**Age and Korean Language Learners' Use of Mobile Applications**

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**Abstract**

This study investigates the role of age when learners acquire Korean as a foreign language including the individual differences and habits of use in mobile applications. By conducting a survey, the goal of this research is to examine the obstacles encountered when learning the Korean language depending on their ages; to discover how commonly various apps are used among Korean learners of different ages; and to identify Duolingo user's common opinions on the app for learning Korean. The survey was taken by 43 international learners who have studied at Korean language schools or private institutes and used mobile applications to learn Korean. It was found that the learners in their 20s and 30s tried a greater variety of mobile apps for language learning than older generations of learners. Papago translator, YouTube, and Naver Dictionary were most commonly used. In contrast, language learning and language exchange apps were used by few learners. Surprisingly, only five learners had used Duolingo, a globally popular language learning app, for their Korean learning.

*Keywords:* Korean as a foreign language, Mobile apps, Mobile assisted language learning (MALL), Older adult learners

**Introduction**

The widespread use of handheld mobile devices and mobile applications in foreign language learning has increased over the last decade. Mobile-assisted language learning (MALL) has become a new way of L2 learning distinguishable from computer-assisted language learning (CALL). Mobile devices such as smartphones or tablet PCs, which run mobile applications ('apps'), are now regarded as educational media that allow flexible learning that is not limited by any time and space (Hwang & Tsai, 2011), and enables autonomous and self-directed learning by allowing learners to selectively follow the pace and contents to their needs (Puebla et al., 2021).

Due to the COVID-19 pandemic since early 2020, the trend of digital learning has been accelerated. As the conventional face-to-face language classroom has moved to an exclusively online classroom, both teachers and students have struggled with adopting to this new learning environment (Agung et al., 2020; S. S. Kang, 2021). Many learners in younger generations are familiar with a variety of digital devices since they have grown up using computers and the internet. They are called digital natives whereas those who were born before the spread of digital devices are called digital immigrants (Prensky, 2001, p. 1-2). As even many language learners who did not prefer digital devices before having changed their learning style or platform due to the pandemic, it is necessary to discover how learners perceive their language learning through mobile applications and consider how teachers should teach them efficiently depending on learners' inclinations (Prensky, 2010).

Due to the shifting health requirements of the COVID 19 pandemic, and the inability to meet in face-to-face (FTF) contexts, many educators have already sought alternative e-learning platforms, synchronous classes, and online supplements such as Canvas, Thinglink, Zoom, or Padlet (Woo, 2021). Focused on the characteristics of MALL and types of mobile applications for learning Korean, this study examines how commonly various apps are used

among Korean learners of younger and older generations. Administering a questionnaire to 43 Korean language learners across the world, the goal of the current research was to find out their obstacles to language learning and general use of mobile applications according to age.

## Literature Review

**Mobile-Assisted Language Learning (MALL)**

Thanks to wireless technology, language learners are able to take advantage of learning opportunities that may otherwise be unavailable to them in a traditional FTF context. According to Wu et al. (2012), mobile-assisted language learning (MALL) is defined as a type of educational activity mediated through mobile devices which enables the learners not to be tied to any geographical location (see also Table 1 for other key characteristics of MALL). With the benefits of technology, ubiquity and connectivity can be explained as learners can access learning materials anytime and anywhere if they possess mobile devices. Personalization is also an important feature, as MALL platforms can supply learners with content and curriculum tailored to the level of individuals and their interests (Lai & Zheng, 2018; Lee & Koo, 2018; Min, 2017; Pegrum, 2014; Park, 2013). Mobile-based language learning provides an environment where learners can study languages without time and space constraints so that active interaction between mobile content and learners occurs and educational goals are effectively achieved (K. Kim, & C. Kim, 2013). "Anytime-anywhere learning" allows learners to potentially create their own learning experience by accessing a variety of multimedia materials, interact and engage in collaborative learning, research, and perform multiple tasks across time and space (Jin et al., 2019). Min (2017) points out MALL fosters creating a new learning community where learners can share knowledge while learning. Learners can be engaged to the language rather than just being in a classroom (Steel, 2012).

