

Cross-Cultural Interface Design in Digital Games: An Exploratory Analysis of UI Localization Strategies

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Abstract. Introduction: Globalization has expanded the reach of interactive systems into culturally diverse contexts, thereby highlighting challenges in adapting user interfaces. Despite technological convergence, sociocultural factors still influence perception, cognition, and interaction, especially in the video game market. **Objective:** investigate the localization of user interfaces as an adaptation strategy in global digital products, analyzing cultural variations in UI and their impacts on user experience. **Steps:** a qualitative and comparative approach is adopted between Western and East patterns, considering visual organization, information density, and interaction, based on a literature review and interface analysis. **Expected Results:** It is expected to identify patterns of cultural variation in user interfaces and their effects on usability, as well as to assess in which contexts interface localization constitutes a strategic advantage.

Keywords UI, UX, localization, culture, cross-cultural design, videogames.

1. Introduction

Culture directly influences how individuals perceive, interpret, and interact with digital systems, impacting design decisions and consumption patterns. Cultural differences are reflected in distinct cognitive processes, such as more analytical approaches in Western contexts and more holistic ones in East Asian contexts, influencing aspects like visual organization, information density, and interface navigation [Wang et al. 2012].

With the intensification of globalization and the expansion of the internet, digital products have come to circulate widely across different cultural contexts. In the digital games sector, this phenomenon is particularly relevant, with Asian markets occupying a prominent position in terms of revenue and user volume [Newzoo 2025]. This scenario, especially in the mobile segment, has driven adaptations in interface design aimed at meeting the needs of culturally diverse audiences.

The literature on the localization of digital products has traditionally focused on the translation and adaptation of textual content. However, more recent approaches incorporate the concept of *culturalization*, which involves deeper adjustments to the symbolic, visual, and structural elements of products [Marcus 2013, Pyae 2018]. Despite this advance, the user interface (UI) is still often treated as a secondary component in this process, frequently translated without consideration of its visual and interactive context, which can generate ambiguities and compromise the user experience [Leiva and Alabau 2014].

In this context, there is a gap in the literature regarding the analysis of the user interface as a central object in the localization process, especially in digital games. This work investigates interface localization as an adaptation strategy through a comparative analysis between cultural contexts (Western and East Asian) and platforms (mobile and traditional), seeking to understand its impacts on user experience and its strategic relevance in global digital products.

This work is also aligned with the Grand Research Challenges in Games in Brazil (GrandGamesBR 2020–2030) [Santos and Hounsell 2023], particularly within the Design and User Experience axis, by investigating how cultural and platform factors influence interface design and player experience in global contexts.

2. Steps

This study adopts a qualitative and comparative approach to analyze variations in digital game interfaces. The analysis is conducted based on the comparison between two main axes: (i) cultural context (Western and East interfaces) and (ii) platform (mobile and traditional: PC/console). These axes allow for the identification of design extremes, which are used as the basis for exploratory analysis.

2.1. Evaluation Criteria

The analysis of the interfaces will be conducted based on four observable categories, defined from visual and structural aspects of the interface:

- **Information density:** the number of visual elements simultaneously presented on the interface (e.g., icons, text, indicators, and menus).
- **Visual hierarchy:** the way elements are organized and prioritized on the screen, considering size, position, and visual prominence.
- **HUD complexity:** the number and diversity of active components on the interface during use (e.g., minimap, bars, notifications, buttons, and parallel systems).
- **Navigation flow:** the structure of access to features and menus, considering navigation depth (layers) and the number of simultaneously available options.

2.2. Comparative Procedure

The comparison between interfaces will be carried out through the systematic application of the criteria defined in Section 2.1. For each interface analyzed, the visual elements will be observed and qualitatively classified on ordinal scales (low, medium, and high), based on the presence, quantity, and organization of components on the screen.

Information density, for example, will be estimated based on the approximate visual count of simultaneous elements (such as icons, text, and indicators), making it possible to distinguish more minimalist interfaces from more cluttered ones. Similarly, HUD complexity will be evaluated by considering the number of active systems visible to the player, while visual hierarchy will be analyzed based on the level of prominence and organization of the main elements. The navigation flow will be examined based on the structure of access to features, considering the number of menu layers and the number of options available simultaneously.

Based on this classification, direct comparisons will be drawn between interfaces representative of the different cultural contexts and platforms, allowing for the

identification of recurring patterns and contrasts between the extremes analyzed. The results will be presented descriptively and, where applicable, synthesized in comparative tables to support visual analysis.

