, this section presents specific design recommendations for Western designers when creating mobile interfaces for Chinese users. These recommendations are organized into key areas that emerged as significant in the theory and pattern analysis. Each recommendation is grounded in the cultural dimensions discussed earlier and supported by observations from the analyzed applications. The recommendations aim to bridge the gap between Western design approaches and Chinese user expectations by providing culturally informed suggestions that can be applied in practical design contexts.

Content Abundance and Information Density

The analysis of Chinese travel applications revealed consistent patterns of high information density and comprehensive content presentation. This finding aligns with China's low uncertainty avoidance score of 30 (Hofstede, 2010) and reflects the cultural preference for information-rich environments. It is advisable for Western designers creating interfaces for Chinese users to embrace content abundance over minimalism (Wang, 2024). This approach involves designing interfaces with higher information density than typical Western applications, limiting whitespace in favor of displaying more features and options. Landing pages benefit from showcasing the variety of functionality through comprehensive category displays, as observed in all analyzed applications. Grid layouts with an abundance of information at surface level are preferable to overly layered information hierarchies (Reinecke & Bernstein, 2013). This preference for immediately visible options was consistently observed in the design pattern analysis and represents a significant divergence from Western minimalist design principles that emphasize reduced cognitive load through information hiding through nestled design elements.

Exploration and Browsing Patterns

Chinese applications consistently prioritize browsing capabilities over direct search functionality, reflecting the polychronic time orientation in Chinese culture (Hall, 1959). To accommodate this preference, Western designers are encouraged to place category browsing options prominently on landing pages and to incorporate trending content and community recommendations in browsing interfaces. It is recommended to create nonlinear navigation to support exploratory behavior rather than directing users toward specific goals (Reinecke & Bernstein, 2013). When designing interactive elements, color cues are more preferable to underlining as indicators for clickable elements (Li et al., 2022). This recommendation stems from the visual nature of Chinese ideograms, where underlining can interfere with readability (Li et al., 2022). Additionally, designers could accommodate parallel browsing behaviors by designing interfaces that support multiple simultaneous activities, potentially with links opening in new windows to maintain context.

Contextual Awareness and Input Methods

The analysis revealed that Chinese interfaces consistently incorporate contextual elements, particularly location awareness, into search and browsing functionality. This aligns with Hall's (1959) classification of China as a high-context culture, where communication relies heavily on shared contextual understanding. Design recommendations include integrating alternative search input methods such as camera and voice options alongside traditional text search. These alternative input methods enhance accessibility for users across different technological comfort levels, including older users who may struggle with text input (Xie, 2005). Search interfaces benefit from displaying trending searches and suggestions to encourage community-aligned exploration. Additionally, search functionality should preserve contextual information – such as location – throughout the search process, minimizing the need for explicit user input.

Visual Communication and Multimedia Elements

Chinese interfaces demonstrate distinct visual communication patterns characterized by dynamic elements and higher image-to-text ratios than typical Western interfaces (Li et al., 2022). This reflects China's high-context communication style and collectivistic orientation. Interface designs may include attention-grabbing elements like animations and pop-ups, which are more readily accepted in Chinese interfaces due to lower uncertainty avoidance (Hofstede, 2010). Imagery containing themes relevant to collectivistic values, such as families, ceremonies, and community activities are favored over individualistic themes common in Western interfaces (Reinecke & Bernstein, 2013; Li et al., 2022).

Social Validation and Community Integration

The pattern analysis identified significant emphasis on community consensus and social validation across all analyzed applications. This directly connects to China's collectivistic culture (IDV score of 43) and the importance of traditional values like “Guānxi” (关系, relationships) and “Miànzi” (面子, social face). Recommendations include displaying user reviews and ratings prominently within the interface hierarchy and highlighting trending or popular choices to facilitate community-influenced decision making. Designers are encouraged to incorporate indirect social bonding features, such as gifting mechanisms or shared rewards, that build relationships between users (Romeo, 2016). Gamification elements that bring users together for collective achievements align with Chinese collectivistic values and gaining social face within the community. Ideally, interfaces provide various opportunities for users to share experiences and contribute to the community knowledge base.

Transaction Processes

While not directly observed in the interface analysis, transaction processes represent an important extension of the cultural dimensions identified in the theoretical foundation. China's lower uncertainty avoidance and rapid adoption of digital payment technologies have created distinct expectations for transaction interfaces (Romeo, 2016). Western designers should consider integrating QR code payment options, which have become ubiquitous in Chinese

digital ecosystems (Vescovi, 2018). Interfaces may be designed to accommodate biometric authentication where appropriate, reflecting the greater acceptance of such technologies in Chinese markets.

While these recommendations are grounded in theoretical cultural dimensions and pattern analysis, their practical effectiveness for Western designers requires empirical validation. An experimental study was designed to evaluate whether these culturally informed guidelines help Western designers create interfaces that better align with Chinese user expectations compared to conventional Western design approaches. Through a comparative workshop methodology, the experiment investigates both the outcomes of guideline application and the designers' experience in interpreting and implementing culturally adapted design principles.

Experiment

The second phase of this research was an experiment to evaluate the effectiveness of the culturally informed design guidelines developed. The experiment addresses the third and fourth research questions: how designers interpret and apply the guidelines when designing for Chinese users, and how design outcomes differ between designers using the guidelines and those without them. A comparative workshop methodology was employed to directly observe and measure differences in both process and outcomes. The primary objective was to evaluate the usefulness of the developed guidelines in a realistic setting. The participants were tasked with designing screens for a travel application, maintaining consistency with the domain focus established in the guideline development phase.

Participants

The experiment involved six participants divided equally between experimental and control groups. All participants were female designers between the ages of 22 and 28, with backgrounds in UX design and proficiency in Figma. Each participant had prior experience designing mobile interfaces in a European context but had no specific expertise in designing for Chinese users. This selection criteria ensured participants had sufficient design knowledge to complete the tasks while controlling for prior experience with Chinese design patterns. Participants were recruited through an open call, with the only requirement being experience in mobile interface design. This recruitment criterion is relevant, since the guidelines were developed under the assumption that the reader possessed fundamental UX design knowledge. While the sample size is limited, it aligns with common practice of a small design team in a realistic setting.

Materials and Setup

Both groups were provided with identical design briefs and resources, with the experimental variable being access to the cultural guidelines. The following materials were prepared:

1. A comprehensive design brief detailing the fictional client scenario, tasks, objectives, and expected deliverables. The brief included a description of the target Chinese user group and two personas representing this audience, with cultural information embedded in their characteristics, pain points, and needs – e.g. wanting to share their trip on social media, or reliance on visual cues due to language barriers.
2. A prepared Figma workspace containing reference screenshots of landing, event, and booking pages extracted from the TripAdvisor mobile application (December 2024). The workspace also included a style guide with font styles and color specifications, an icon library, and basic UI components to facilitate efficient design work.
3. Cultural design guidelines (experimental group only) providing recommendations for designing interfaces aligned with Chinese user expectations and preferences.

For the complete documentation of materials, the design brief is included in Appendix Design Brief and the Figma setup in Appendix Figma Setup.

Procedure
The experimental procedure was structured as follows:

1. Participants received the design brief one day before their scheduled session to familiarize themselves with the task requirements. They were explicitly instructed not to conduct additional research on Chinese users or interfaces to prevent external influences on the experimental conditions.
2. Participants were assigned to either the control or experimental group. The experimental group received the developed guidelines as an additional resource, while the control group worked solely from the design brief and personas.
3. Each group participated in a 90-minute design workshop and was tasked with creating:
    - A user flow diagram detailing the user's journey and expected interactions
    - Low-fidelity wireframes with design annotations
4. Following the design session, both groups engaged in a semi-structured interview about their experience, design decisions, and challenges encountered during the process. The interview protocol is documented in the Appendix Interview Protocol.

All sessions were video recorded with participants' informed consent to facilitate detailed analysis of the design process and decision-making patterns.

Data Collection and Analysis
Multiple data sources were collected to allow a comprehensive analysis:

1. Design artifacts – user flows and wireframes – produced by both groups
2. Video recordings of the design sessions capturing interactions and verbalized thought processes
3. Semi-structured interview responses providing insight into participants' design rationale and experiences

The analysis approach combined visual assessment of design artifacts, thematic analysis of interview transcripts, and comparative evaluation of design processes. Specific criteria for evaluation included alignment with Chinese design patterns identified in the previous chapter, incorporation of cultural considerations into design decisions, and differences in information architecture, visual design, and interaction patterns between the two groups.

This experimental setup enables both process-oriented and outcome-oriented evaluation, providing insights into not only whether the guidelines produced more culturally appropriate designs but also how designers integrated cultural considerations into their design thinking.

Results

This section presents the findings from the workshops, documenting how each group approached the design challenge. The results focus on the design processes, decisions, and outputs produced by the experimental group with guidelines and control group without guidelines, revealing distinct patterns in how cultural considerations were integrated into the design work.

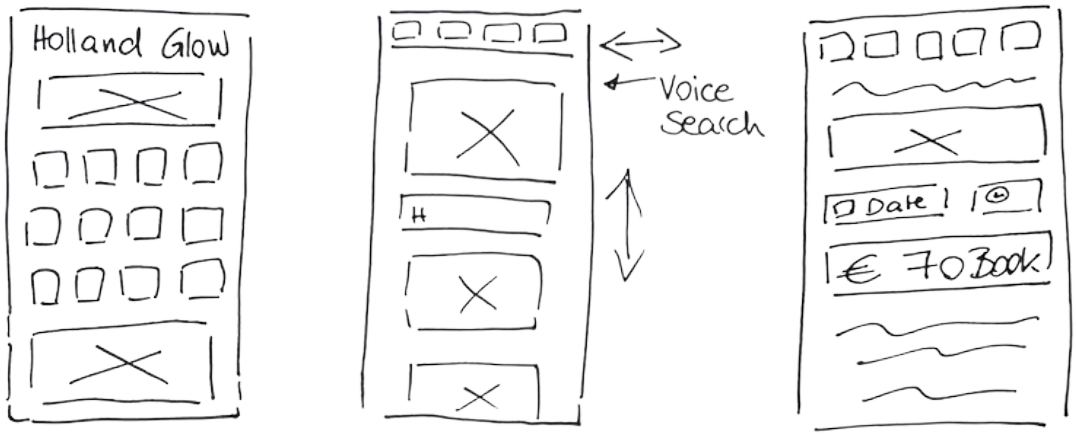
Experimental Group

Design Process and Approach

The designers of the experimental group approached the project with a strong focus on cultural adaptation, particularly emphasizing abundance and collectivism as suggested by the given guidelines. Their design process began with mapping the user flow across three key screens – landing page, event page, and booking page. The full overview of the user flow can be found in the Appendix User Flow (Experimental Group).The designers then added relevant sub-pages to complete the flow. During this mapping process, which took approximately 20 minutes to finalize, the team simultaneously sketched potential layouts – as seen in Figure 9 – that would achieve the information density recommended in the guidelines.

Figure 9.

Potential Layout Sketches for Landing, Event and Booking Pages (Experimental Group)



Information Architecture

Categorization emerged as a key discussion point, with the designers conceptualizing browsing as the core user behavior rather than searching, directly reflecting the guideline recommendations. They structured the browsing experience to include an extensive list of categories and filters – such as date, time, location, price, and rating – ensuring users are able to explore multiple relevant options. In the follow-up interview, the team disclosed that their design decisions were influenced by their understanding of Chinese e-commerce platforms, particularly Temu, which they regarded as a prime example of the industry standard for the “more-is-more” approach described in the guidelines.

The designers prioritized creating an information-dense interface by incorporating infinite scrolling in both horizontal and vertical directions and presenting numerous options on the front page. Their wireframes utilized lorem ipsum text fillers to save time while they concentrated on experimenting with information layout to achieve the recommended density.

Social and Community Elements

Community integration was a significant focus area, with designers explicitly questioning, "How do we bring in the community more?" This inquiry led to the implementation of a popularity rating feature for events, derived from the persona trait indicating a preference for discovering popular venues. The team also explored gamification elements, including discount features like "share to unlock" and "spin the wheel" as engagement mechanisms that aligned with the social validation principles outlined in the guidelines.

Cultural Considerations

Accessibility considerations were prominent in the team's discussions, especially given the guidelines' emphasis on cultural preferences for talking over typing and browsing over searching. The design incorporated visual elements, with inclusion of icons prioritized due to the target group's presumed visual preferences. The designers deliberated extensively about which icons to use and how to make the interface more visually engaging and intuitive. For transaction processes, the designers unanimously agreed on incorporating the most common Chinese payment methods, such as WeChat Pay and Alipay with QR code integration, directly following the guidelines' recommendations. They also weighed the effectiveness of incorporating urgency-creating elements such as "3 tickets left" or "25% off now”, which they ended up implementing with the reasoning being: “It means a lot of people are doing it, showing community favor.”