Pegrum (2014) indicates that the growing ubiquity of mobile devices and other

advantages such as multifunctional features and multimedia support make them as useful tool for autonomous and life-long learning. The accessibility of current mobile devices is not limited, thus offering opportunities to increase seniors (aged 60+)' chances and motivation to learn while reducing marginalization and isolation by promoting social participation (Puebla et al., 2021). Although elderly adults generally acknowledge the advantages of mobile technology and application in language learning as many made daily use of translators in their smartphones rather than using paperback dictionaries (Puebla et al., 2021), they will not fully adopt an innovative option unless they perceive a clear benefit to themselves (Heinz et al., 2013). They have been characterized as selective users of technology (Rousseau & Rogers, 1998). Since many governments have implemented measures that limit the number of people congregating in public places and supported in establishing effective online education due to the COVID-19 pandemic (Reimers et al., 2020), these benefits highlight the importance of continued research on the efficacy of and learners' perceptions of MALL. Especially, the elderly adult learners might have had to adjust to new mobile technology they have never used before, and few studies have investigated MALL on the older adult Korean learners.

**Table 1**

*The Characteristics of MALL*

| Researcher | Characteristics |
| --- | --- |
| Lai & Zheng (2018) | Personalization, Connectivity, Authenticity |
| Lee & Koo (2018) | Ubiquity, Connectivity, Personalization, Self-learning |
| Min (2017) | Instant Connectivity, Ubiquity, Self-directed learning, Personalization, Learning community |
| Pegrum (2014) | Multifunctional features, Portability, Social connectivity, Multimedia support, Personalization, Advanced communication capabilities |
| Park (2013) | Mobility and portability, Immediate accessibility, Instant Connectivity, Personalization, and self-direction, Contextuality based on learner's location. |

*Findings from previous MALL studies*

At first, MALL in English education mainly focused on delivering language learning content through mobile devices. Vocabulary learning through MALL or mobile applications became a primary research area (Gromik, 2012; Kennedy & Levy, 2008; Oki & Matsumoto, 2011; Stockwell, 2010; Thornton & Houser, 2005). For example, research has explored how text messaging was utilized to present quizzes or vocabulary practice for the purpose of research (Levy & Kennedy, 2005; Norbrook & Scott, 2003) and how students learned vocabulary through writing an email by mobile devices and idioms by watching video clips on a website (Thornton & Houser, 2005). The MALL research scope has gradually expanded to learner perceptions (Kown, 2013; Hsu, 2012; Hu, 2011; Kent & Jones, 2012; Read & Kukulska-Hulme, 2015), comparisons of different types of language learning mobile applications (Avellis et al., 2003; Yang, 2012), and the effectiveness of apps on language learning outcomes (Song, 2013, 2014; Seo & Choi, 2014).

A growing body of research has demonstrated that using mobile applications for language learning leads to positive student experience and attitude toward learning (Brown et al., 2012; Castaneda & Cho, 2016; Khaddage & Lattemann, 2013; H.S. Kim, 2013). Students also gain linguistic knowledge in vocabulary (Steel, 2012; Yildiz, 2012), grammar (Castaneda & Cho, 2016), and improved their reading and writing (Morgana, 2015; Steel, 2012). Moreover, the task-based approach shows positive effects when it utilizes mobile applications. For example, Kiernan and Aizawa (2004) explored using mobile phones for task-based language learning and concluded that incorporating tasks can promote L2 acquisition and support learners' focus on meaning.

The majority of research in MALL has focused on English as a target language, demonstrating the need for further exploration of less commonly investigated languages. For

