A User Experience Study on the Design Direction for Foreigner-Friendly Telecommunication Service in South Korea

Daeun Kim[1], Chaemoon Yoo[1], Hyemin Lee[1], Wonyoung Lee[1], Younghwan Pan[1]
kimdaeungrace@kookmin.ac.kr, chaemoon10@kookmin.ac.kr, hyeminest@gmail.com, franlee0405@kookmin.ac.kr, peterpan@kookmin.ac.kr
[1]Department of Smart Experience Design, Kookmin University, Republic of Korea

Abstract

As South Korea experiences an increase in cultural and ethnic diversity, telecommunication companies have recognized the need to provide online service channels, such as mobile applications and websites, that are tailored to the needs of this growing segment of users. Despite efforts by some companies to be more inclusive in their design, including the provision of separate translated webpages, non-native customers still encounter obstacles when utilizing telecom services, resulting in a suboptimal user experience and limited accessibility. Therefore, a systematic study is required to gain a deeper understanding of the needs and challenges faced by foreign users when purchasing and using telecommunication services. This study includes case studies and reviews of existing services, user experience research through focus group, in-depth and expert interviews, this study aims to suggest a direction for designing mobile telecommunication service targeting foreigners in South Korea. Ultimately, the findings of this study are expected to be practically used as a resource for designing “foreigner-friendly” telecommunication services that promotes equal accessibility to information and support.

Keywords: UX design, user-research, telecommunication, foreigner-friendly design

Background

ICT and Digital Environment of South Korea

South Korea's information and communications technologies (ICT) infrastructure is widely acknowledged as being one of the most sophisticated in the world (The Economist, 2018). The country's capital, Seoul, ranks as a top-performing city in the 2022 Digital Cities Index (tied in fourth position with London), and ranks among the world's top in terms of internet and smartphone penetration rates owing to its welldeveloped digital infrastructure (Economist Impact, 2022) (Statista, 2021).

In addition to the infrastructure, South Korea is also top notch in ICT utilization and services. According to the United Nations "E-Government Development Index", which measures provision of online services, telecommunication connectivity and human capacity, South Korea has secured the first position three consecutive times in 2010, 2012, and 2014, and attained the third spot in the most recent publication in 2022 (United Nations, Department of Economic and Social Offence, 2022). This is evident in the e-commerce sector, as Korea's proportion of e-commerce transactions has reached 30 percent, and the proportion of online banking utilization has reached 66 percent. One news source reports that the number of loan applications made online increased 39.4 percent from 2019 to 2020. Hence, services are becoming more digitalized, mobile, and individualized.

Another reason inclusive design and accessibility of mobile telecom services in South Korea is important is that many day-to-day tasks and the resulting service use require identity authentication process using mobile phone numbers (Korea Communications Commission, 2012).To utilize most online, and offline services, which heavily rely on this digital ecosystem. For instance, all e-commerce, banking, and any form of subscription services require a self-identification process using a verified phone number. This means that to utilize these services and navigate through this interconnected system of on/off-line services, access to telecom services is mandatory.

To operate in the digital ecosystem of South Korea and avoid the aforementioned issue of digital alienation, access to mobile telecommunication services is crucial. In Korea, the three major mobile carries are SK Telecom, KT Corporation and LG U+ with market share of 39.95%, 22.19%, and 20.71% respectively (Shin, SBS Biz news report, 2023). These three top companies makeup over 80% of the market, providing services in a subscription / membership format.

Therefore, as the digital ecosystem of Korea further develops, the dependency of services on mobile telecommunication services is growing. In such an environment,

any hindrances to the accessibility of mobile telecommunication services may cause digital alienation issues, directly related to individuals' quality of life. However, the state of telecommunication services, specifically the online and offline service channels in South Korea, makes it difficult for foreign customers to easily purchase, use, and terminate their products.

Foreign Demographic in South Korea

According to reports published by the South Korean Ministry of Justice's Immigration and Foreign Policy, from 2017 to 2019, both the number of foreigners visiting and residing long-term in Korea showed an upward trend. These numbers reached 792,853 and 1,731,8032,524, respectively (Ministry of Justice, 2021). Though the influence of 2019 global pandemic slowed down this growth in the years after, it is expected that in the coming endemic years, there will be an increase in the number of international students and foreign workers entering Korea, expanding the total foreign demographic of Korea. In a recent study by the Ministry of Justice in 2021, it was reported that the top nations foreign residents come from are China, the United States, and Vietnam. These three countries make up about 81% of the foreigner population. And according to South Korean Ministry of Employment and Labor, "longterm" residents are those who reside in Korea for more than 90 days, and "shortterm" foreigners are those who stay for less than 90 days for purposes such as traveling or visiting families.