Control Group

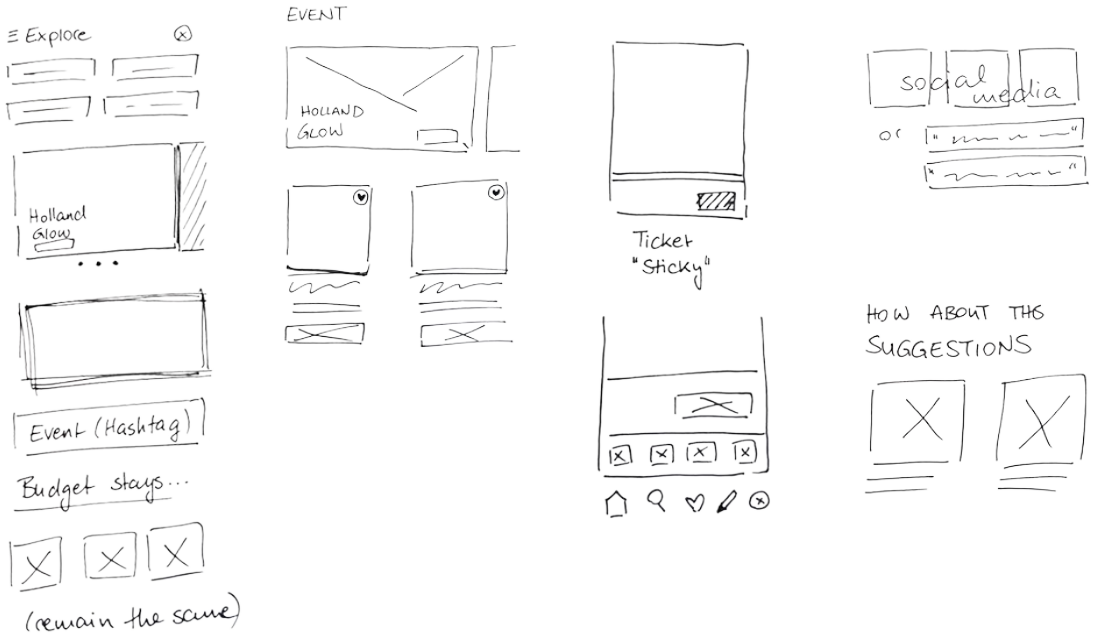
Design Process and Approach

The control group approached the design challenge in a very traditional design thinking manner. Their process began with a thorough discussion of the design brief, careful examination of the provided personas, and cross-referencing of tasks with the base interfaces. This systematic approach allowed them to identify necessary screens and features for the user flow. The mapping process was more extensive than the experimental group's, taking approximately 35 minutes to complete. An interesting observation was that despite the designers' cultural background not matching the target group, they frequently referenced their own experiences with travel applications to guide design decisions, asking questions such as, "What is our own experience with travel apps?" This reliance on personal experience informed their decisions of feature priority and implementation. Rather than using placeholder text, the team incorporated content from the brief, demonstrating their approach as a realistic scenario.

Information Architecture

The team structured their user flow by dividing it into three main sections: landing, event details, and booking. Their discussions about navigation styles and interaction patterns included considerations for sidebars, footnotes, buttons, and category filters. The base interfaces were thoroughly analyzed, with a strong focus on the priority and relevance of features in relation to the given objectives. While interaction patterns like an infinite scroll were initially considered, uncertainty about its content led them to keep their design more contained. Hence, the team decided to integrate their design within the base interfaces rather than creating an entirely separate structure. Features were first sketched on separate post-it notes – potential feature sketches shown in Figure 10 – and then rearranged to experiment with different layouts for the most intuitive user flow – the full user flow can be found in the Appendix User Flow (Control Group). In the follow-up interview, the team mentioned how they consolidated the information architecture rather than breaking the process into separate steps – e.g. the booking process in a one-page design instead of step-by-step – due to the time constraints. The designers expressed a desire to separate those information chunks and declutter the final design if given more time.

Figure 10.
Potential Feature Sketches for Landing, Event and Booking Pages (Control Group)



Social and Community Elements
The personas served as the control group's primary reference point for understanding the target audience, with the team continuously consulting and cross-referencing them to ensure alignment with user needs. Both personas suggested an underlying need for community and desire to share experiences, which the team translated into an emphasis on reviews and the inclusion of social media elements. However, in the interview the designers expressed uncertainty about the appropriate level of social media integration due to their unfamiliarity with the target culture. The review and social media posts in the event details became highlighted features, directly extrapolated from the personas. The review layout was initially based on the designers' personal experiences and familiar mental models, and after thorough discussion, they finalized its structure. Event-related hashtags were incorporated to subtly introduce social media elements.

Cultural Considerations
Visual communication was emphasized to address potential language barriers, with the team incorporating "heavy visuals" including numerous icons and graphical elements to help users in orientating and navigating themselves in their design. Color choices were presumed to be "universal," with red indicating high demand and green signifying availability. The team explored Chinese apps for inspiration, but they did not gain much insights from this due to their lack of touchpoints with Chinese mobile applications. For transaction flows, the team initially considered QR codes for the booking process but ultimately deemed them redundant with the reasoning “they [the user] is already on the payment screen, the QR code is useless here”. They chose to add conventional payment methods familiar to them instead. Despite expressing

some uncertainty about whether their design was optimally suited to the target audience, the team relied predominantly on familiar design patterns, ultimately creating what can be characterized as a conventional European design approach with increased visual elements.

Summary of Key Differences

The workshops revealed several in both process and outcomes between the experimental and control groups. While the experimental group directly applied cultural design principles from the guidelines, emphasizing information density, community integration, and Chinese-specific interaction patterns, the control group relied primarily on Western design conventions supplemented by limited cultural inferences from persona details. These contrasting approaches produced notably different design artifacts that reflect divergent interpretations of the same design brief. Table 5 summarizes the key differences observed in both process and outcomes.

Table 5.
Comparison of Design Approaches between Experimental and Control Group

Design Aspect	**Experimental Group with Guidelines**	**Control Group without Guidelines**
Information Density	High density interfaces with infinite scrolling in both directions; “more is more” approach	More contained design with conventional information hierarchy
Navigation Approach	Browsing-centered with extensive category options	Traditional navigation with familiar patterns from Western apps
Community Integration	Social features with popularity ratings, integrated social media sharings and user reviews	Social features mainly in form of user reviews and social media posts
Visual Elements	Heavy emphasis on icons and visuals based on guideline recommendations about visual preferences	Visual elements added primarily to address potential language barriers
Payment Process	Chinese payment methods with QR codes (WeChat Pay and AliPay)	Chinese payment methods (WeChat Pay and AliPay) with other payment options; considered but rejected QR codes
Design References	Chinese e-commerce platforms (Temu)	Western travel apps
Time Allocation	20 minutes for user flow; more time on information architecture	35 minutes for user flow; more time on design brief discussion and persona analysis

The differences summarized in Table 5 are further evidenced in the final wireframe designs produced by each group. Due to the 90-minute time constraint of the workshops, participants created low-fidelity wireframes supplemented with detailed design annotations that explain intended functionality and interaction patterns. These annotations are crucial for understanding the full scope of the designers' intentions beyond what is visually represented in the basic wireframes.

Figures 11-13 present the key screens designed by the experimental group using the cultural guidelines, while Figures 14-16 show the corresponding screens from the control group. While the visual fidelity is intentionally limited, the design thinking and cultural considerations are evident through both the structural elements and accompanying annotations.

Figure 11.
Annotated Low-Fidelity Wireframe of Landing Page (Experimental Group)

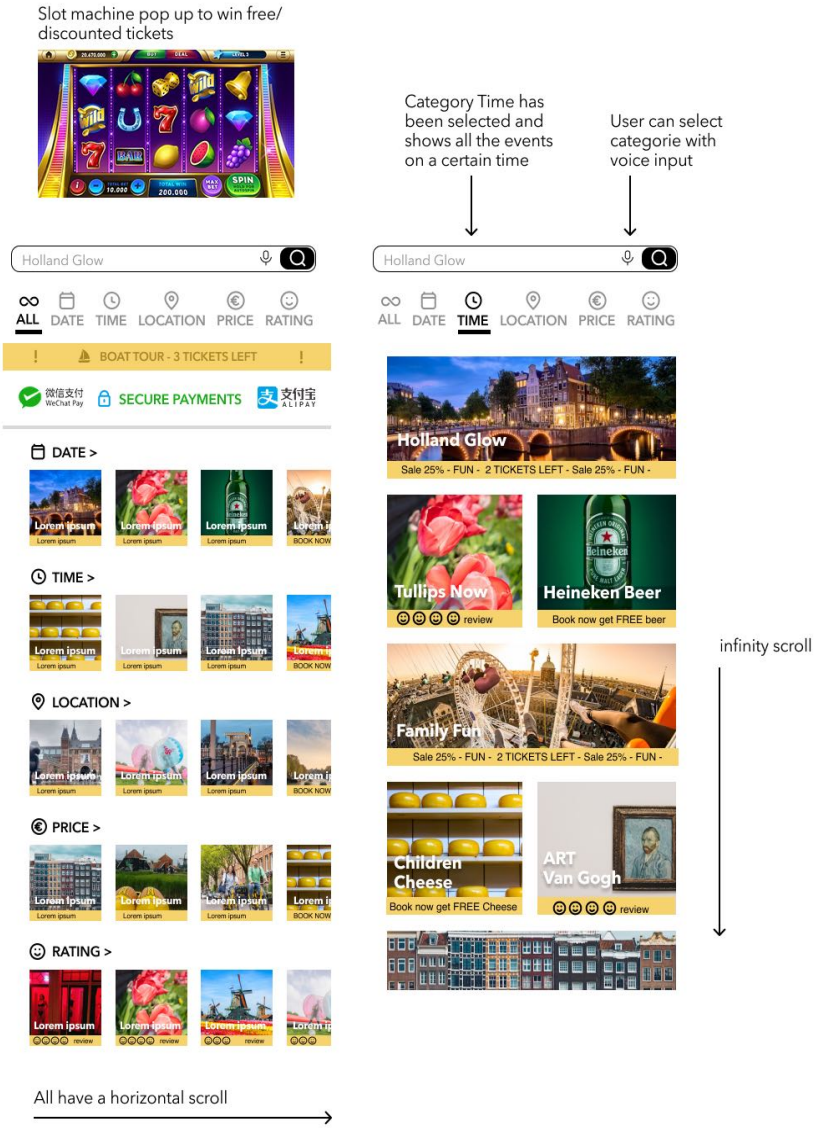


Figure 12.
Annotated Low-Fidelity Wireframe of Event Page (Experimental Group)

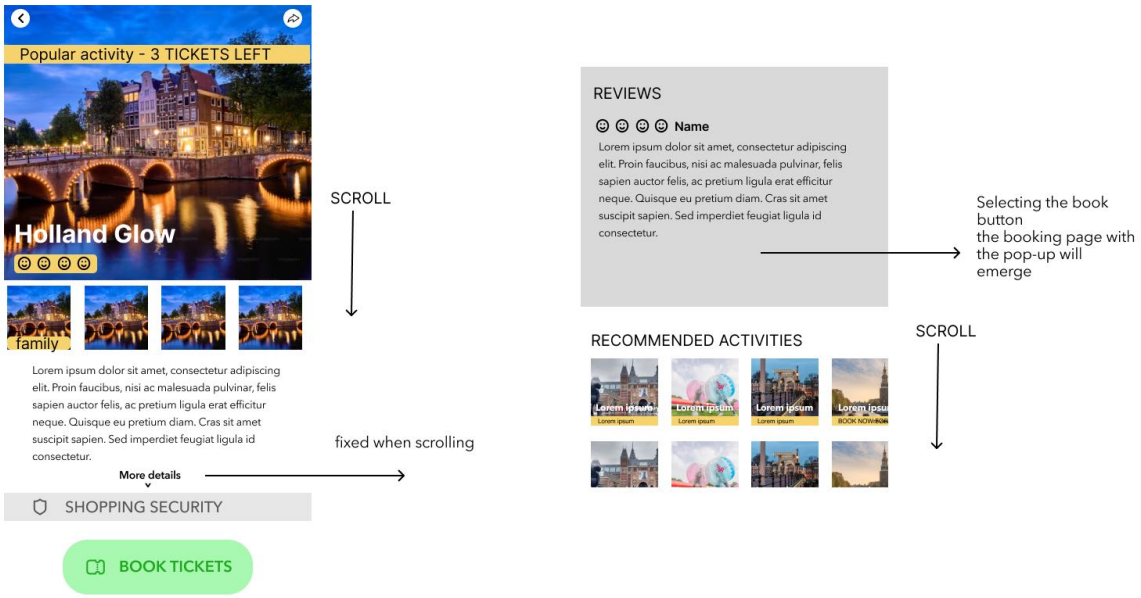


Figure 13.
Annotated Low-Fidelity Wireframe of Booking Pages (Experimental Group)