example, MALL in Korean as a foreign language education has gradually developed but is comparatively limited. In the field of Korean education as L2, MALL research has mainly been investigated in areas such as teaching contents, teaching methods, educational effectiveness, and development of the MALL system (Han & Kim, 2013). Papers on how teachers instruct Korean vocabulary and grammars effectively with MALL using Quizlet were published (Ahn, 2018; H. Park, 2019). According to Ahn's experiment in 2018, the experiment group who utilized the Quizlet method achieved higher score than the control group. Moreover, employing social media platform, such as Instagram, could lead to the learner's positive reaction as they could post their interest and communicate with Korean language learners as well as Korean native speakers (S. Choi, 2021). Task-based research was also conducted as it designed a speaking task model. Students' satisfaction, and speaking effectiveness were measured after they recorded their speaking and receiving feedback via Kakaotalk messenger (J. Kim, & I. Seong, 2021). Kim and Seong (2021) found out giving a speaking task and one-to-one feedback through the messenger application helped the learners improve their speaking efficacy. They concluded that their experiment was a timely study since all language classes turned into online in September 2020 due to the COVID-19 pandemic. In sum, the MALL as a teaching method in the Korean language education has been studied focusing on the interest area where the youth aged in their 20s are interested such as Korean drama series (H. Park, 2019), and on mobile applications which the younger learners aged between 19 and in their 20s frequently use in their daily life (S. Choi, 2021; J. Kim, & I. Seong, 2021). There is a lack of research on MALL focusing on the elderly learners who are studying Korean such as what their interests are, which mobile applications they use frequently to learn Korean, and how effective utilizing mobile apps in their language learning.

Han and Kim (2013) investigated perceptions of Korean learners on mobile learning

focusing on English-speaking, Japanese-speaking, and Chinese-speaking students who were receiving regular Korean language courses at language schools. According to the result, they preferred face-to-face instruction at academy (73.7%), followed by instructions on computer-based (6.8%) and mobile devices (5.7%). They responded positively on using mobile devices for Korean learning, but they rarely opted for mobile devices as a priority regardless of their Korean proficiency level because Korean materials they could utilize via mobile devices were lacking. They also responded frequently they had difficulty learning when there was no one to practice with (38.1%). According to an article looking into the Korean language learners at universities in China and their perception of using mobile learning (A. Kim, 2020), the students generally showed positive reaction toward mobile learning. They adopted mobile learning for real-time streaming content (70.2%), and they felt using mobile devices stimulated mainly two skills, listening (61.6%) and vocabulary (61.6%). Both articles by Han and Kim (2013), and A. Kim (2020) only analyzed the data from the learners who registered at language schools or universities, and their respondents ages mostly ranged in their 20s. The percentage of respondents who are in their 20s was 79.3% from the article by Han and Kim (2013), and 98.01% from the article by A. Kim (2020). Therefore, these two study on perception of MALL (Han & Kim, 2013; A. Kim, 2020) has mainly recruited the younger learners who registered in a Korean language school in Korea and China. Even though one of the characteristics of MALL was anytime-anywhere learning without time and location constraints, the subjects asked the perception of MALL were recruited from language schools at specific locations. It was unlikely that the data would include older learners who can use mobile applications for their learning and represent the general app usage of Korean language learners.

**Types of Mobile Applications in Language Learning**

A wide range of mobile application services are classified as dictionaries and translators (Google translator, etc.), watching authentic content (YouTube, Netflix, etc.), finding a language exchange partner or tutoring (e.g., the Tandem app, Hello Talk), and language learning apps (e.g., Duolingo, busuu) (Rosell-Aguilar, 2018).

Dictionary and translator apps appeared to be the most popular types of mobile apps amongst the university students who were learning English (Nami, 2020), since all the 381 participants responded that they had at least one dictionary app in their smartphones, and Google translator was ranked at the third most frequently used apps among 53 types of apps which help improving lexis.

Utilizing mobile applications and authentic content can help learners to create an immersive learning environment. A video-sharing website such as YouTube has provided both language teachers and learners with a myriad of authentic materials (Balcikanli, 2010). As it gives opportunities to the learners to watch videos of a real-world language environment and the language use in different genres, they could receive different kinds of inputs not only relating to rich linguistic elements but non-linguistic such as cultural and pragmatic knowledge. Netflix is a platform where people watch videos on demand (VOD) (Dizon, 2018). Netflix has best leveraged the changing viewing habits of consumers to become the leader in the subscription VOD market (Ingram, 2017). Watching authentic video materials comes with a variety of advantages for L2 learners. Films provide learners with a meaningful context for language learning, while addressing issues that are relevant to the lives of students (King, 2002). Qiang, Hai, and Wolff (2007) determined that films offered four key benefits for students: (1) improved pronunciation and intonation, (2) exposure to idioms, (3) assimilation of sentence structure of the target language, and (4) knowledge of the target culture.