Research Needs

As South Korea becomes increasingly diverse, telecommunication companies have recognized the necessity to provide online service channels (i.e., mobile application and websites) that can address the needs of this group of users and make mobile telecom service more accessible for them. While some companies have made efforts to be more inclusive in their design, such as providing separate English webpages, non-native customers still face obstacles when using telecom services. This creates a poor user experience and unequal accessibility. Thus, a systematic study is necessary to better understand the needs and struggles of foreigners when purchasing and using telecommunication services. This research includes analysing behavior patterns, such as purchasing habits, and using user-centered design methodologies to provide a more "foreigner-friendly" service that offers equal accessibility to information and support.

Study Methodology

The study is largely segmented into three parts: a desk research stage and a user research stage, followed by an analysis stage to synthesize ideas from the insights from research stage. The first research stage includes a series of case studies, to understand the status and issues of available services in the market. The second research stage focuses on understanding user experience through interviews. The results from stages one and two were then used to produce UX Concept (Figure 1).

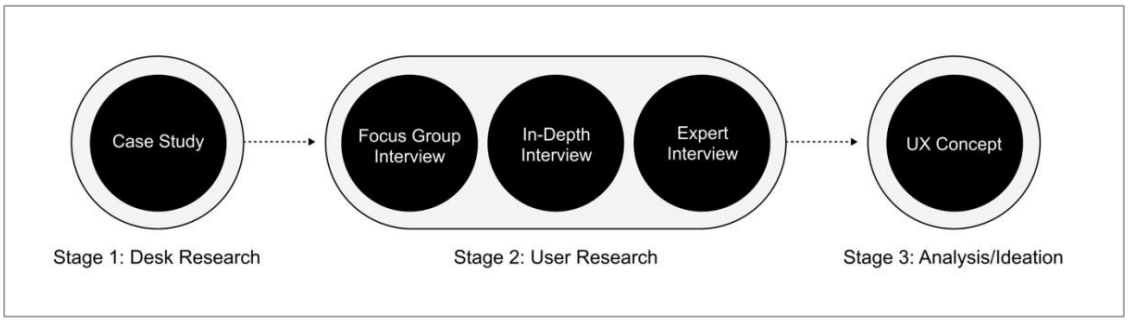

Figure 1. Overview of Study and Methodology

Case Study

Three Korean mobile telecom companies, three international (overseas) mobile telecom company cases, and three Korean bank services were selected for UX review (n=9, total). The selected cases were placed in this study with the following goals in mind: 1) understand the core elements of telecommunication services that influences user experience, 2) benchmark mobile banking applications and gain insight into Korean services that possess similar use journey map, and so impose similar obstacles for non-Korean users.

To implement standardization for the UX review guiding process, guidelines were derived from the 6-tier hierarchy model of user experience as shown in Figure 2. This hierarchy of user experience, developed by the authors of this paper, includes key factors crucial in elevating the overall user experience of products or services. For the context of this study, the levels were adopted and organized into criteria for analysing existing services.

Based on this user experience model, the following keywords and questions were developed:

- Accessibility: How do the users discover and approach the channel?
- Usefulness: Are the contents provided useful?

- Usability: What forms of support services are provided, and which languages support are available?