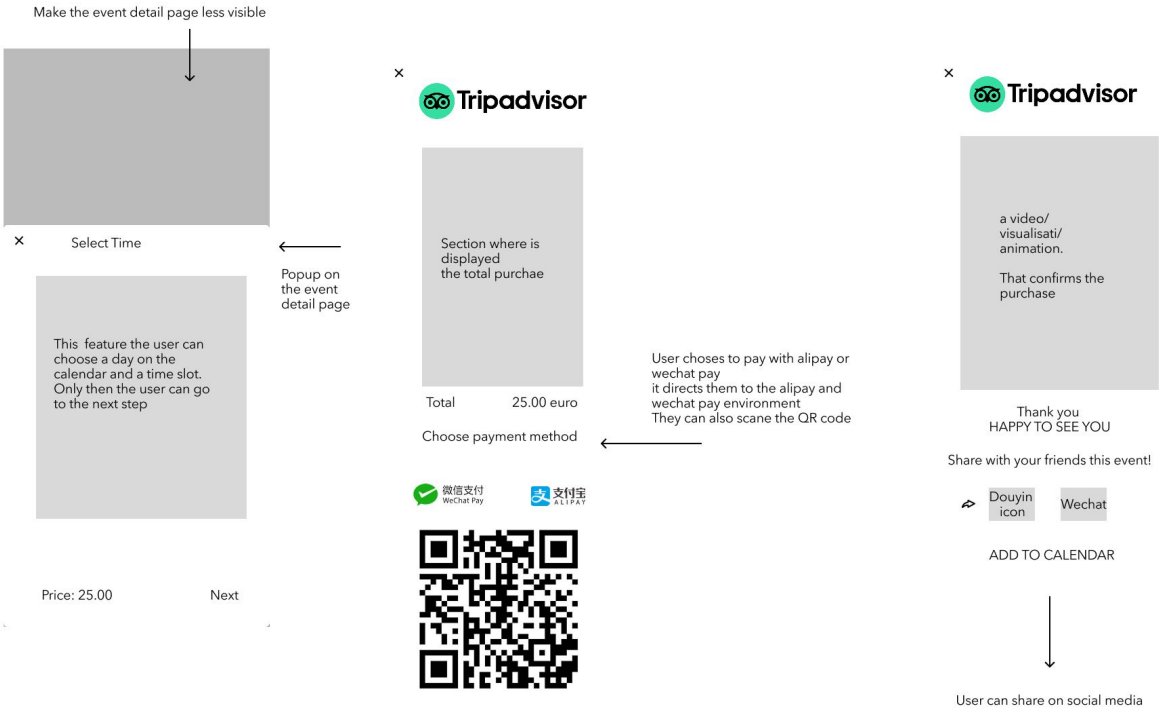


Figure 14.
Annotated Low-Fidelity Wireframe of Landing Page (Control Group)

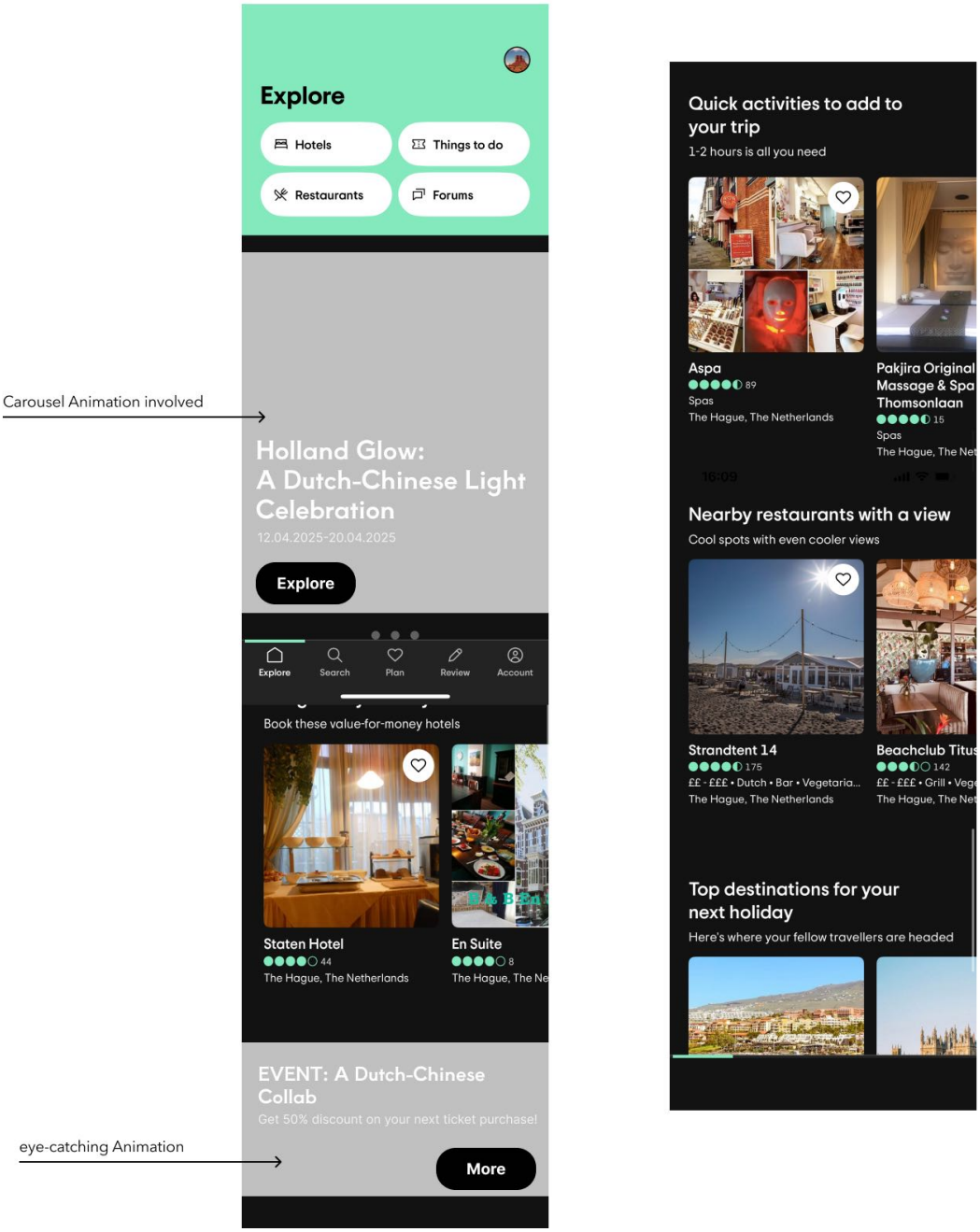


Figure 15.
Annotated Low-Fidelity Wireframe of Event Page (Control Group)

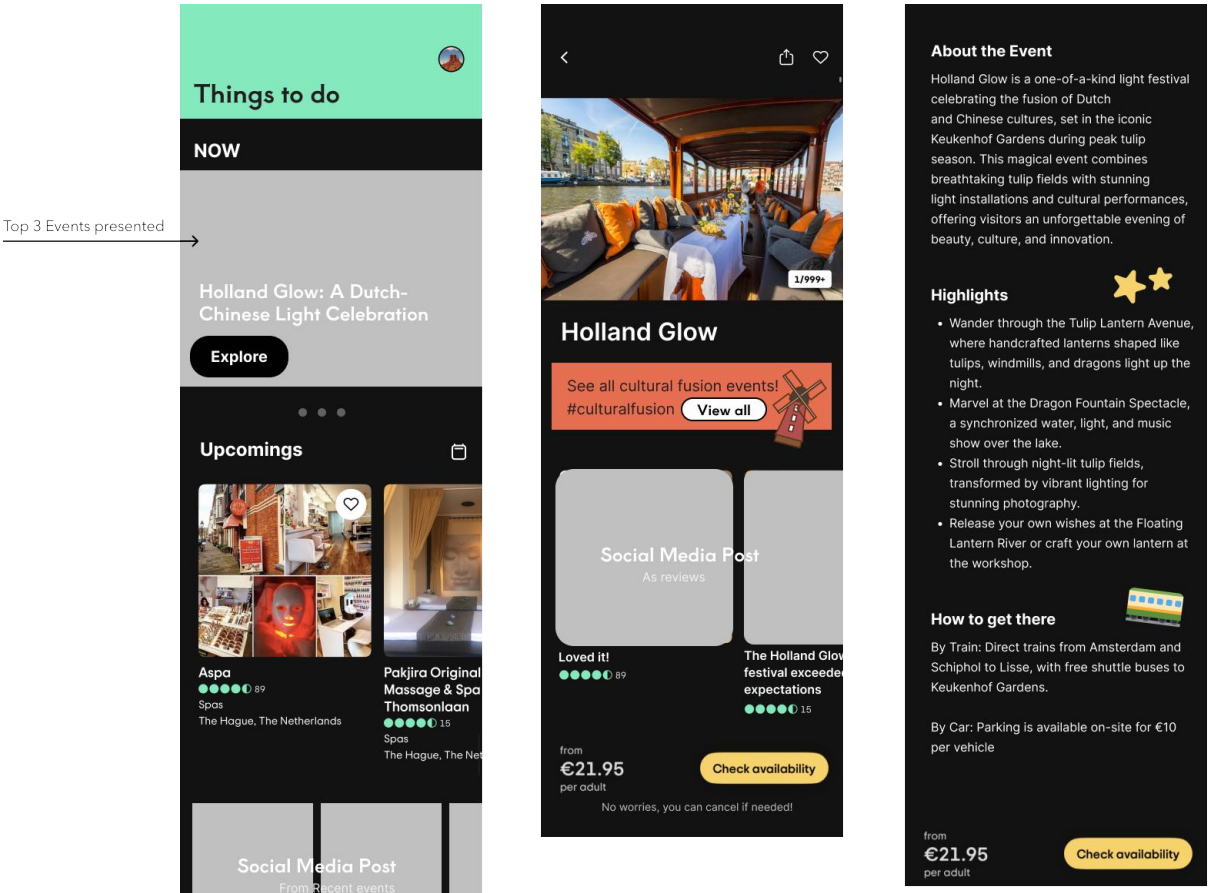
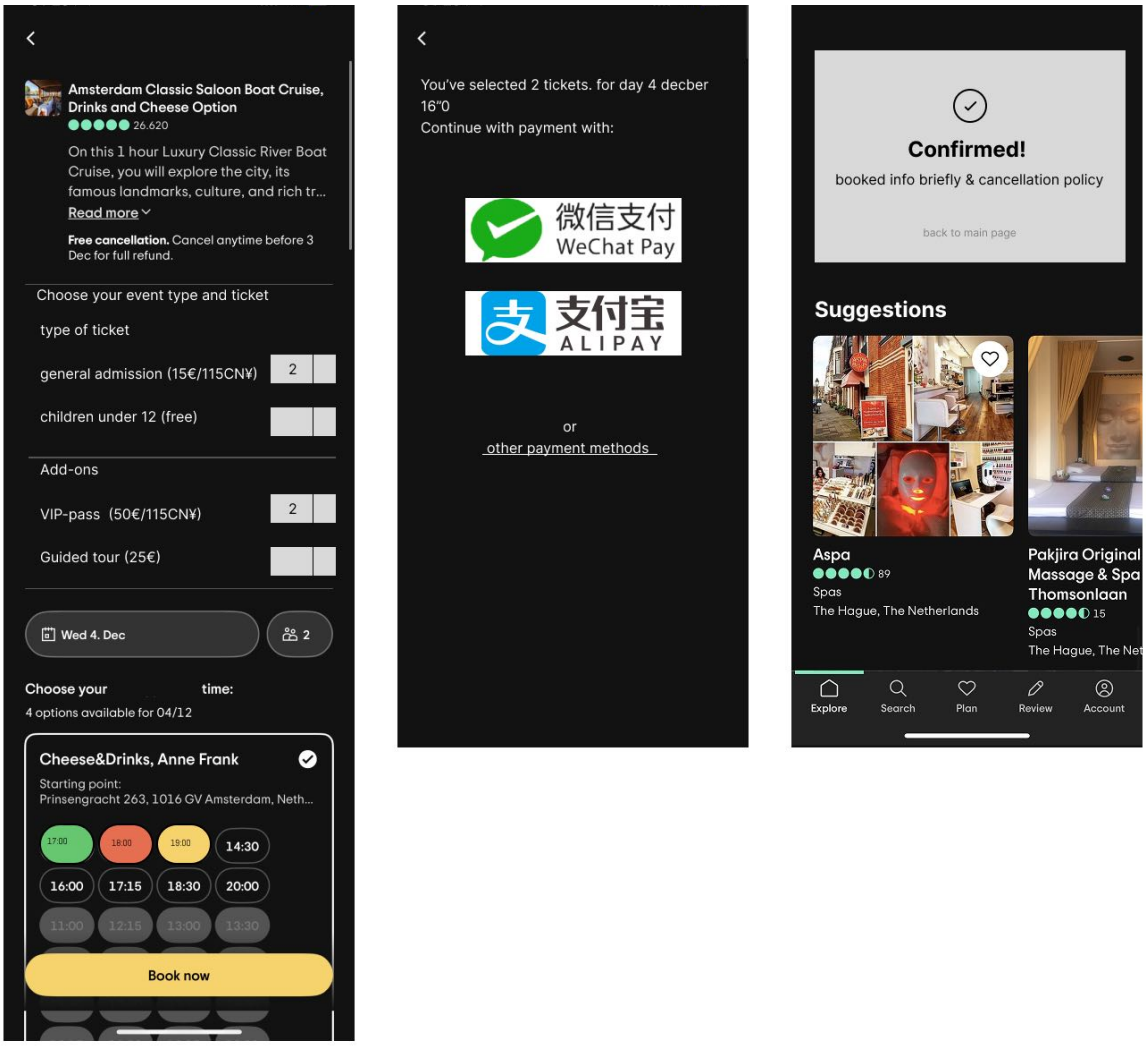


Figure 16.
Annotated Low-Fidelity Wireframe of Booking Pages (Control Group)



Despite their low-fidelity nature, these wireframes and their annotations provide valuable evidence of how each group approached the design challenge. The experimental group's materials show explicit consideration of Chinese design patterns through annotations referencing information density, community features, and browsing-oriented navigation. Meanwhile, the control group's annotations reveal their reasoning based primarily on Western conventions and personal experiences. These artifacts offer comprehensive insight into the impact of cultural guidelines on design thinking process and its outcomes, which will be examined in greater detail in the following Analysis section.

Analysis

This analysis was conducted by gathering all the findings from the results, notes from the interviews and grouped into themes for in-depth investigation – the organization of data for the analysis can be found in Appendix Data Analysis. The objective is to examine how access to cultural design guidelines influenced the designers' approaches, thought processes, and outcomes. By analyzing the experiences of both the experimental and control groups, a greater understanding is gained of how the guidelines functioned as tools for cross-cultural design and address the research questions regarding guideline interpretation and design outcome differences.