Language exchange apps services are for finding partners for exchanges or participating in one-to-one tutorials. Several language exchange sites dedicated to language learning are available such as Speaky (www.speaky.com), Languing (www.languing.com/landing/), HelloTalk (www.hellotalk.com/?lang=en), Lingualia (www.lingualia.com/en/social/) and italki (www.italki.com) (Taguchi, 2020). As there is no instructor while the learners and the native speakers have a conversation, these apps provide learners with opportunities to communicate with a larger number of the target language speakers in a more conversational scenario which allows them to achieve more incidental pragmatic way of learning.

A language learning app is an all-in-one language learning app that provides a set of solutions by incorporating grammar explanations, vocabulary, availability of partners from an e-tandem app, and culturally rich authentic content from media (Rosell-Aguilar, 2018). Examples include Busuu, Duolingo, Babbel, Rosetta Stone, and Speakeasy. Among language learning apps used around the world, Duolingo is reported to be the most widely used (Blanco, 2020). Duolingo is a self-study language learning application that was launched in June 2012. Its platform is based on gamified elements and has the largest number of users. It serves many language services such as English, Italian, French, Spanish, German, and Korean (Fauzan & Kasim, 2020). Duolingo first released its Korean course in October 2017 (Jang, 2021). According to a 2020 Duolingo Language Report (Blanco, 2020), Duolingo has maintained over 500 million total users and around 40 million monthly active users over the world. English ranked the no. 1 language many users study in 121 countries (62% of all countries), and language learners spread all over the world. Korean is recognized as the second fastest-growing language in the world on Duolingo and ranked 7th for most popular language to study. The numbers of Korean learners on Duolingo have recently grown in Southeast Asian countries such as Bhutan, Malaysia, and the Philippines, and the largest

number of the learners are found in the U.S., China, India, the Philippines, and Indonesia. Beyond Duolingo, there are several other language learning apps which offer Korean. For example, the Sejong Korean apps were first invented by King Sejong Institute Foundation in 2018 and developed based on Sejong Korean textbooks (U. Lee, 2018). They provide beginner and intermediate learners with basic grammar, vocabulary, conversation, and pronunciation practices as well as a user board where users can interact with others (Ministry of Culture, Sports and Tourism, n.d.).

In this study, a list of popular mobile apps for learning Korean were looked up and they were categorized into four groups: apps providing a single function such as dictionary or translator, apps for watching video for fun, apps for finding native speakers, and all-in-one language apps. Due to its popularity and its distinctive gamification, this study sought additional information on the perceptions of Duolingo held by Korean learners who had used the app.

**Mobile Apps and Older Learners**

The worldwide use of mobile devices has increased, and mobile technologies are no longer the sole domain of younger generations. All countries in the world are experiencing an unprecedented increase in the number of people over 60 years old (Findsen & Formosa, 2012), and learning language has become recognized as relevant to life-long learning. According to a study by S. H. Kang (2020), the number of Korean learners constantly increased from 2009 and 2015, and the age group the most wanted to learn Korean is between teenagers and 30s. The age group of the 60s and over was the smallest, but the number has stagnated. Due to the small number of learners, little has been written about the elderly language learners who study Korean. Suh (2019) is the only author who published an article on the anxiety of older Korean language learners. It was found out that they felt more anxious than younger adults and their level of anxiety correlates with their reading skills in Korean.

In addition, more and more Korean classes and material are extensively delivered through the online platform than the face-to-face lectures in a recent decade such as a Korean curriculum at MOOC (Massive Open Online Class) and a new method of flipped learning is adopted at a Korean language school (S. H. Kang, 2020). Some research has suggested that older learners are highly motivated in mobile learning, even though they have fewer experiences of advanced technologies than younger generations (Jin et al., 2019; Chen et al., 2008; O'Brien & Rogers, 2013), and they tend to feel more motivated and confident when using mobile devices (Merriam et al., 2020). However, few studies have provided evidence that how elderly Korean learners use mobile applications for learning Korean. In the language education field, language learning apps such as Duolingo or Babbel would be suitable and/or attractive for them as they prefer learning independently and satisfies their learning needs (Puebla et al., 2021), so it can be assumed that elderly adult learners who enjoy learning at their on self-paced and seek for self-efficacy could enjoy the mobile learning if they were provided with a platform for constant learning contexts (Ng, 2013).