Table 1. Example of comparative classification of interfaces

Interface	Density	Hierarchy	HUD	Navigation
Game A	High	Distributed	High	Deep
Game B	Medium	Centralized	Medium	Direct

3. Exploratory Analysis of Interfaces

This section presents examples of interfaces with the aim of illustrating differences between cultural contexts and platforms. The examples are exploratory in nature and seek to highlight patterns that motivate the investigation.

3.1. Western vs. Oriental Interfaces

On traditional platforms (PC and consoles), the differences between Western and East Asian interfaces tend to be less pronounced, but still noticeable in aspects such as information density and visual hierarchy. In games of the MMORPG genre, for example, it can be observed that East interfaces, as in Figure 1(a), present a greater number of simultaneous elements when compared to Western interfaces, as in Figure 1(b).



Figure 1. Comparison between MMORPGs interfaces: Western and East Asian.
Source: Adapted from Black Desert Online [Pearl Abyss 2015] and World of Warcraft [Blizzard Entertainment 2004].

This difference can also be observed in first-person shooter games, in which Western interfaces tend to prioritize greater visual simplicity and a smaller number of simultaneous elements, as in Figure 2(b), while East Asian games present a higher density of information, as in Figure 2(a).

On mobile platforms, these differences become more evident. East Asian game interfaces tend to present high information density and multiple simultaneous elements, while Western interfaces traditionally adopt greater visual simplicity.

However, a shift in this pattern can be observed, with Western mobile games incorporating elements characteristic of East Asian interfaces. Examples of this include games such as Clash Royale (Figure 3) and Wild Rift (Figure 4), which present more complex interfaces and menus inspired by patterns popular in the East Asian market.



(a) Crossfire (East Asia)



(b) Counter-Strike Source (Western)

Figure 2. Comparison between FPS interfaces: Western and East Asian. Source: Adapted from Crossfire China [Tencent 2008] and Counter-Strike Source [Valve 2004].

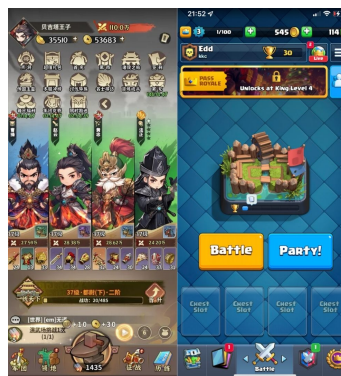


Figure 3. Comparison between Mini Heroes: Summoners War and Clash Royale interfaces. Source: Adapted from Mini Heroes: Summoners War [ZBJOY Games 2023] and Clash Royale [Supercell 2016].

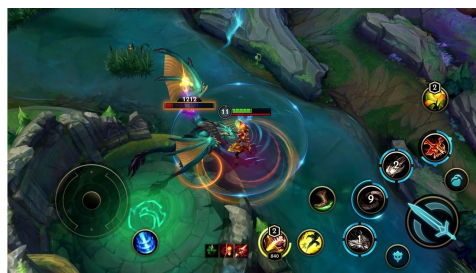


Figure 4. Comparison between Wild Rift and Mobile Legends interfaces. Source: Adapted from Mobile Legends [Moonton 2016] and Wild Rift [Riot Games 2020].

3.2. Cross-Market Interface Adaptations

In addition to the convergence observed in Western interfaces, there is also a movement of adaptation on the part of East Asian developers. Games such as Black Myth: Wukong present interface decisions aligned with Western standards, while companies like Nintendo have historically developed products with strong global appeal. These examples suggest that the adaptation of interfaces occurs bidirectionally, being influenced by cultural and strategic factors.

4. Expected Results

It is expected to identify consistent patterns of variation in user interfaces associated with cultural and platform-related factors, particularly in terms of information density, visual hierarchy, HUD complexity, and navigation flow. These patterns are expected to reveal differences between Western and East Asian design approaches, as well as distinctions between mobile and traditional platforms.

Preliminary observations suggest that such factors directly influence interface design decisions, especially in the mobile segment, where higher information density and more complex interaction structures tend to emerge. Additionally, it is intended to assess in which contexts the localization of user interfaces constitutes a strategic advantage, particularly when balancing trade-offs between global standardization and cultural adaptation. The findings are expected to contribute to a better understanding of how interface design can be aligned with cultural expectations to improve user experience in global digital products.

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