Experimental Group

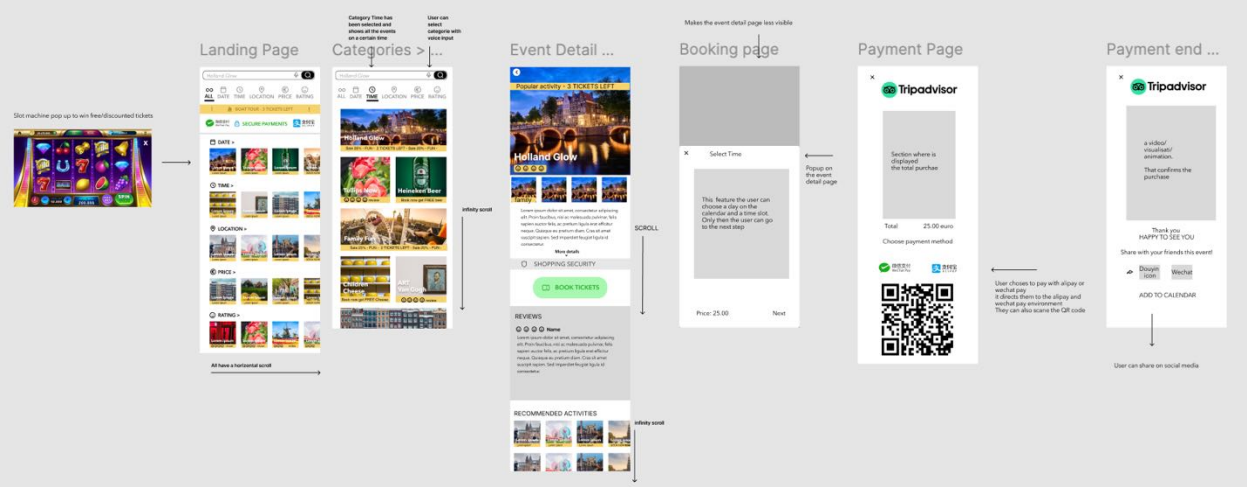
Design Process – Cultural Adaptation

The experimental group was able to form initial ideas quickly based on the recommendations in the guidelines. Their design process was guided by the motto "I [as a user] want to see everything," reinforcing the guideline principle that users should have access to as much content as possible. In the follow-up interview, participants revealed that this approach was drastically different from the Western minimalistic design trends they were accustomed to, indicating a direct influence of the guidelines on their design thinking.

The group's discussions primarily revolved around the information layout and density rather than focusing on the specific details outlined in the brief. Notably, the personas, though available, were only considered after initial discussions about cultural design patterns. Instead of the conventional approach of “What does my user need?”, the conversation shifted towards “How do we bring the culture into the design?” The designers frequently paused to ask, "What else is in the guidelines? What cultural aspects have we not yet considered or incorporated?" These questions demonstrate how the guidelines redirected their attention from conventional user-centered design approaches toward cultural adaptation considerations.

This guideline-centered approach represents a significant departure from conventional design thinking processes, which tend to focus on user personas and task analysis. The shift in focus provides insight into how cultural guidelines can fundamentally alter designers' approaches to problem-solving (Clemmensen et al., 2009), addressing the research question of how designers interpret and apply guidelines when designing for Chinese users. This shift is notable in actions like favoring lorem ipsum texts, despite being given dummy text to work with within the design brief. Despite the general low-fidelity nature of all the wireframes, the landing page is significantly more elaborate than other screens such as the booking. When asked for the designer’s rationale for this disproportion in details, the reasoning was that “The booking process is very straight-forward, while the landing page felt like a whole other entity [from what we are used to]. So, we put more attention to that.” This decision shows in the discrepancy in the design and feature details across the three main screens – Figure 17 shows a zoomed-out view of the wireframes, visualizing the obvious imbalance in detail.

Figure 17.
Overview of Wireframes with Obvious Imbalance in Details (Experimental Group)



Mental Models – Design Challenges
The experimental group experienced significant cognitive dissonance as they attempted to implement design patterns that contradicted their established mental models. In several instances during the workshop, the designers would make comments like “this is intense to look at”, indicating that they are working outside of their comfort zone. In the follow-up interview, designers reflected that one of their key takeaways was the realization that "everything can exist design-wise." This insight reveals how the guidelines helped them recognize their "unconscious restrictions”, shaped by familiar design patterns they had internalized over time in a European framework.

Despite conscious efforts to embrace the abundance approach recommended in the guidelines, participants acknowledged that "they still felt their execution was lacking." This sentiment reflects the challenge of overcoming deeply ingrained design conventions, even with explicit guidance. Their struggle manifested in questions like "How much can my user actually process?" – revealing the contradiction between their existing mental models of cognitive load of Western users and the guidelines' recommendations for information density for Chinese users.

These challenges point to an important aspect of cross-cultural design: merely providing guidelines is not sufficient to fully overcome established design thinking (Gray, 2016). The experimental group's experience suggests that truly adapting to different cultural design paradigms requires not just knowledge but practice and exposure to overcome internalized conventions.

Confidence – Self-Evaluation
One of the most notable insights was the experimental group’s struggle with confidence and self-evaluation throughout the design process. The designs felt "messy and counterintuitive" to them, challenging their existing patterns and habits. Without their familiar evaluation criteria, they found it difficult to assess the quality of their work, leading to uncertainty about their design

decisions. The designers mentioned doubts like “I now understand that in theory this could work, but it’s just so different.”

This lack of confidence is significant because it indicates that the guidelines disrupted not only their design practices but also their frameworks for evaluating design quality. When asked about it, the participants presumed that without the cultural guidelines, their design "would have followed a more minimalistic, Western approach," suggesting an awareness of how deeply Western design values influenced their intuitive sense of "good design."

Despite these challenges, participants reported that the session broadened their perspective, reinforcing the idea that “what may seem counterintuitive to them is simply normal in another cultural context." This insight addresses the research question about how designers interpret guidelines, suggesting that guidelines can function as tools for cultural perspective-taking even when they create temporary discomfort.

Control Group

Design Process – Information Sources
At the beginning, the control group experienced some disorientation due to the limited information about the target group and the lack of user research. However, they quickly resorted to familiar approaches – employing a straightforward design thinking process. They extracted information from the brief and personas, relying on these traditional UX artifacts to guide their decision-making.

Unlike the experimental group, the control group's discussions centered around which features were needed and how to group them rather than how the design should look. This focus on functionality over cultural adaptation reveals how, without explicit cultural guidance, designers tend to prioritize familiar aspects of the design process. Their approach treated the task as a typical design session, suggesting they did not perceive cross-cultural design as requiring fundamentally different methods or considerations. While the experimental group got fixated on layout possibility during the initial user flow sketches – for comparison refer to Figure 9 and 10, the control group focused on sketching features to move around and experiment with the layout to fit the brief requirements. This conventional approach provides an important contrast to the experimental group's process, highlighting how cultural guidelines can shift designers' attention toward considerations that might otherwise be overlooked. The difference addresses the research question about how design outcomes differ between designers with and without guidelines, suggesting that the differences begin at the process level rather than merely in final execution.

Mental Models – Cultural References
The control group demonstrated limited awareness of how much Western design conventions have shaped their design thinking. Despite having a lack of research insights of the given target group, they were able to rely on the safety net of “universal” design principles – where they

made design decisions with the assumption that the “universal” design principles translate across cultures. This belief of universality represents a significant difference from the experimental group's recognition of cultural specificity in design.

Their selection of inspiration and reference points further illustrates this limitation. While the experimental group looked to authentic Chinese e-commerce platforms like Temu, the control group referenced TikTok as an example, associating it with Chinese origin despite it being highly Westernized in terms of UI. More authentic Chinese interfaces like those of Temu and AliExpress were not being considered due to their limited exposure to Chinese interfaces. This indicates how, without culturally informed guidelines, designers may not recognize the full range of cultural variation in design. This limited cultural reference frame addresses the research question about design outcomes, suggesting that without explicit cultural guidance, designers may produce outcomes that are only superficially adapted but actually remain within Western design paradigms.

Confidence – Assumptions
In contrast to the experimental group's uncertainty, the control group did not experience a dip in nor a lack of confidence but rather had trust and confidence in their existing mental models and the belief that universal design works. This confidence stemmed from their reliance on familiar design patterns and evaluation criteria, allowing them to feel "comfortable with the given material."

The control group's comfort with the TripAdvisor interface as a reference point enabled them to integrate their designs into the existing base interfaces with ease – creating a coherent design on top of the base interfaces. This is a stark contrast to the disproportion in design consistency of the experimental group. Their statement that with more time, they might have designed more elements from scratch instead of relying on the existing interface suggests some awareness of potential limitations in their approach. This confidence in universal design principles stands in stark contrast to the experimental group's recognition of cultural specificity. It suggests that without guidelines, designers may not only produce less culturally adapted designs but may also be less aware of their own limitations – a finding relevant to the research question about how designers interpret and apply cultural considerations.

Key Insights

The analysis of both groups reveals several key insights regarding the function and effectiveness of the developed design guidelines:

1. **Shift of Focus**: The guidelines fundamentally altered the experimental group's design process, shifting the primary focus from conventional user-centered design toward cultural adaptation considerations.
2. **Mental Model Disruption**: While both groups operated from Western design backgrounds, only the experimental group demonstrated significant awareness of these biases and attempted to transcend them.
3. **Confidence Paradox**: The guidelines created a confidence paradox wherein designers with more culturally appropriate approaches actually felt less confident in their work due to disruption of familiar mental models and evaluation frameworks.
4. **Design Reference Expansion**: Guidelines expanded the experimental group's design reference frame to include authentically different cultural patterns rather than relying on Westernized approximations.

These findings suggest that cultural design guidelines function not merely as prescriptive rules but as tools for perspective transformation. The experimental group's experience demonstrates how guidelines can expand design thinking beyond ingrained Western conventions, though not without creating discomfort and uncertainty. Meanwhile, the control group's experience highlights how, without explicit cultural guidance, designers tend to fall back on supposedly "universal" principles that may actually reflect unconscious Western biases. This analysis addresses the research questions by showing that designers interpret guidelines through the lens of their existing mental models, requiring conscious effort to truly adapt to different cultural expectations. The guidelines appear most effective when they explicitly challenge designers' assumptions, prompting reflection on design conventions that might otherwise be taken for granted. The differences in design outcomes reflect not just surface-level stylistic choices but fundamentally different approaches to information presentation, user agency, and social validation – all aspects directly addressed in the cultural guidelines.

Discussion

Impact of Guidelines

The guidelines were developed as a comprehensive resource, combining theoretical foundations with practical design recommendations for designing Chinese interfaces. This section examines the impact of the guidelines on the design process and outcomes.

The experimental group faced significant challenges in translating abstract cultural concepts – such as collectivism and polychronic time perception – into concrete design choices. The participants struggled to operationalize the theoretical concepts from the guidelines into design decisions, particularly when confronted with culturally unfamiliar design patterns. The designers found different components of the guidelines to be of varying levels of usefulness. The design recommendations and image examples were deemed as particularly valuable in making abstract concepts – such as information abundance and everything-at-once approach – more tangible.

Conversely, the more theoretical elements received less attention. The Hofstede dimensional charts, intended to provide cultural context, were perceived as less useful. The participants indicated that the numerical score data lacked sufficient context to translate into meaningful design implications. The designers noted that the theoretical information, although insightful, felt insufficient because there was no explicit translation into practical design implications. Despite the guidelines offering both research insights and design recommendations, the designers felt they needed more practical content – such as tables with do's and don'ts, color meanings, and more concrete references. Design recommendations and image examples helped bridge the gap, making concepts like abundance and everything-at-once more tangible. The guidelines only provided a general overview of the cultural dimensions – as seen in Figure 1, a snippet from the guidelines showing the format – hence, the link from theory to design implications seemed less obvious for the designers.

Rather than engaging with the guidelines as a comprehensive resource as intended, the designers exhibited selective engagement patterns. The experimental group demonstrated selective attention to practical elements while minimizing consideration of theoretical background. Only one of the designers noted that they still went to the theoretical section of the guidelines during the design process, while the other designers only wrote down key phrases – such as culture of abundance and "more is more" – and used them as a reference going forward after their initial read through of the guidelines. Designers demonstrated a pronounced focus on immediately applicable suggestions and actionable recommendations, particularly those related to information density and visual organization.

This selective engagement significantly influenced the design process and outcomes. The designers frequently referenced specific keywords and examples from the guidelines during their discussions while sometimes overlooking relevant information in the design brief. This selective engagement with the guidelines shifted the focus of the designers from conventional

user-centered design toward cultural adaptation considerations. This shift is evident in the decision of extensive use of placeholder text (Lorem Ipsum) throughout their designs over engaging with the details given in the design brief, suggesting a prioritization of structural patterns over content-specific design decisions. As one participant acknowledged, "This is not how we would normally approach a design process." This behaviour aligns with Gray's (2016) research on how practitioners adapt design methods to fit existing mental models rather than fully embracing new paradigms.