**The Current Study**

More research is needed to understand the way of engaging with mobile applications among Korean language learners with a variety of backgrounds. This research was guided by the following questions:

(1) What are the greatest challenges for learning Korean, and how might they differ across age groups?

(2) What apps are commonly used by L2 Korean learners of different age groups?

(3) Who uses Duolingo and what is their general impression of using the app for learning Korean?

**Method**

**Data Collection and Procedures**

This study adopted a survey to discover the characteristics of Korean language learners regarding the use of mobile applications. This survey consists of a total of 55 items in 4 sections (see Appendix A). All respondents who agreed to participate answered the first two sections. The first section is about the learner's background and consists of 12 items. The participants could answer the questionnaire by choosing one or more options to answer the experience of using mobile apps for language learning. Regarding the item requiring self-assessment of their Korean skills, they evaluated their speaking, listening, reading, and writing skills from 0 to 10 points. A point of 0 means they have no basic knowledge of Korean at all, and a score of 10 means they are fully competent with their perfect Korean skills. Next, they were asked how they usually learn Korean such as having conversations with Korean friends, utilizing different multimedia, attending language classes, or reading Korean books. In the second section, they indicated how many mobile apps listed on the questionnaire they had ever used for studying Korean. They could choose 1 or more.

Following that, the third section began by questioning whether the participants had ever used Duolingo. If they answered "No", the survey would discontinue. They were also asked their reasons for using Duolingo. Last, items of eight characteristics of mobile applications have been adopted from the tool created by Min (2017) and Liu (2017). The sections consisted of ubiquity, entertainment, personalization, self-study, effectiveness, user satisfaction, willingness to continuously use, and willingness to recommend. Likert-scale was used for answers relating to the Duolingo app experience. Respondents were required to answer typically in five points from (1) Strongly disagree; (2) Disagree; (3) Neutral; (4) Agree; (5) Strongly agree. Each section had one open-ended question for the respondents to express their opinions freely. Open-ended questions were not obligatory so they could pass if

they did not want to elaborate. All the questions were provided on Google Forms in both

Korean and English.

**Table 2**

*Questionnaire Design*

| Part | Number of Items | Content |
|---|---|---|
| Learner background | 12 | gender, year of birth, nationality, whether they attend in a language program, purpose of studying Korean, education background, occupation, Korean level of 4 skills rated by themselves, level of class at a language school, period of residence in South Korea, learning method in usual, difficulties in learning Korean |
| General use of language learning apps | 2 | mobile applications used to study Korean, reasons for using the apps |
| Whether to use Duolingo or not | 4 | whether to use Duolingo or not before, the average amount of time on using the app a day, the average number of times on using the app a week, reason for using the Duolingo app |
| Duolingo experience | 35 | ubiquity (4), entertainment (4), personalization (4), self-study (4), effectiveness (9), user satisfaction (3), willingness to continuously use (4), willingness to recommend (3) |
| Total: | 55 | |

**Participants**

Participants who were over 18 and not native Korean speakers were mainly recruited

online. The survey was conducted for those who had any experience of learning Korean at a

language school or private academy, and those who had experience of learning Korean

through mobile applications; respondents were required to meet at least one of these three

conditions.

Participant data were collected for four weeks in September 2021, and a total of 43 responses were gathered. The recruitment advertisement was posted on KakaoTalk class chatrooms, Facebook, and shared through acquaintance with Korean teachers who are teaching overseas, and university students who joined in Korean tutoring activities. As the participants were in different learning conditions, the results can reflect the respondents of the students who take an online class from Korean language schools or private academies in Korea or in their home country, those who return to their hometown after having finished the course in Korea, or those who are taking a course in their home country. The nationality of participants was overwhelmingly Japan (30), followed by the USA (4), Russia (1), the Netherlands (1), Argentina (1), Vietnam (1), and 5 missing values. Among the respondents, 37 (86%) were females and 6 were males (14%).

