Analysis of Mobile Banking UI/UX App Design to Improve International Student's Experience: Focusing on the Kookmin Mobile App and Hana Bank App

Linlu Cai
Hanyang University, Seoul, South Korea
Euitay Jung
Hanyang University ERICA, Ansan, South Korea

With the advancement of globalization, South Korea has become a key destination for international students. However, these students often face challenges in adapting to daily life, particularly when using mobile banking applications, due to insufficient language support, cultural differences, and complex operational procedures. This study focuses on Chinese international students and analyzes the UI/UX design of mobile banking applications offered by Kookmin Bank and Hana Bank. Through literature reviews and surveys, the study identifies limitations in language adaptability, functionality layout, user interaction, and cultural adaptation, proposing concrete design improvements. The findings indicate that optimizing UI/UX design can significantly enhance international students' user experience and strengthen the global competitiveness of South Korean mobile banking services. This research provides reference material for designing for multicultural user groups and aims to promote research and practice in cross-cultural UI/UX design.

Keywords: international students, mobile banking, user interface design, user experience, multicultural design

Introduction

Background and Significance

The proliferation of mobile banking has transformed how individuals manage their financial transactions. In South Korea, where mobile banking adoption is high, most banking activities—such as fund transfers, bill payments, and financial management—are conducted digitally. For local users, these applications provide convenience, security, and efficiency. However, for international students, these same applications present significant challenges.

International students form a growing demographic in South Korea, coming from diverse linguistic and cultural backgrounds. Many rely heavily on digital banking for daily transactions, given that they often lack familiarity with traditional Korean banking systems. However, language limitations, interface complexity, and cultural differences in UI/UX design often result in a frustrating user experience. These barriers not only discourage adoption but can also lead to errors in financial management, such as incorrect transfers or difficulty accessing key banking features.

Linlu Cai, Ph.D. student, College of Design, Hanyang University, Seoul, South Korea.
Corresponding author: Euitay Jung, Ph.D., professor, College of Design, Hanyang University ERICA, Ansan, South Korea.

Despite the increasing number of international students in South Korea, little attention has been given to developing culturally inclusive mobile banking applications. Addressing this gap is essential, as seamless financial transactions contribute to overall well-being, security, and social integration for international students.

Research Objectives

This study aims to analyze and compare the UI/UX design of mobile banking applications in South Korea, focusing on improving the user experience for international students. The key objectives are: (1) To identify common usability challenges faced by international students when using mobile banking applications; (2) To compare the UI/UX elements of leading banking apps, including Kookmin Bank and Hana Bank; (3) To propose design improvements that enhance accessibility, usability, and cultural adaptability.

Research Questions

(1) What are the primary UI/UX challenges that international students face in mobile banking apps?

(2) How do different banking apps compare in terms of user experience, accessibility, and interface design?

(3) What design improvements can be implemented to enhance usability for international students?

Literature Review

The Role of Mobile Banking in Financial Accessibility

Mobile banking has become a fundamental component of modern financial services, allowing users to conduct transactions, pay bills, and manage accounts without visiting a physical bank branch. This accessibility is particularly valuable in South Korea, where mobile banking adoption is among the highest in the world, with over 90% of the population using mobile banking services (Kim, 2022). The widespread availability of digital banking solutions has reduced the reliance on traditional brick-and-mortar banking and increased financial inclusion for tech-savvy users.

However, accessibility does not always equate to usability. While mobile banking applications provide convenience, their effectiveness depends on their ability to accommodate diverse user groups, including non-native speakers and international residents. According to Lee and Park (2021), usability factors such as intuitive navigation, comprehensive language support, and responsive customer service significantly influence the adoption and satisfaction of mobile banking services among foreign users.

Recent studies have demonstrated that language accessibility and UI/UX design play a crucial role in the perceived ease of use of mobile banking applications. Research by Zhang et al. (2023) found that mobile banking apps in multilingual countries tend to have higher adoption rates among expatriates and international students when they offer fully localized interfaces, cultural adaptability, and real-time support. This finding suggests that South Korean banks must prioritize enhancing language accessibility and user-friendly UI/UX features to cater to the growing population of international students and expatriates.