The most significant insight gained from the experiment is the paradoxical function of the guidelines as both support and constraint. While providing cultural insights that expanded designers' consideration of alternative patterns, they simultaneously disrupted established workflows and potentially limited the designer’s creativity and discouraged problem-solving attempts outside of the given guidelines – a stark contrast to the control group. The experimental group's preoccupation with the guidelines recommendations led them to unintentionally disregard some key principles in their user-centered approach – such as consolidating needs and pains of the personas into the design decisions. During the follow-up interview, participants primarily requested improvements regarding the practicality – such as tables with do's and don'ts, color meanings chart, and more visual references – rather than discussing how they might have integrated cultural insights with their existing design expertise. This gave the impression that the guidelines have potentially limited the designer’s creativity and discouraged them from problem-solving from their own point-of-view. This tension between the guidelines’ role as support versus constraint of creativity suggests that as a design tool they can simultaneously expand possibilities while imposing certain constraints on thinking. The experimental group's experience indicates that while cultural guidelines can broaden design considerations beyond Western paradigms, they must be carefully structured to avoid becoming prescriptive rules that disrupt designer’s workflow and creative problem-solving. These findings directly address the research question regarding how designers interpret and apply guidelines, revealing the complex relationship between cultural guidance and design practice.

Conclusion

Significance

This research contributes to the field of cross-cultural UX design, particularly in the context of Western designers creating interfaces for Chinese users. By developing actionable cultural guidelines and examining how they influence the design process and outcomes, this study addresses gaps in existing cross-cultural UX literature that mainly focused on theoretical frameworks.

This research contributes to the understanding of how cultural models (Hall, 1959; Hofstede, 2010) translate into a practical design context. While previous research has already established correlations between cultural dimensions and interface preferences (Marcus & Gould, 2000, 2002, 2004, 2011; Reinecke & Bernstein, 2008, 2011, 2013), this study provides insights into the cognitive process of designers interpreting and operationalizing these cultural frameworks. The finding that guidelines function paradoxically as both support and constraint challenges the assumption that providing cultural information automatically leads to more culturally appropriate designs.

For design practitioners, this research offers valuable insights into the challenges of cross-cultural UX design adaptations. The experimental findings demonstrate how Western designers struggle to overcome ingrained design conventions even when presented with explicit cultural guidelines. This suggests that effective cross-cultural UX design requires more than informational resources – it calls for a deeper level of design thinking. The study also provides practical direction and suggestions for developing more effective design guidelines that balance cultural guidance with creative flexibility, addressing the observed tension between prescriptive rules and designers' autonomy.

Methodologically, this research demonstrates the value of comparative design workshop approaches for evaluating cultural design guidelines. By observing how designers with and without guidelines approached the same task, the study revealed insights about design processes that might not have emerged through analysis of finished design artifacts alone. This methodology provided significant findings needed to understand complex design thinking, hence, can be a relevant approach for future cross-cultural UX design research.

Limitation

While this study provides valuable insights into the effectiveness of cultural design guidelines, several methodological limitations must be acknowledged when interpreting the findings. These limitations reflect the exploratory nature of this research.

The most significant limitation concerns participant sampling. The small sample size of six designers limits the generalization of findings. Additionally, the homogeneity of participants – all female designers with junior-level experience – restricts the diversity of perspectives in the

study. Future research would benefit from larger, more demographically diverse participant pools that include varying levels of design experience and cultural backgrounds.

Another important limitation involves the language aspect of culture. For feasibility reasons, this study conducted experiments and produced wireframes entirely in English, despite language being a fundamental aspect of culture that shapes mental models and perception (Hall, 1959; Norman, 2013). This limitation potentially underestimates the complexity of designing truly localized Chinese interfaces. Future studies could incorporate language as an explicit variable, potentially including bilingual designers or translation steps in the design process.

The time constraints of the design workshops are another substantial limitation. The designers had just 90 minutes to complete the entire process, from user flow development to wireframes creation. In a professional setting, this process typically spans over days or weeks to allow for deeper exploration during the diverging and converging phases of design thinking (Gray, 2016). The tight timeframe likely limited designers' ability to freely explore creative solutions and for the experimental group to fully engage with the guidelines. This limitation may have exaggerated the perceived constraints of the guidelines on designer creativity, as participants lacked sufficient time to integrate cultural considerations with their established design approaches.

Finally, the absence of usability testing represents a methodological limitation that affects validation of the designs produced. Without quantitative usability data from Chinese users interacting with both sets of design outcomes, the study cannot definitively establish whether guideline-informed designs would perform better than control designs in actual use. Cross-cultural usability assessment is essential for validating culturally adapted designs (Nielsen, 1994). This limitation restricts the study's ability to make strong claims about the actual effectiveness of the guidelines in producing more usable Chinese interfaces, as opposed to merely creating designs that incorporate more Chinese design patterns.

With these limitations in mind, the findings should be interpreted as preliminary insights into the role of cultural design guidelines, rather than definitive conclusions. They also provide valuable direction for future research that could address these constraints through expanded methodologies and resources.

Future Work

This research offers several directions for further investigations that could address the limitations of the current study.

Future research would benefit from conducting usability testing based on Jakob Nielsen’s (1994) five quality components: learnability, error rate, efficiency, satisfaction, and memorability with Chinese users from the target group. A future methodology might involve developing high-fidelity, clickable prototypes based on the delivered user flows from both experimental and control groups. Recruiting a diverse pool of Chinese users, ideally from mainland China, with minimal exposure to Western mobile app design would provide valuable validation data. These participants could be evenly divided into two groups with group A testing the prototype from the

experimental group and group B testing the prototype from the control group. During the testing, researchers can consider giving the users scenario-specific tasks to test their interactions with the prototype. During the usability testing, screen recordings could be made for subsequent analysis. Key metrics such as error rate, task completion time, and number of clicks could be measured to evaluate the usability of the designed interfaces in the analysis. Follow-up interviews might help in assessing user satisfaction, using methods such as a SUS (System Usability Scale) score. Analysis of these collected metrics could potentially reveal whether the guidelines have a measurable impact on the final usability of the wireframes in comparison to the control group.

Expanding the participant samples could be further researched. More samples could be gathered, and additional design sessions conducted to identify patterns and similarities across different participants. An important factor for future investigation involves diversity in experience levels. Since this study primarily involved junior designers, the results may not be representative of how senior designers would approach the experiment. More experienced designers might rely more on their professional background and find different ways to utilize the guidelines. Comparing how designers at different career stages interact with cultural design guidelines might yield insights into how design expertise mediates cultural adaptation processes (Clemmensen et al., 2009).

While this study focused on lifestyle and travel apps because they are widely used by both European and Chinese users, making them a suitable entry point, future research could explore other app genres. With further refinement of the guidelines, expanding into other app categories – e.g., delivery services or financial applications – might provide deeper insights into cultural design adaptation.

A valuable future research step could be to focus on reworking and improving the existing guidelines. The findings suggest that a restructuring is necessary to enhance their effectiveness and usability. Further research is needed to determine where the guidelines are most effective and whether a complete overhaul is required.

Ultimately, the evolution of cultural design guidelines represents an ongoing negotiation between theoretical knowledge and practical application. Future research in this area has the potential to transform how designers approach cross-cultural UX challenges – moving beyond simple awareness of cultural differences toward tools and methodologies that enable meaningful cultural adaptation while respecting designer creativity and expertise. By continuing to refine both the content and structure of cultural guidelines, researchers can contribute to more inclusive digital experiences that honor cultural diversity while maintaining usability across global contexts.

References

Alexander, R., Murray, D., & Thompson, N. (2017). Cross-Cultural Web Usability Model. Lecture Notes in Computer Science, 75–89. https://doi.org/10.1007/978-3-319-68786-5_6

Alexander, R., Thompson, N., & Murray, D. (2016). Towards cultural translation of websites: a large-scale study of Australian, Chinese, and Saudi Arabian design preferences. Behaviour and Information Technology, 36(4), 351–363. https://doi.org/10.1080/0144929x.2016.1234646

Arora, V., & Vamvakidis, A. (2011). China's Economic Growth: International Spillovers. China & World Economy, 19, 31-46. https://doi.org/10.1111/j.1749-124X.2011.01257.x

Auinger, A., Aistleithner, A., Kindermann, H., & Holzinger, A. (2011). Conformity with User Expectations on the Web: Are There Cultural Differences for Design Principles? In Lecture notes in computer science (pp. 3–12). https://doi.org/10.1007/978-3-642-21675-6_1

Badran, O., & AL-Haddad, S. (2018). The impact of software user experience on customer satisfaction. Journal of Management Information and Decision Science, 21.

Callahan, E. (2005). Interface design and culture. Annual Review of Information Science and Technology, 39(1), 255–310. https://doi.org/10.1002/aris.1440390114

Clemmensen, T., Hertzum, M., Hornbæk, K., Shi, Q., & Yammiyavar, P. (2009). Cultural cognition in usability evaluation. Interacting With Computers, 21(3), 212–220. https://doi.org/10.1016/j.intcom.2009.05.003

Fu, S. (2021). Communication Strategies for Chinese Documentaries from High-context to Low-context Culture: A Comparative Study of "Wild China" of BBC and CCTV Version. David Publishing Company. https://www.davidpublisher.com/Public/uploads/Contribute/604196bc08f95.pdf

Gray, C. M. (2016). "It's More of a Mindset Than a Method". Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems. https://doi.org/10.1145/2858036.2858410

Hall, E. T. (1959). The Silent Language. Doubleday.

Hall, E. T. (1976). Beyond Culture. Doubleday.

Hartson, R., & Pyla, P. (2018). UX Design Guidelines. In Elsevier eBooks (pp. 709–824). https://doi.org/10.1016/b978-0-12-805342-3.00032-1

Hassenzahl, M., & Tractinsky, N. (2006). User experience - A research agenda. Behaviour and Information Technology, 25(2), 91-97. https://doi.org/10.1080/01449290500330331

Heimgärtner, R. (2014). ISO 9241-210 and Culture? – The Impact of Culture on the Standard Usability Engineering Process. In A. Marcus (Ed.), Design, User Experience, and Usability. User Experience Design Practice (pp. 39-48). Springer. https://doi.org/10.1007/978-3-319-07638-6_5

Hofstede, G. (1991). Cultures and organizations: Software of the mind. McGraw-Hill.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). Cultures and organizations: Software of the mind (3rd ed.). McGraw-Hill.

International Organization for Standardization. (2024). Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Quality model overview and usage (ISO/IEC Standard No. 25002:2024).

Kamppuri, M., Bednarik, R., & Tukiainen, M. (2006). The expanding focus of HCI: Case culture. In Proceedings of the 4th Nordic conference on Human-computer interaction: changing roles (pp. 405-408). Association for Computing Machinery. https://doi.org/10.1145/1182475.1182523

Lee, K. (2021). Economics of technological leapfrogging. Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen.de/111034/8/MPRA_paper_111034.pdf

Li, Y., Karreman, J., & De Jong, M. (2022). Cultural Differences in Web Design on Chinese and Western Websites: A Literature Review. In 2022 IEEE International Professional Communication Conference (ProComm) (pp. 105-111). IEEE. https://doi.org/10.1109/ProComm53155.2022.00023

Long, R., Liu, X., Lei, T., Chen, X., & Jin, Z. (2017). Gesture and user experience in mobile interaction design. In P.-L.P. Rau (Ed.), Cross-cultural design. Cultural differences in everyday life (pp. 49-58). Springer, Cham.

Marcus, A. (2002). User-interface design, culture, and the future. Proceedings of the Working Conference on Advanced Visual Interfaces - AVI '02, 15.

Marcus, A. (2011). Cross-cultural user-interface design, 2, 502–505.

Marcus, A., & Baumgartner, V. (2004). A practical set of culture dimensions for global user-interface development. Computer Human Interaction, 252–261.

Marcus, A., & Gould, E. W. (2000). Crosscurrents: cultural dimensions and global Web user-interface design. Interactions, 7(4), 32-46.

Marcus, A., & Baradit, S. (2015). Chinese User-Experience Design: An Initial Analysis. In: Marcus, A. (eds) Design, User Experience, and Usability: Users and Interactions. DUXU 2015. Lecture Notes in Computer Science(), vol 9187. Springer, Cham. https://doi.org/10.1007/978-3-319-20898-5_11

Minkov, M., & Kaasa, A. (2022). Do dimensions of culture exist objectively? A validation of the revised Minkov-Hofstede model of culture with World Values Survey items and scores for 102 countries. Journal of International Management, 28(4), 100971.

Nielsen, J. (1994). Usability Engineering. Morgan Kaufmann Publishers Inc., San Francisco, CA, USA.

Nielsen, J. (2012). Usability 101: Introduction to usability. Nielsen Norman Group. https://www.nngroup.com/articles/usability-101-introduction-to-usability/

Norman, D. A. (2013). The design of everyday things. MIT Press.

Norman, D., & Nielsen, J. (2018). The definition of user experience (UX). Nielsen Norman Group. https://www.nngroup.com/articles/definition-user-experience/

Qing, Y. (2022, May 11). UX in China: 3 themes for designers [Video]. YouTube. https://www.youtube.com/watch?v=ohxyxGR9tsA

Reinecke, K., & Bernstein, A. (2008). Predicting user interface preferences of culturally ambiguous users. Proceeding of the Twenty-Sixth Annual CHI Conference Extended Abstracts on Human Factors in Computing Systems - CHI '08, 3261.

Reinecke, K., & Bernstein, A. (2011). Improving performance, perceived usability, and aesthetics with culturally adaptive user interfaces. ACM Transactions on Computer-Human Interaction, 18(2), 1–29.

Reinecke, K., & Bernstein, A. (2013). Knowing What a User Likes: A Design Science Approach to Interfaces that Automatically Adapt to Culture. MIS Quarterly, 37(2), 427–453. https://doi.org/10.25300/misq/2013/37.2.06

Rizvi, S. M. A. (2022). Impact of Software User Experience (UX) on Customer Satisfaction of Mobile phone Users (Android and iOS) [Master's thesis, Jönköping University].