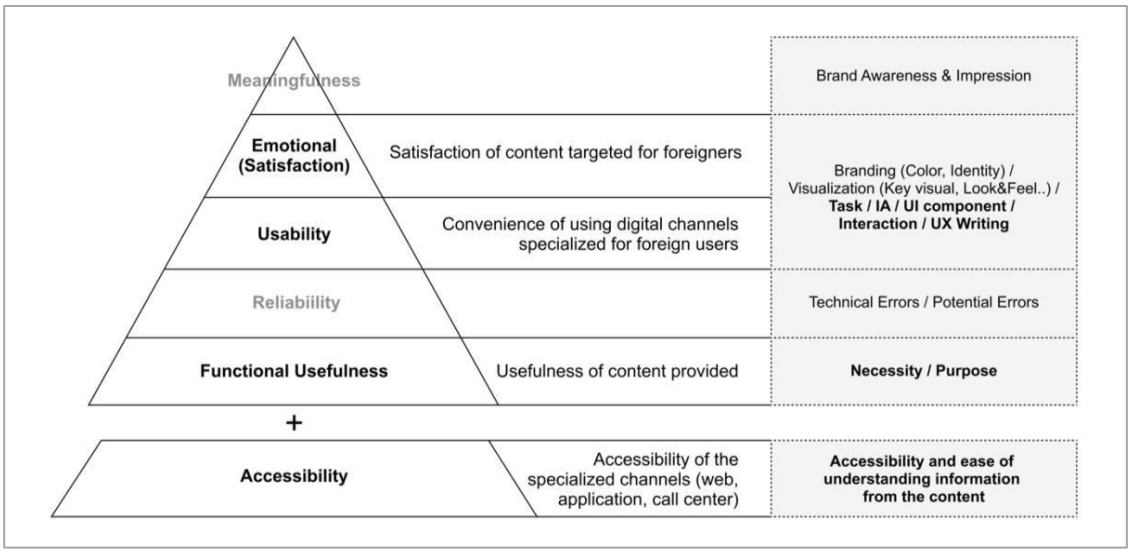

Figure 2. Hierarchy of User Experience

Focus Group Interview

The focus group interview methodology was selected for its effectiveness in promoting interactions among the participants (e.g., group discussion and spontaneous reactions to other participants' responses). This was important as many of the participants relied on memory to recall past experiences. Gaps in memory were filled, and participants corrected inaccurate information. Each focus group was segmented by nationalities, with the expectation that their shared common experiences would facilitate easier discussions. Interviews were semi-structured, with the ideal participant number set as five (n=5). This number was determined to be the ideal sample size for each group to bring meaningful data without the risk that participants might influence each other or inhibit others from sharing honest thoughts or feedback (Richard A. Krueger, 2002).

Interview sessions were conducted preferably offline but held online through meeting software (Zoom) to prevent pandemic influences, and to overcome geographic barriers. Interviews were conducted by a head moderator who led group discussions and asked questions. After receiving written agreements, the interviews were videotaped, and three additional researchers recorded responses in a separate room to aid in facilitating the interview and creating transcription of the interview. The session generally lasted from 60-90 minutes with 10-minute breaks. Table 1 below summarizes the participant profiles for focus group interview.

In-Depth Interview and Expert Interview

To address potential limitations of focus group interview methodology, such as groupthink phenomena, in-depth interviews were conducted to gain deeper insight into individual user's experiences, thoughts, feelings, and decision-making processes. The same set of questions used in the FGIs was used for the IDIs. Participants in the IDIs were given specific tasks to perform on the three major telecom service providers' websites and mobile applications that were designed for non-native Korean users. Identical data collecting methods were used as FGI interviews. Three individuals who have more than two years of work experience in the industry were additionally interviewed for their expertise and perspectives.

	FGI (Focus Group Interview)	**IDI (In-depth Interview)**
Countries	Vietnam, USA, China, Uzbekistan, Russia	Vietnam, USA, China, Uzbekistan, Russia, Philippines
Nationality distr. Sample size	5 Countries; 4-5 persons from each country, total of n=22	6 Countries; 1-3 persons from each country, total of 13
Interview Date	2021.09.18 ~ 2021.10.02	2021.10.08 ~ 2021.10.12
Purpose	Discover telecom service usage behaviour by user experience	1 Discover telecom usage behaviour pattern by user. 2 Discovery Web/App Needs & Pain points
Methods/ Key Points	Patterns of behaviour or experiences for each country, insight into the mental models of these services depending on variety of cultures	Based on data from focus group interviews, in-depth interviewing and thing-aloud research methods were used to gain honest and detailed reasoning by requesting to perform specific tasks on telecom company website and applications.

Table 1. Summary of Focus Group and In-depth Interview Participants

Results

The following sections report the findings from the case studies, focus group interviews, and in-depth interviews.

User Persona

To develop a methodology for deriving useful and accurate personas for foreign telecom service users in South Korea, user experience journey maps were created based on three defining traits of the interview participants that had the most impact on user mental models and behaviours. The three categories used are nationality (the country they are from), visa classification, and Korean language proficiency.

From focus group interviews, participants who came from the countries shared similarity in many ways. First obvious trait is the language they are most conformable with, but more importantly, they shared common mental models on what they expect telecom services offer.

01 **D4 ❼ D2 ❼ F2**	Type with many experiences in entering and leaving Korea after time spent studying abroad in Korea **Pain point:** Experiences insufficient guidance during steps of researching, purchasing, and using the project.
02 **No Visa Travellers**	Type of visitors that stay in Korea for brief time, specifically less than 90 days to travel for visit family members. This type displayed high digital familiarity and shows more experiences of online searching for accessing data for foreign users
03 **F4/F5 (China)**	Type that has acquaintances/family members who live in Korea and is fluent in Korean language. Thus, many pain points occurred in the step of preparing documents for family certification during the steps of preparing required paperwork.
04 **F4/F5 (Uzbek)**	This type of users had acquaintances/family living in South Koreas but due to the low proficiency in Korean language, the users rely on their acquittance for help when experiencing difficult
05 **E7**	Type that first approaches information channels about telecommunication products or services online such as SNS platform (e.g., Facebook Page). Prefers communication in comfortable language and settings.