Challenges Faced by International Students in Mobile Banking

International students represent a group particularly affected by usability challenges in mobile banking applications. Many of these students are unfamiliar with South Korea's financial system, banking regulations, and digital banking infrastructure, which creates substantial barriers to accessing and managing their finances. One of the main challenges faced by international students is the language barrier and limited multilingual support. Most mobile banking applications in South Korea are designed primarily in Korean, with limited or inconsistent English and Chinese translations. Even when a language option is available, certain critical banking terms remain

in Korean, complicating users' understanding of banking procedures. Moreover, the complexity of financial terminology often creates confusion for international students, especially when these terms are not clearly translated or explained within the app.

A study by Choi et al. (2022) revealed that 65% of foreign users in South Korea experience difficulties due to inadequate multilingual support in mobile banking apps. This issue is often echoed on consumer feedback platforms, where users frequently cite language barriers as a significant obstacle to mobile banking adoption. Additionally, international students face challenges due to complex navigation and non-intuitive UI design in many banking applications. Many of these apps feature cluttered interfaces with dense menus, multiple sub-sections, and unclear navigation paths, making it difficult for users unfamiliar with the system to complete transactions efficiently. Furthermore, the lack of standardized UI layouts across different banking apps forces users to relearn navigation each time they switch platforms. Many apps also fail to provide clear visual indicators or step-by-step guidance, which are crucial for non-native speakers trying to follow financial procedures.

A usability study by Kim and Lee (2023) found that international users take an average of 35% longer to complete standard banking tasks compared to local users due to these navigation complexities. This inefficiency can lead to frustration, mistakes in financial transactions, and, in some cases, a complete reluctance to use mobile banking services. Moreover, many mobile banking apps have limited support for international transactions, which is another significant challenge faced by international students. Many banking apps lack easy-to-use currency conversion tools or real-time exchange rate information. Additionally, some apps impose restrictions on linking international debit/credit cards, making it more difficult for foreign students to complete transactions.

A report by the Korea Financial Technology Institute (2022) indicated that over 40% of international students in South Korea rely on third-party services such as PayPal, Wise, or Western Union for international transactions, due to the inadequacies of local mobile banking apps in supporting these functions. Another challenge is the cultural differences in UI/UX design. User expectations for interface design vary across cultures, and what may be intuitive for local users might not be as clear for international users. For instance, Western users often prefer minimalist designs with fewer steps, while many Asian banking apps emphasize security with multi-step verification processes, which foreign users may perceive as cumbersome. Additionally, many South Korean banking apps do not offer customizable UI settings, such as language-based layouts or simplified workflows for international users. International students also report difficulties in accessing timely customer support, often facing long waiting times or limited language options when seeking assistance.

The Need for Inclusive UI/UX Design in Mobile Banking

Given these challenges, there is a pressing need for South Korean banks to adopt a more inclusive and user-friendly approach to mobile banking design. Key recommendations from existing research include providing comprehensive multilingual support, such as fully translated interfaces in English, Chinese, and other widely spoken languages, and ensuring consistent translations across all banking features, including FAQs and customer service interactions. Additionally, simplifying navigation and offering customizable UI options would allow users to adjust interface complexity based on their preferences. Introducing streamlined menus with easy-to-understand icons and tooltips would also improve usability.

Furthermore, integrating enhanced international banking features, such as real-time currency conversion tools and user-friendly international remittance services, could significantly improve the experience for foreign users. Providing step-by-step visual guides for international money transfers would also reduce confusion and

improve the overall banking experience. To address cultural differences, banks should consider incorporating personalized user interfaces that adapt based on language settings and user behavior patterns. Leveraging AI-driven chatbots for real-time multilingual customer support could also help bridge language gaps and provide more responsive service. Such inclusive design improvements would significantly enhance the usability and satisfaction of mobile banking applications for international students and expatriates in South Korea. Another study by González et al. (2022) examined mobile banking trends across different regions and highlighted that financial institutions that invest in UX-focused innovations tend to have higher customer retention rates. In contrast, banking apps that fail to address language barriers and cultural expectations experience lower engagement levels among foreign users. This insight underscores the importance of adapting UI/UX design to diverse linguistic and cultural backgrounds to foster inclusivity.

Research Methodology

Selected Mobile Banking Apps

This study focuses on six major South Korean mobile banking applications, which represent a diverse range of banking services and technological approaches. The selected banks include both traditional institutions and newer, technology-driven banks, offering a comprehensive overview of mobile banking services in the country. The six apps selected for this research are Kookmin Bank, Hana Bank, KakaoBank, Shinhan Bank, Woori Bank, and Toss Bank.