Romeo, P. (2016). Cross-Cultural HCI and UX Design: A Comparison of Chinese and Western User Interfaces. https://doi.org/10.13140/RG.2.2.18547.63525

The Culture Factor. (n.d.). Country comparison tool. Retrieved November 30, 2024, from https://www.theculturefactor.com/country-comparison-tool?countries=china

Vescovi, T. (2018, March 13). QR codes in contemporary China: digital money and people's perception. https://hdl.handle.net/20.500.14247/2745

Walsh, T., Nurkka, P., & Walsh, R. (2010). Cultural differences in smartphone user experience evaluation. In Proceedings of the 9th International Conference on Mobile and Ubiquitous Multimedia. ACM.

Wang, F. (2024). China's age of abundance. https://doi.org/10.1017/9781009444934

Xie, B. (2005). Getting older adults online: The experiences of SeniorNet (USA) and OldKids (China). In B. Jaeger (Ed.), Young technologies in old hands: An international view on senior citizens' utilization of ICT (pp. 175-204). DJØF Publishing.

Zhang, J., & Crompton, H. (2021). Status and trends of mobile learning in English language acquisition: A systematic review of mobile learning from Chinese databases. Asian Journal of Distance Education, 16(1), 1-15.

Zhang, Q. (2020). WeChat Redesign for Foreigners Living in China from Culturally Adaptive Design Perspective. In Lecture notes in computer science (pp. 439–449). https://doi.org/10.1007/978-3-030-50267-6_33

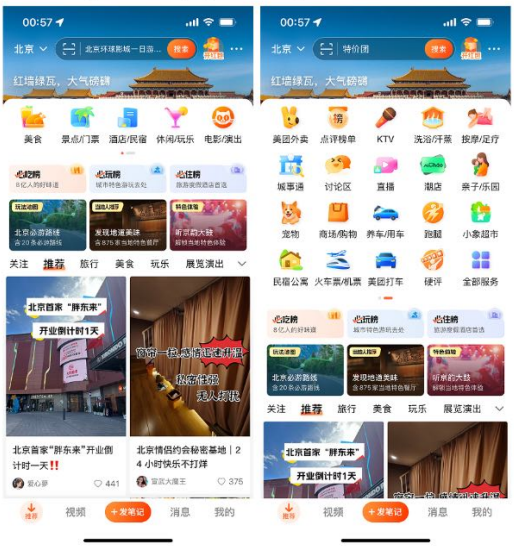
Zhu, C. (2015). Interface design indicators: An empirical study (Master's thesis, University of Twente). University of Twente Digital Repository. https://essay.utwente.nl/68170/1/Zhu%20Canhua%20-s%201520121%20scriptie.pdf

Appendices

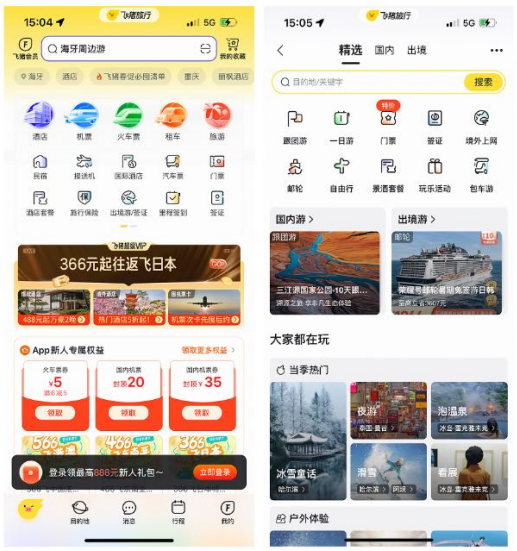
Design Pattern Analysis

Landing Page

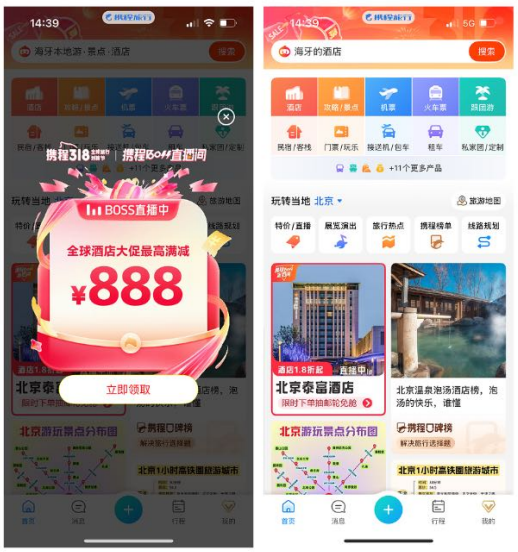
Da Zhong Dian Ping (大众点评)



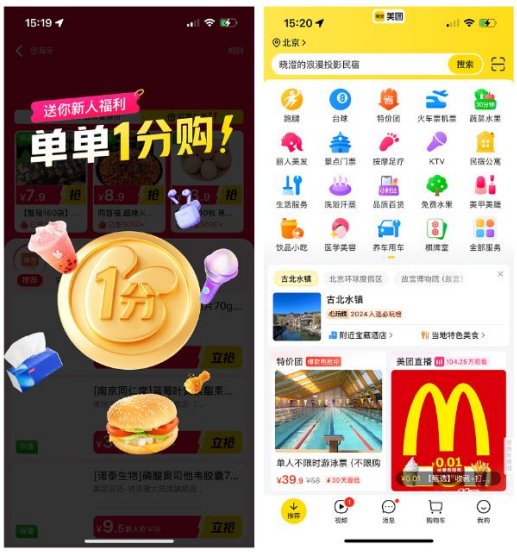
Fei Zhu Travel (飞猪旅行)



CTrip Travel (携程旅行)

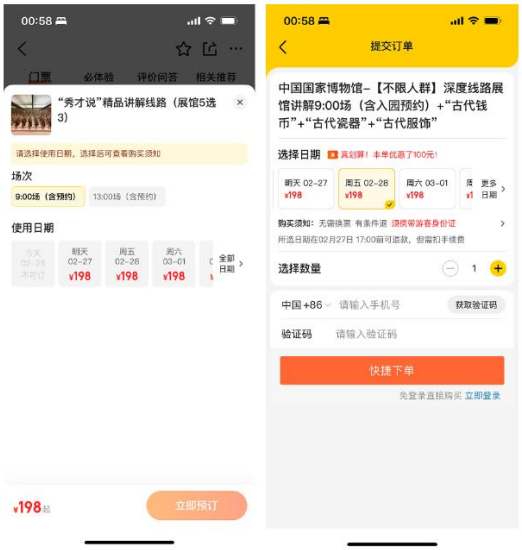


Mei Tuan (美团)



Booking Page

Da Zhong Dian Ping (大众点评)



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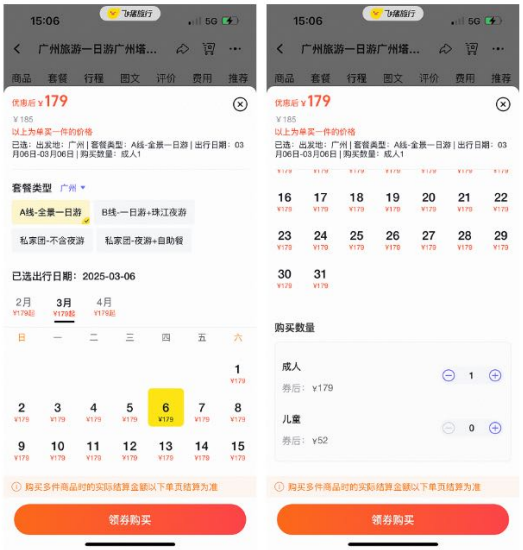
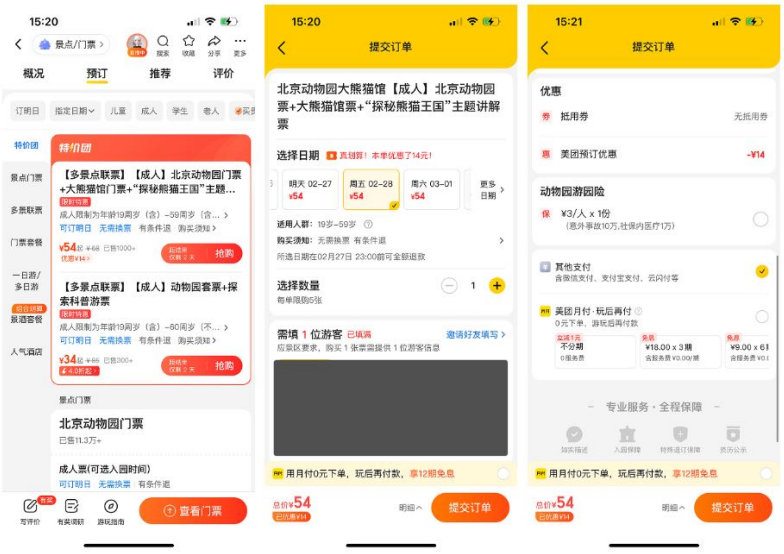


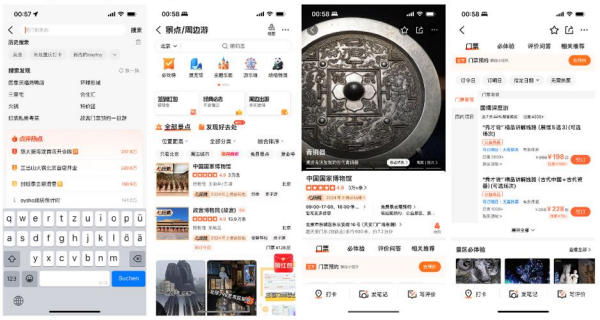
CTrip Travel (携程旅行)

Mei Tuan (美团)



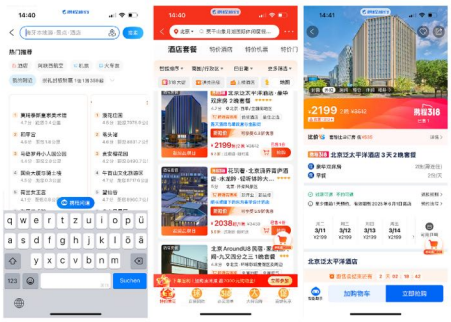
Browsing/Event Page

Da Zhong Dian Ping (大众点评)



Fei Zhu Travel (飞猪旅行)

CTrip Travel (携程旅行)



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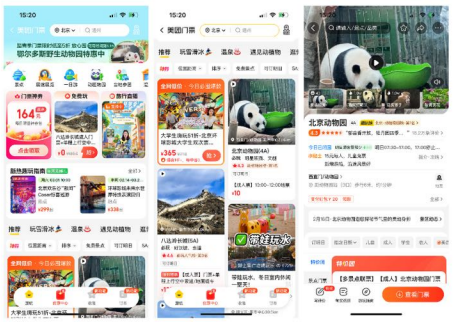
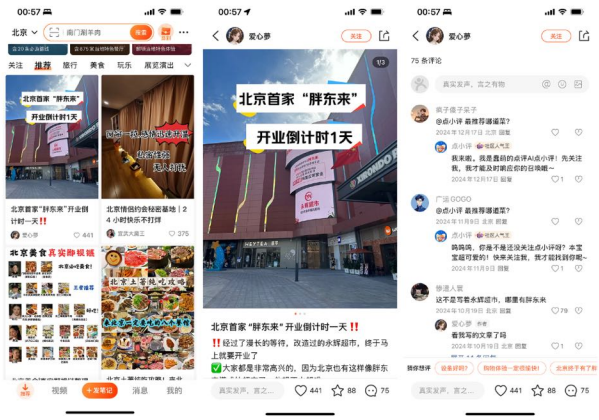


Community Posts

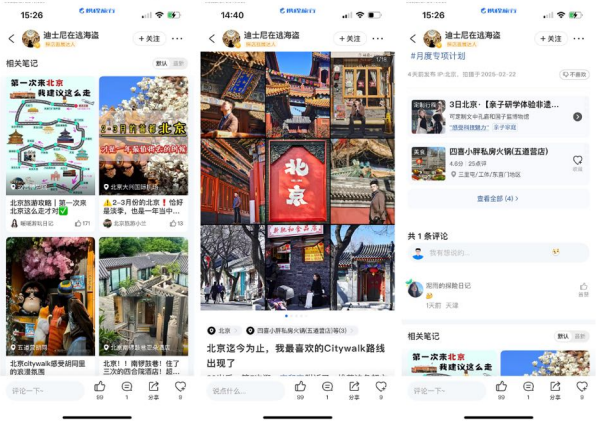
Da Zhong Dian Ping (大众点评)



User Reviews

Fei Zhu Travel (飞猪旅行)

CTrip Travel (携程旅行)



Mei Tuan (美团)

Guidelines

Background

The guidelines use Hofstede's and Hall's cultural models as a base. This research links the key insights to the cultural dimensions defined by Hofstede. Here is an overview of China's scores in the cultural model. The graph below is a visualization of the score in each dimension for China in the Hofstede model.

Power Distance (80)
This dimension measures the attitude of the culture towards hierarchical authority. Power Distance is defined as the extent to which the less powerful members within a country expect and accept that power is distributed unequally.
China has a high power distance score, meaning Chinese individuals are influenced by authority and are in general optimistic about people's capacity for leadership and initiative. Visuals are being used to reinforce the sense of authority in Chinese apps.