Table 2. Five Customer Personas Derived from Customer Interviews

Common		*Web/App utilization is low 1) low reliability of online channels 2) low-speed feedback
Before Entering Korea	-	Most of the foreign users showed patterns of collecting information through acquaintances that have experience living in Korea or have visited Korea in the past. Rarely searched information about plans on websites by telecommunication companies.
Research	-	Brand recognition and awareness of Korean telecommunication companies is. Among the Big 3, KT is the most recognized. - Many foreign users collected company information through their acquaintance and utilized online communities for foreigners living in Korea.
Purchase / Subscribe	-	Due to language barriers, foreigners often make purchases and subscribe to services with partial understanding of the necessary information (such as contract contents).
Use Plan	-	Showed preference of visiting the dealer offline rather than using the call center or using other methods of non-face-to-face service support.
Terminate / Cancel Plan	-	Foreign users often terminate their services for various reasons depending on the purpose of visiting Korea. - Many experienced disadvantages due to lack of helpful guidance on the termination process

Table 3. Summary of Insight from each stage of using telecommunication service

Discussion

Seamless Service

For the case of the South Korean mobile-telecommunication services, unfamiliar users who are non-natives have trouble accessing information to purchase products, understand contracts, subscribe to services, and finally terminate the plans before leaving Korea. And so, web, mobile application, offline channels that provide

information must be feature seamless. For services to be seamless, the design direction and UX concept can be described using three the key words: Fit, Friendly, and Simple.

Fit and Friendly Service

The service should provide *fit* information for the customer. Foreigners who are not familiar with the Korean culture or telecommunications products come across various pain points when they need and search for information, or when they face unforeseen problems. To solve this, alerts and notifications can present foreigners of necessary information according to their type of visit, lifestyle, or usage patterns. First, the purpose of visiting the website must be considered. For new customers, the main content they wish to see on the web pages are information about the different phone plans. For returning members (i.e., customers who signed up for the service), the need to view personal usage information was the greatest. Next, following each step of the process, guided notifications are helpful. For instance, these can be detailed guides to terms and resource centers immediately after subscribing, warnings at certain data data usage points, or at ends of monthly payment cycles.

The service should be *friendly* and reduce the customer's difficulties. In consideration of foreign users who are less comfortable in purchasing within the digital channel (website), a step-by-step design of guiding the purchase process is helpful. The online purchasing experience can be improved by recommending products that meet the customer's specific needs.

Simple Service

The service should be designed to be *simple*, to increase user usability. Organize menus according to the potential purpose/reasons of the customer's visit, and depending on the use frequency, prioritize and provide quick access to the information and functions. Purpose of vising the digital channel can be 1. Check data use (or other usage information like call minutes), 2. To purchase a product, or learn about the products provided by the carrier, 3. To access information about the service and get help making decision through reviews or posts from community members, 4. To make an inquiry. By distinguishing the visit goals, websites and applications' interfaces/flow can be designed to navigate the customer to the information they need.

References

Economist Intelligence Unit. (2018). “The Asian Digital Transformation Index 2018,” http://connectedfuture.economist.com/wp-content/uploads/2018/12/ADTIwhitepaper.pdf.

Economist Impact, “Digital Cities Index 2022,” https://www.nec.com/en/global/ad/digitalcities/

Kim H.H. (2021).“To borrow money, Koreans go online” Korea JoongAng Daily.

Korea Communications Commission. (2012). “Designation of smartphone as a Personal Authentication Agency by the Korea Communications Commission.

Krueger, Richard A. (2002). Designing and Conducting Focus Group Interviews.

National Statistical Office of Korea. (2023). Online Shopping Trends in February 2023 (http://kosis.kr).

Shin, C. (2023). “SBS Biz news report, https://biz.sbs.co.kr/article/20000106581

Statista. (2021). “Penetration Rate of Smartphones in Selected Countries 2021,” https://www.statista.com/statistics/539395/smartphone-penetration-worldwideby-country/

South Korean Ministry of Justice. (2021). Status of foreigners by major nationality by year.

South Korean Ministry of Employment and Labor. (2006). Residence and Scope of Activities of Foreigners.

United Nations, Department of Economic and Social Affairs. (2022). “E-Government Survey 2022”