**Table 3**

*Learners' background by age group*

| Age | 20s | 30s | 40s | 50s | 60+ |
|---|---|---|---|---|---|
| Birth year | 1992 - 2003 | 1982 - 1991 | 1972 - 1981 | 1962 - 1971 | ~ 1961 |
| The number of respondents | 10 | 4 | 5 | 4 | 20 |
| The average self-assessment score | 5.25 | 5.25 | 2.00 | 4.00 | 2.97 |
| The period of residence in South Korea | 6 – 12 months | More than 24 months | Less than 2 weeks | Less than 2 weeks | Less than 2 weeks |
| The number of respondents who have enrolled a language course | 4 | 2 | 5 | 4 | 17 |

The average self-assessment score refers to the mean among speaking, listening, reading, and writing skills out of 10. The results for the period of residence in South Korea were the mode, which were the most frequently occurring options among respondents in their

age group. The table shows that the younger generations in their 20s and 30s frequently did not register in any Korean language course, but they spent longer period in South Korea. In addition, it was recognized they had moderate level of Korean language skills as they rated themselves as 5.25 out of 10. Compared to this score, the elder generation between those in their 40s or older evaluated their Korean skill lower, ranged between 2 to 4. According to the survey result, it was found that the total number of Duolingo users was only five out of 43. Duolingo users evaluated their own Korean score was 4.8, and it indicates that there were no complete beginners (see also Table 4).

**Table 4**

*Duolingo users*

| Age | 20s | 30s | 40s | 50s | 60+ |
|---|---|---|---|---|---|
| Birth year | 1992 - 2003 | 1982 - 1991 | 1972 - 1981 | 1962 - 1971 | ~ 1961 |
| The number of respondents who had ever used Duolingo | 3 | 1 | 0 | 0 | 1 |
| Self-assessment Score | Speaking 5.0 | Listening 4.8 | Reading 5.0 | Writing 4.6 | Average 4.8 |

*Analyses*

All the data were collected by the questionnaire, such as the mean, mode and percentage were calculated by the Microsoft Excel program. In addition, the generations were put into 2 separate groups in which the younger generation included people in their 20s and 30s while the older generation included people in their 40s and above.

**Results**

Focused on the ages of the respondents, this study examined the number of responses of the difficulties while they learnt Korean. The respondents commonly answered that a lack of interaction with native Koreans was an obstacle to learning. This study calculated the

percentages of the people who felt difficult to communicate with native Korean speakers by ages and compared the percentages with their habit of mobile app usage. This study also summed up the total number of responses of what kinds of the apps they used and how frequently they utilized them. Lastly, the answers from the questions for Duolingo users were collected to find out general thoughts among Duolingo Korean learners.

Table 5 illustrates general difficulties learners have faced when studying Korean. It is found that many of them felt the difficulty in having little interaction with native Koreans, which accounts for 39.5%, followed by having no idea of how to study (27.9%), and having difficulty in choosing helpful materials (23.3%).

**Table 5**

*Difficulties in Learning Korean in general*

| Difficulties in Learning Korean | The total Number of Responses | Percentage of Responses (%) |
|---|---|---|
| Lack of interaction with native speakers | 17 | 39.5 |
| Don't know how to study | 12 | 27.9 |
| Difficulty of choosing helpful materials | 10 | 23.3 |
| Difficulty of choosing the appropriate learning materials on their level | 4 | 9.3 |
| Unable to resolve questions | 2 | 4.7 |
| Total | 43 | 100 |

*Note.* The respondents could choose one option or more. The difference of responses rate is due to multiple choices of the respondents.

In Table 3, it is found that the younger generation of those who were in their 20s and 30s had lived longer period in South Korea compared to the learners who were 40s or over. However, Table 6 demonstrates that a majority number of respondents in the younger generation felt difficulty finding opportunities to interact with Korean native speakers, which

accounts for 71.43% whereas only 17.24% of the older generations in their 40s and above felt struggling with interaction with Korean natives. According to the responses among the learners in their 40s and above, they felt that choosing appropriate materials and methods to study was a challenge.