Collectivism (43)
This dimension represents the degree of interdependence a society maintains among its members such as whether people prioritize personal goals or group loyalty.
In collectivistic societies such as China people's self-image is defined as "we". Visual representation and imagery used in interfaces often show families and ceremonies to represent the community.

Motivation towards Achievement and Success (66)
Formerly titled as masculinity versus femininity, this dimension indicates a focus on competition and achievement versus care and quality of life.
China is a decisive society with a high score on this dimension, meaning that the people are more inclined to be driven by competition, achievement and success. Success in this context is described by being the best in field - a value system that can be seen throughout their daily life – already starting in school.

Uncertainty Avoidance (30)

This dimension describes how comfortable a culture is with ambiguity and risks. It is the extent to which the members of a culture feel threatened by unknown situations.
The Chinese are comfortable with ambiguity. The Chinese language reflects this sentiment, where it is full of ambiguous meanings that can be hard to follow for people of certain cultures, who generally score higher in uncertainty avoidance.

Long Term Orientation (77)
This dimension represents the priorities of a society when it comes to future planning versus immediate results. It also describes how society deals with its past while also dealing with challenges of the present and future.
China has a very pragmatic approach. They show an ability to adapt traditions easily to changed conditions since they believe that truth depends very much on situation, context, and time.

Indulgence (24)
Indulgence versus restraint show the extent to which people try to control their desires and impulses, based on the way they were raised.
China has a relatively strong control, thus the Chinese culture can be described as restrained. Restrained societies do not put much emphasis on leisure time and control the gratification of their desires.

Chinese Culture

The user experience design in China is influenced by their culture of abundance, where the mindset of “more is more” plays a central role in their design philosophy. Thus, Chinese interfaces often contain a high information density with dynamic elements. The display of a wealth of information and options reflect collectivism in Chinese culture. The functional scope of Chinese mobile applications is often seen as a holistic “everything-in-one” approach. The collectivistic culture favors multifunctional platforms, where they have a lot of options rather than modular apps based on specific needs and tasks.

Chinese society has a polychronic orientation, where multitasking and parallel activities are common. In design the polychronic orientation can be seen in the multimodality of layered interfaces and flexible interactions.

As a high context culture China has a nuanced communication style, where communication often relies on the context of shared cultural norms and understanding. There is importance on building and maintaining relationships – which is one of most important traditional Chinese values called “guanxi” (关系). This can be seen in design and marketing with the strong emphasis of relationships and community values over more individualistic messages.

Here is an overview of some of the most important Chinese values:

面子 “Mianzi”

Mianzi, literally translated into “face”, describes the social “prestige” or “honor” that an individual can accumulate by following the norms of society

关系 “Guanxi”

Guanxi refers to the way people establish and maintain social relationships by developing personal, particularistic ties between individuals

人情 “Renqing”

Renqing describes the moral obligation an individual feels to reciprocate favors and the observance of social norms

These values are the backbone of Chinese culture and therefore an important part to consider in the design process to gain Chinese users’ favor.

User Interface Guidelines

Content Abundance and Information Density

Chinese apps really stand out with their dynamic and explorative nature. The interfaces are designed in a way that encourages user engagement through multiple features. The high item density represents the “more is more” mentality – by putting all the features on display to show the “face” of the app.

In Western UX, individualism emphasizes simplicity and clear hierarchies. Interfaces usually have clean layouts decorated with ample whitespace, highlighting clusters of important links. Whitespace is prioritized to aid in cognitive ease and readability as well as to avoid information overload.

Navigation – Exploration and Browsing

Structure
Chinese users prefer browsing over nestled navigation structures, one of the reasons being due to their polychronic time orientation. Footer navigation is seldomly used in Chinese interfaces due to Chinese apps having the infinite scrolling feature wherever possible. The preference is direct and multi-option navigation – often with as many items/categories as possible on display to show abundance.

Links
When linking to other pages and/or making things clickable, links should never be underlined. (Although we are currently working with English as the main language) It is important to note that the Chinese language is built upon ideograms and due to the visual nature of Mandarin, underlining text can significantly interfere with the readability of the user. The standard for highlighting linked items is to use a change of color. When it comes to websites, links open in new windows – supporting the polychronic tendency of parallel browsing.

Browsing
Chinese UX prioritizes letting the user browse, this often has a higher priority than search bars. Chinese users often prefer using the camera/microphone for audio or image-based searches over text input. Apps often have the latest trend suggested in the search bar to encourage users to look into the newest trends of the community.

In Western UX, navigation is structured in predictable pathways. Footer navigation and breadcrumbs are a staple in Western interface design. Links are often underlined and/or colored to highlight interaction and typically open in the same tab, this helps users with a monochronic time orientation. Due to the one-task-at-a-time mentality, the search bar feature often has a high priority and needs to be easily accessible.

Multimedia

The collectivistic orientation supports expressive, multimodal communication with a high image-to-text ratio. Chinese users are known to make extensive use of images, stickers, emoticons, and voice messages. Due to the low uncertainty avoidance of Chinese culture, apps often use

dynamic and attention-grabbing features such as pop-ups, animations and videos to create an immersive experience.

Colors
Color symbolism go hand in hand with traditional Chinese values, applying them in the design will further enhance emotional engagement of the user. Vibrant colors such as red for happiness and luck, blue for immortality and health, gold for success and wealth are connotated with positive feelings.

Images
Imagery is often in the themes of leaders, families and ceremonies to appeal to the collectivistic culture and bring relatedness to the user. The business culture in China is more relationship-focused, promoting trust and long-lasting relationships.

In Western design excessive multimedia usage is avoided to limit distractions for the users, the interfaces usually showcase a high text-to-image ratio. Accent colors are used to decode information to further enhance readability for the user. Imagery is in the themes of daily life, nature and portrayal of individuals.

Social Validation and Community

Social validation is very important in Chinese culture due to collectivism and a strong need for relatedness. Hence why, user reviews and comments are usually prominently displayed in Chinese apps. Chinese users often feel the need to share and contribute.

Chinese apps often encourage social interactions through indirect social bonding such as gifting red packets to other users and gamification elements such as coming together as a community to unlock a deal. This way users can build relationships (guanxi) and get more face (mianzi).

Western design focuses more on direct communication via messaging and building relationships through conversations. Western users often prioritize individual choice over collective influence, which is why user reviews and comments are often secondary and selectively displayed.

Trust and Transactions Process

Chinese users prioritize connectivity and community over individual privacy, which is why apps in China enable broader information sharing across platforms.

China has adapted fully to digital payments with AliPay and WeChatPay being the most common options. China also has an established and centralized facial scan of its citizens, which is linked to each individual's personal identification card. With this technology, sometimes all the user has to do is click pay with face. Thus, transactions in China often occur via QR codes or facial scan. Chinese users have high trust in the quick online payments with minimal procedures.

Western individualism and the high uncertainty avoidance leads to stronger privacy controls resulting in more limited access. Some users may prefer more established and traditional systems for transactions due to their short-term orientation and high uncertainty avoidance.

Design Brief

PROJECT NAME: Holland Glow: Design Solution for Chinese Tourists in NL

BACKGROUND	• The Netherlands is expecting an influx of Chinese tourists due to a major event called Holland Glow. • Client is a daughter company of TripAdvisor with a new lifestyle app for travel hotspots and booking events. • The client wants to expand into the Chinese market and this design is the first step. • Client has strict budget and time constraints.
OBJECTIVES	• Develop an engaging design solution for Chinese adult tourists to browse and navigate through the events as well as booking them. • Create a user flow describing the path of the user in the app. • Create low-fi wireframes based on the flow that reflects user needs and expectations.
TARGET AUDIENCE	• Chinese adults visiting the Netherlands • Age Range: 25-55 years old • Description: familiar with Chinese apps and social media, sensitive to cultural symbols and language • Preferences: visually engaging interfaces, localized payment options such as WeChat Pay, Alipay
DELIVERABLES	• User Flow • Low-fi Wireframes on iPhone • Annotated Designs • User Flow & Design Rationale in Concept Presentation

CONTEXT

Recently the Netherlands and China have announced an ambitious cultural collaboration to host a series of fusion events in major cities across both countries – starting with the event titled "Holland Glow" in Amsterdam. By merging the iconic traditions of Dutch tulips, windmills, and canals with the vibrant art, festivals, and gastronomy of China, the aim is to create unforgettable experiences for citizens and tourists alike. With the influx of Chinese tourists, the client hopes to get them interested in other Dutch events while they are at it.

TASKS

Map out the userflow for the following:

- Landing Page
- Event Details Page
- Booking Page

Create low fidelity wireframes for the following features:

- Browsing
- Finding Events
- Booking Tickets

EVENT DETAILS

Holland Glow: A Dutch-Chinese Light Celebration

Location: Keukenhof Gardens, Stationsweg 166A,
2161 AM Lisse, the Netherlands
Duration: 12th April - 20th April, 2025
Time: 19:00 - 23:30

About the Event:
Holland Glow is a one-of-a-kind light festival celebrating the fusion of Dutch and Chinese cultures, set in the iconic Keukenhof Gardens during peak tulip season. This magical event combines breathtaking tulip fields with stunning light installations and cultural performances, offering visitors an unforgettable evening of beauty, culture, and innovation.

Highlights:

- Wander through the Tulip Lantern Avenue, where handcrafted lanterns shaped like tulips, windmills, and dragons light up the night.
- Marvel at the Dragon Fountain Spectacle, a synchronized water, light, and music show over the lake.
- Stroll through night-lit tulip fields, transformed by vibrant lighting for stunning photography.
- Release your own wishes at the Floating Lantern River or craft your own lantern at the workshop.

Inclusions:

- General admission to Keukenhof Gardens and all event areas.
- Access to light installations and performances
- Free event map and multilingual visitor guide (English, Dutch, and Mandarin).

Good to Know:

- Wear warm clothing, as evenings can be chilly.
- Tripods for photography are permitted but must not obstruct pathways.
- The venue is wheelchair accessible, and special assistance is available upon request.

How to Get There:

- By Train: Direct trains from Amsterdam and Schiphol to Lisse, with free shuttle buses to Keukenhof Gardens.
- By Car: Parking is available on-site for €10 per vehicle.

Prices:

- General Admission: €15
- Children under 12: Free
- VIP and Guided Tour tickets available as add-ons.

Optional Add-Ons:

- VIP Pass (€50): Includes priority entry, reserved seating at performances, a complimentary tulip lantern, and access to a private viewing area for the fireworks.
- Guided Tour (€25): A 1-hour tour with a cultural expert, exploring the history behind the Dutch-Chinese collaboration.

Cancellation Policy:

Full refund available for cancellations made up to 48 hours before the event date.

Reviews:

★★★★★ "An unforgettable evening! The tulip fields illuminated by lanterns were simply magical." – Sarah T.

★★★★★ "The fusion of cultures was beautiful. My kids loved the dragon fountain and lantern workshop!" – Lin J.

PERSONAS

Zhang Min 张敏

AGE	26
OCCUPATION	Freelance Designer
STATUS	Single
LOCATION	Shanghai, China

> Traveling is all about finding beauty, both in the culture and in the little details.

Personality

Introverted | Creative | Adventurous | Expressive

Goals

- Wants to find visually appealing locations for photography and social media posts
- Wants to buy unique souvenirs for friends and family back home

Behaviour

- Avoids overly crowded places, prioritizing aesthetic and serene experiences
- Relies on Social Media for inspiration and recommendations

Frustrations

- Limited ability to speak English fluently, depends on visual cues and translations for communication
- Concerned about navigating public transport in a foreign country.

Li Hua 李华

AGE	34
OCCUPATION	Marketing Manager
STATUS	Single
LOCATION	Beijing, China

> Planning itineraries is important, I like to be prepared and know what's going on.