Kookmin Bank is one of the largest and most established banks in South Korea, with a strong digital presence and a long history of providing banking services. It offers a broad range of mobile banking features, making it a key player in this study. Hana Bank, another major player, is known for its innovative approach to digital banking and offers several user-centric features designed to enhance the mobile banking experience. KakaoBank, a relatively new player in the market, is a digital-only bank that has quickly gained popularity due to its user-friendly interface and seamless integration with other Kakao services. Shinhan Bank, a leader in digital innovation, offers a comprehensive suite of mobile banking services designed to cater to both local and international customers. Woori Bank, a significant institution with a global presence, has a mobile banking app that reflects its efforts to stay competitive in the digital age. Toss Bank, a newly established digital bank, is recognized for its emphasis on simplicity and accessibility, particularly for younger and tech-savvy users.

These six apps were chosen for their widespread usage among South Korean mobile banking users and their potential to represent varying levels of technological sophistication, user experience design, and multicultural support.

Data Collection Methods

To gather relevant data for this study, a mixed-method approach was employed, incorporating both quantitative and qualitative research methods. This approach allows for a more comprehensive understanding of the user experience and provides a balanced view of both numerical data and subjective user feedback.

Surveys were conducted among international students who are active users of mobile banking services in South Korea. The surveys aimed to assess their overall banking experiences, focusing on aspects such as ease of use, language support, UI/UX design, and satisfaction with international transaction features. The survey questions were designed to capture both the users' subjective perceptions and their practical experiences with the apps, including how well these apps meet the specific needs of international students, such as multilingual support,

cultural adaptability, and navigation clarity. The survey responses provided valuable insight into the strengths and weaknesses of the mobile banking apps, particularly in relation to their use by non-native speakers.

In addition to the surveys, a comparative UI/UX analysis was performed on each of the six selected banking apps. This analysis evaluated the usability of the apps by focusing on factors such as visual appeal, the consistency of design elements, and the accessibility of features. Specific attention was given to the navigation efficiency of each app, assessing how intuitively users can perform common banking tasks like transferring money, checking account balances, and paying bills. The language accessibility of the apps was also closely examined, noting whether the apps provide clear translations, consistent multilingual support, and user-friendly interfaces for foreign users. The comparative analysis provided a detailed look at the design elements that make each app more or less suitable for international users, highlighting areas where improvements could be made.

Evaluation Criteria

The evaluation of each banking app was based on several key criteria, which were carefully selected to reflect the most critical aspects of mobile banking that influence user satisfaction and accessibility.

The first criterion was the user interface (UI), which focuses on the visual aspects of the app. This includes the overall appeal of the design, the consistency of the visual elements (such as icons, fonts, and buttons), and the accessibility of features. A well-designed UI ensures that users can easily navigate the app, find relevant information, and complete tasks without unnecessary complications. For international users, UI design also plays a critical role in reducing the language and cultural barriers that might exist in the app, as well as making the interface more intuitive for those who may not be familiar with South Korea's banking system or the local language.

The second criterion is user experience (UX), which goes beyond the aesthetics of the app to assess how easy and efficient the app is to use. UX design encompasses the ease with which users can complete their banking tasks, the efficiency of navigation paths, and how well the app prevents errors or confusion. For international students, a smooth and error-free user experience is particularly important, as it can mitigate issues related to language comprehension and unfamiliar banking systems. A positive UX ensures that users can carry out their banking activities with minimal frustration, making them more likely to adopt and continue using the app.

The third and equally crucial criterion is multicultural adaptability, which evaluates the extent to which each mobile banking app supports users from diverse linguistic and cultural backgrounds. This includes the availability and accuracy of language support, such as the presence of fully localized interfaces in multiple languages, as well as the app's ability to cater to different cultural expectations regarding design, security features, and communication. For international students, multicultural adaptability is key to ensuring that the app is inclusive and easy to navigate, regardless of the user's native language or cultural background. The study also examines how well the app integrates cultural nuances, such as preferred design layouts or user support expectations, to create a more personalized and effective experience for foreign users.

Together, these three evaluation criteria—UI, UX, and multicultural adaptability—offer a comprehensive framework for assessing the mobile banking apps in this study. By evaluating these aspects, the research aims to identify which apps are most effective in serving the needs of international students and provide insights into how South Korean banks can improve their mobile banking services for a more inclusive and user-friendly experience.