Personality

Practical | Status-Conscious | Detail-oriented

Goals

- Wants to explore the Netherlands' famous landmarks
- Show off travel experiences to friends and family via WeChat and Douyin

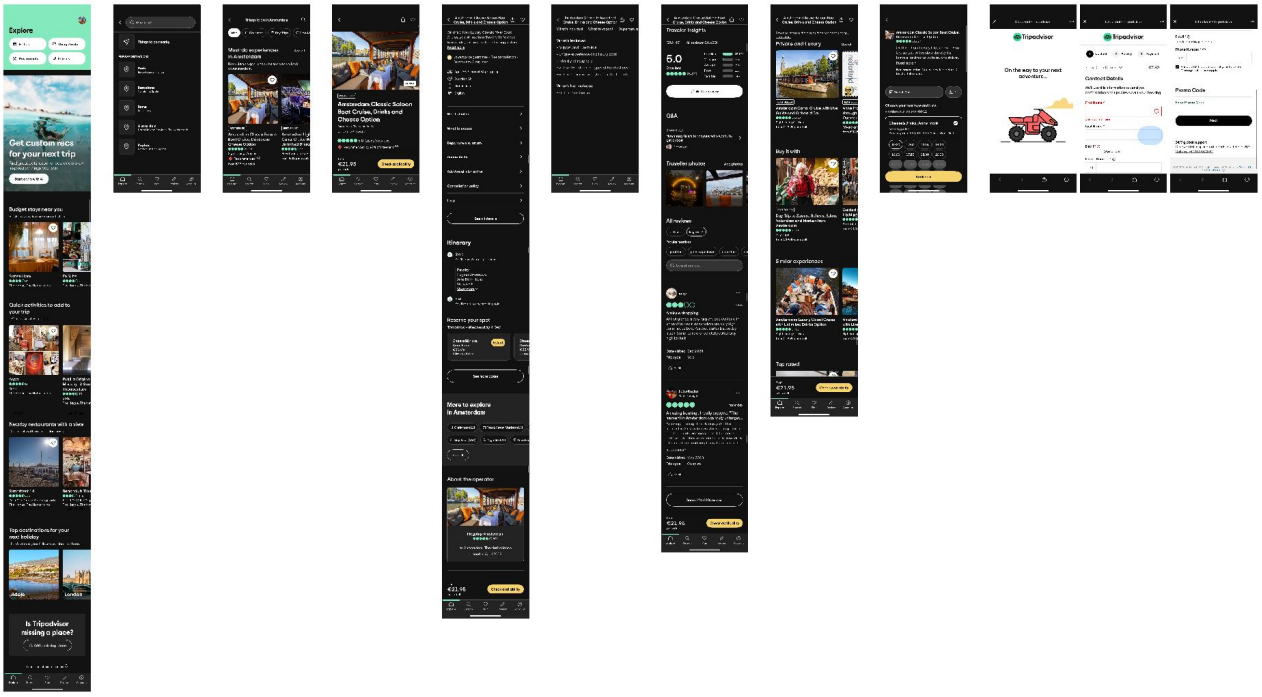
Behaviour

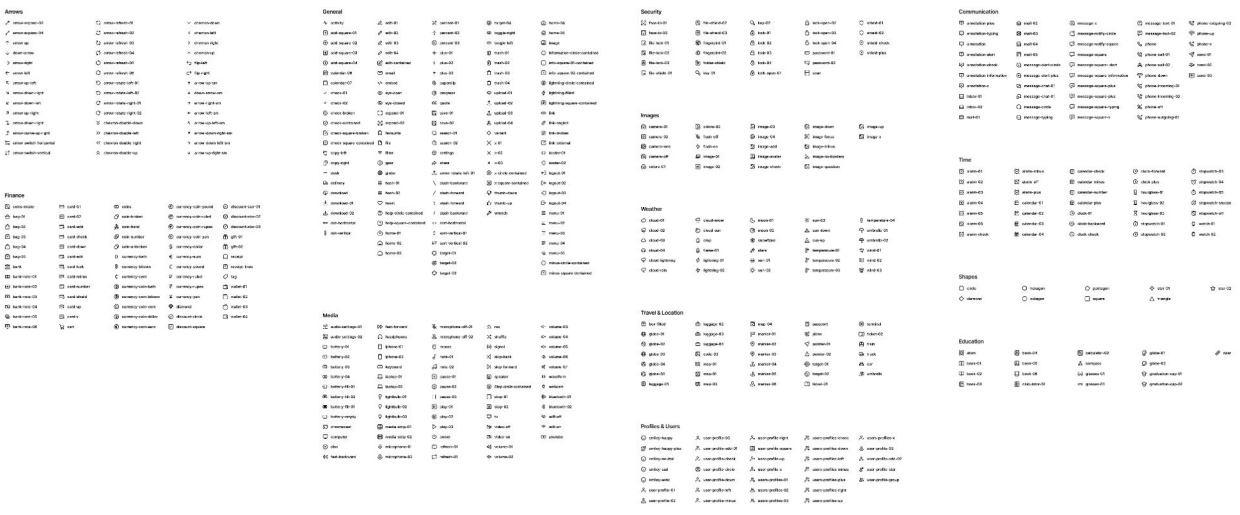
- Researches and plans most of the trip ahead of time
- Always looks for good deals and values recommendations from friends and online reviews.
- likes to share his life on social media

Frustrations

- Limited experience with Western apps or payment systems; relies heavily on WeChat Pay and Alipay.
- Does not like being alone, prefers to be with people

Figma Setup





Default

Second

Default

Filled

Error

Dropdown

Dropped

Option 1

Option 2

+ With Icons +

+ With Icons +

Image

Image Title

微信支付 WeChat Pay

支付宝 ALIPAY

Typography

Aa

Typeface Headings **Avenir Next**

Typeface Paragraph Helvetica

Weights Light Regular **Semi-Bold**

Heading 1 pt 32

Heading 2 pt 24

Heading 3 / Bold pt 20

Heading 3 pt 20

Paragraph / Bold pt 16

Paragraph pt 16

Caption pt 12

Text Lockup

Subtitle

Lorem ipsum dolor sit amet consectetur. Convallis mauris viverra tristique feugiat in. Odio vitae integer ipsum faucibus donec sem sit feugiat. Ullamcorper sit posuere varius adipiscing a maecenas amet. Dictum venenatis orci magna ornare hac varius pulvinar in ridiculus.

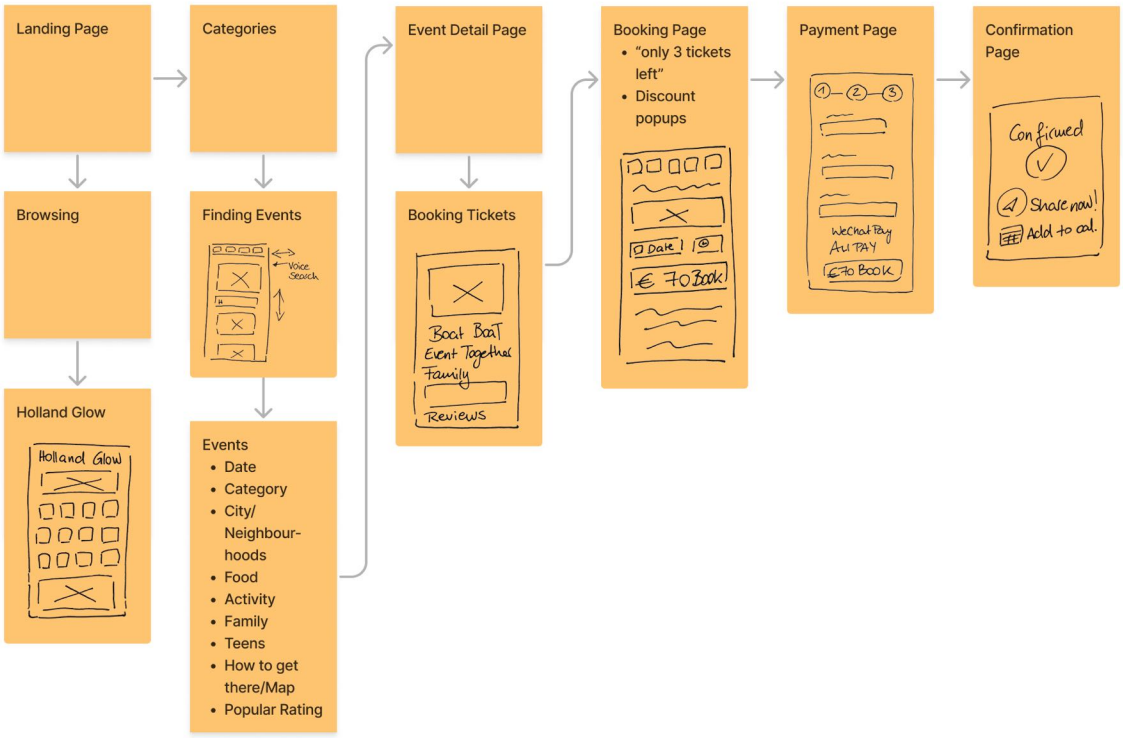
Color

Black	Gray 1	Gray 2	White
000000	#	#	FFFFFF

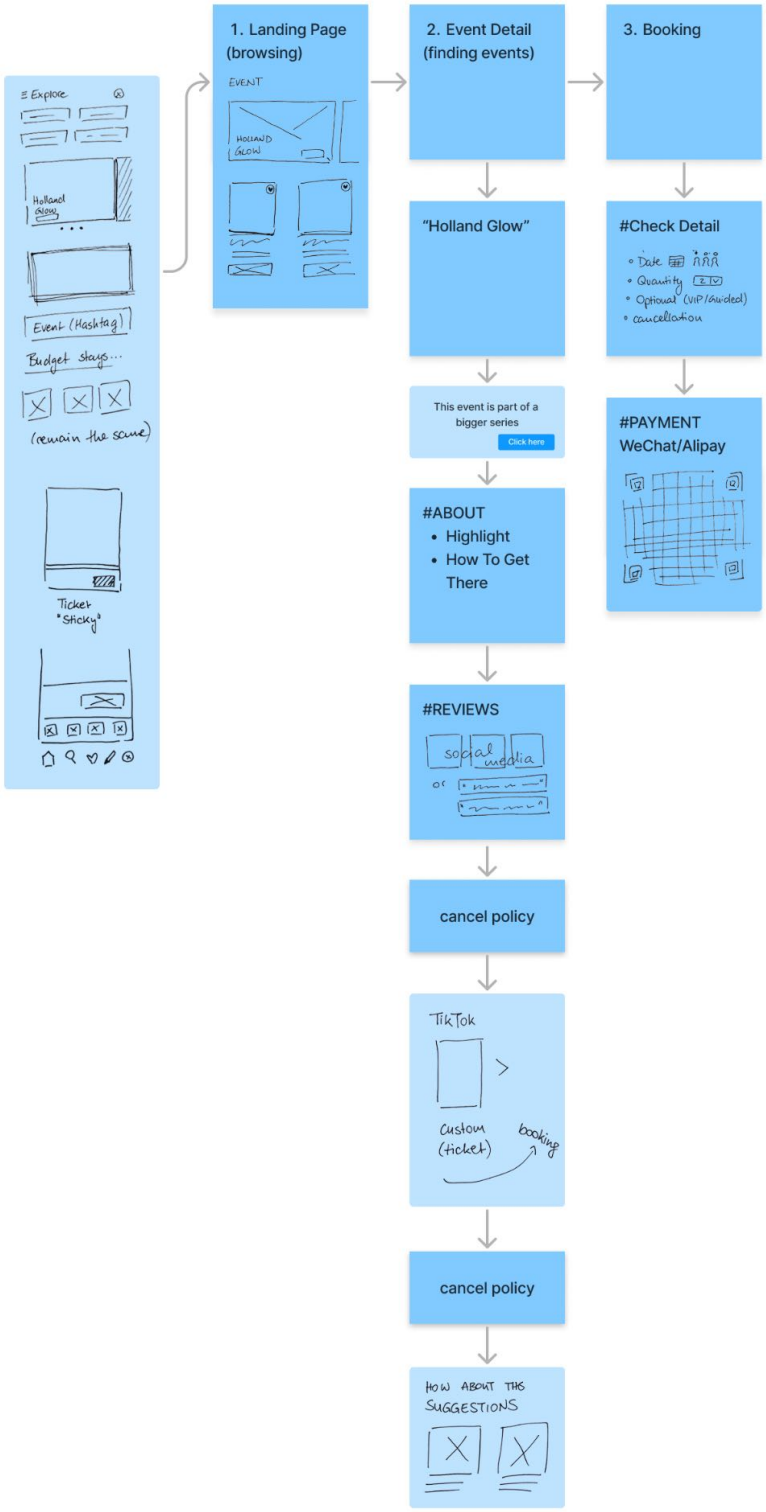
Primary	Secondary	Highlight	-
#	#	#	#

Success	Error	Warning	-
#	#	#	#

User Flow (Experimental Group)



User Flow (Control Group)



Interview Protocol

- General questions asked to **both groups**
- ❖ Specific questions asked to the **experimental group**
- ★ Specific questions asked to the **control group**

Introduction: Thank you for participating in this experiment. The goal of this session is to understand your experience using the guidelines to adapt a Western interface for a Chinese audience. Your insights will help improve the guidelines and inform future design research. Feel free to share your honest thoughts.

General Experience

- Can you describe how the overall design process felt to you?
- How was designing for an unknown target group?
- How did you approach it?
- Any challenges? Unexpected things?
- ❖ How easy or difficult was it to understand and apply the guidelines to your design work?
- ❖ In your opinion, did the guidelines help you address cultural considerations effectively? Why or why not?

Effectiveness of Guidelines

- ❖ Which specific parts of the guidelines were most helpful in guiding your design decisions?
- ❖ Were there any sections that felt unclear or less useful? If so, could you elaborate on why?
- ❖ Do you think the guidelines provided enough context about Chinese users' cultural preferences and behaviors? If not, what was missing?

Challenges and Pain Points

- What challenges did you encounter when adapting the interface?
- Did the lack of certain tools or resources (e.g., AI, additional research materials) impact your ability to effectively use the guidelines?
- ❖ Were there moments when you felt the guidelines constrained your creativity or problem-solving? Can you share an example?

Suggestions for Improvement

- ❖ How could the guidelines be improved to better support your design process?
- ❖ What additional information, examples, or tools would have been helpful to include in the guidelines?

- ❖ Do you think the format or structure of the guidelines could be improved? If yes, in what ways?
- ★ Is there anything you would improve in the setup? Anything you felt was missing?

Insights on Cultural Design

- Through this process, did you learn anything new about designing for Chinese users?
- ❖ Did the guidelines help you feel more confident in designing for a culturally different audience?

Final Reflections

- If you were to repeat this project, would you approach the design process differently? Why or why not?
- If there were less time constraints, how would you improve this?
- ❖ What advice would you give to other designers working with similar guidelines or cultural adaptation projects?
- ❖ Is there anything else you'd like to share about your experience with the project?

Closing: Thank you for sharing your insights! Your feedback is invaluable in refining these guidelines and supporting future cross-cultural design work.

Data Analysis

Snippets of Finding Cluster (Experimental Group)

Snippets of Finding Cluster (Control Group)

Themes of Findings