Analysis and Results

UI/UX Evaluation Results

The evaluation of the UI/UX design of the selected mobile banking apps reveals significant differences in terms of visual design, navigation, and multilingual support. These factors are essential for the user experience, particularly for international students who may not be familiar with South Korea's financial systems or the Korean language. The table below summarizes the results of the UI/UX evaluation.

Table 1

UI Design Comparison

App	Visual design	Navigation	Multilingual support
Kookmin Bank	Modern	Moderate complexity	Limited
Hana Bank	Clean, user-friendly	Easy	Strong
KakaoBank	Minimalist	Simple	Strong
Shinhan Bank	Traditional	Moderate	Limited
Woori Bank	Conventional	Complex	Moderate
Toss Bank	Interactive	Very easy	Excellent

From the comparison, it is clear that Toss Bank offers the best user experience in terms of simplicity and multilingual support, making it highly suitable for international users. Toss Bank's interactive design and extremely easy navigation make it one of the most intuitive apps, while its excellent multilingual support ensures that users from diverse linguistic backgrounds can use the app seamlessly. In contrast, Kookmin Bank and Shinhan Bank, although modern and traditional in their design, exhibit more moderate complexity in navigation and limited multilingual support, making them less suitable for non-Korean speakers. Hana Bank and KakaoBank, with their clean and minimalist designs, offer strong multilingual support and are relatively easy to navigate, positioning them as good options for international students. Woori Bank's conventional design, coupled with complex navigation, makes it less user-friendly compared to others.

Survey Results

The survey conducted among international students in South Korea revealed several key concerns regarding their use of mobile banking apps. These concerns highlight critical areas where improvements are needed to enhance the user experience and accessibility for foreign users.

Table 2

Key User Concerns Among International Students

Concern	Percentage
Lack of English support	70%
Complex navigation	60%
Difficulty in international transactions	50%

The survey results indicate that the lack of English support is the most significant issue, with 70% of respondents citing it as a major concern. This aligns with previous research that found language barriers to be a significant obstacle in the adoption of mobile banking among foreign users. Complex navigation follows closely behind, with 60% of participants struggling with intricate and non-intuitive app designs that make completing basic banking tasks more time-consuming. Difficulty in international transactions, reported by 50% of the respondents, underscores the challenges faced by international students when trying to send money abroad or

perform currency exchanges through mobile banking apps. These findings suggest that mobile banking apps in South Korea must prioritize addressing language barriers, simplifying navigation, and enhancing the features available for international transactions to improve overall user satisfaction.

Discussion

Proposed UI/UX Improvements

The findings from the UI/UX evaluation and survey results underscore the pressing need for improvements in South Korean mobile banking apps to better serve international students and other foreign users. Several key areas for improvement are identified:

Multilingual Support: Many apps still lack comprehensive multilingual support, which is a significant barrier for non-Korean speakers. To address this, banks should provide full translations of all interface elements, not just basic functions. This includes translating financial terminology, help sections, FAQs, and customer service interactions. Offering support in widely spoken languages, such as English, Chinese, and even Japanese, would cater to a broader range of international users, fostering inclusivity and improving user experience.

Simplified Navigation: A major concern for users is the complexity of navigation, with many apps featuring intricate menus and multi-step processes. Redesigning app flows to create more intuitive and streamlined navigation would greatly enhance the user experience. This could involve reducing the number of steps required to complete tasks like transferring funds, checking balances, or paying bills. Clear visual cues, such as step-by-step guides or tooltips, could further help users, especially those unfamiliar with South Korea's financial system.

Personalized UI Features: One way to improve accessibility is by offering customizable dashboards that adapt to user preferences. For example, users could choose to display frequently used features prominently or adjust the layout based on their needs. This personalization would make the app feel more tailored to the individual, improving both usability and user satisfaction. Additionally, integrating AI-driven features such as language-based layouts or context-aware guidance could enhance the user experience for international students by adapting to their preferences and behaviors.

Conclusion

This study emphasizes the need for enhanced UI/UX design in South Korean mobile banking apps to improve accessibility, particularly for international students. By incorporating comprehensive multilingual support, simplifying navigation, and enhancing cultural adaptability, South Korean banks can significantly improve user satisfaction, encourage broader adoption, and foster financial confidence among foreign users. The findings of this study suggest that banks must prioritize user-centric design improvements to better meet the needs of diverse user groups, especially in an increasingly globalized financial landscape. Future research should focus on exploring AI-driven adaptive UI solutions and how these technologies can be used to create more personalized and accessible mobile banking experiences for global users.

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