**Table 6**

*Mobile App Preference and Difficulties in Learning Korean by Age*

| Age | 20s | 30s | 40s | 50s | 60+ |
|---|---|---|---|---|---|
| Birth of year | 1992 - 2003 | 1982 - 1991 | 1972 - 1981 | 1962 - 1971 | ~ 1961 |
| The number of respondents | 10 | 4 | 5 | 4 | 20 |
| The top 5 most frequently used apps | Papago (9) YouTube (8) Naver dictionary (7) Google translator, Netflix (5) | YouTube, Netflix (4) Papago (3) Google translator, Naver dictionary (2) | Papago (4) YouTube, Netflix (2) Google translator, Naver dictionary (1) | Naver dictionary (3) YouTube (2) Papago (1) Google translator, Netflix (0) | Google translator (10) Papago, Naver dictionary, YouTube (9) Netflix (5) |
| The number of the number of responses lack of interaction with native speakers as a difficulty in learning | 8 | 2 | 3 | 1 | 1 |
| The percentage of the number of responses lack of interaction with native speakers as a difficulty in learning (%) | 71.43 | | | 17.24 | |

***Differences in Variety of Apps Used by Learners of Different Ages***

Table 7 illustrates a comparison of the number of app usage by the respondents' ages. According to this table, the younger generation in their 20s and 30s tried various mobile applications for their Korean learning. The younger generation have tried more various types

of mobile learning apps than the older generation. Compared with the number of applications of the younger group used (4.86) with the number of the respondents in their 40s and over (2.07), more applications were used among those in their 20s and 30s.

**Table 7**

*The Number of App Usage by Respondents' Age*

| Age | 20s | 30s | 40s | 50s | 60+ |
|---|---|---|---|---|---|
| Birth of year | 1992 - 2003 | 1982 - 1991 | 1972 - 1981 | 1962 - 1971 | ~ 1961 |
| The number of respondents | 10 | 4 | 5 | 4 | 20 |
| The average number of mobile applications they used | 4.30 | 6.25 | 2.00 | 1.75 | 2.15 |
| The average number of mobile applications used by those in their 20s to 30s and those in their 40s or older | 4.86 | | | 2.07 | |

Based on the definitions of digital natives and immigrants by Prensky (2001), the participants in their 20s and 30s could be regarded as digital natives since they had experienced and incorporate information from many different mobile platforms. Digital natives are believed to have acquired knowledge of how to interact with digital platforms from an early age. Those who were 40 and above are categorized as digital immigrants who had to adapt to the online environment later in life and may be less comfortable with digital technology and the internet.

### *Learning Difficulties and Learners' App Preferences by Ages*

Table 8 represents what kinds of mobile applications Korean language learners used and tried to learn Korean. In this table, Papago, a translator app developed by a Korean

company, was most used, followed by YouTube and Naver dictionary. The apps such as Hello Talk, Tandem, and Speaky all aim to connect native Koreans with Korean learners online. They can learn Korean as well as exchange languages through text chat or video calls, but it appeared that the apps for interacting with the natives were not commonly used among Korean language learners. Table 8 illustrates that more than 50% of the group aged 40 and above significantly used translator and dictionary apps while the group age between 20 and 39 showed less than 50% used them. In addition, this result showed that the group aged in their 40s and over were not interested in all-in-one apps which provides multiple resources through one app, and language exchange apps. However, the younger group shows an even small interest in trying those apps in comparison. As it can be found in Table 6 and Table 7, the younger generation had largely struggled with contacting native speakers, but they did not actively adopt the apps for interacting with them.

The percent of those who were never used mobile applications for learning Korean accounts for 7%, and they were all Japanese women who aged more than 60 or over. Three of them were born in between 1946 and 1949. They answered they had not used any mobile applications for studying Korean but utilized multimedia channels such as drams or films and attended a Korean language class.

**Table 8**

*Application Use among Korean Language Learners*

| Name | Main purpose of the app | Number of Users | % of Users | 20s | | 30s | | 40s | | 50s | | 60s | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | N | % | N | % | N | % | N | % | N | % |
| Google Translator | | 18 | 42 | 5 | 11.36 | 2 | 8.00 | 1 | 10.00 | 0 | 0 | 10 | 22.73 |
| Naver Dictionary | Linguistic Knowledge | 23 | 53 | 7 | 15.91 | 3 | 12.00 | 1 | 10.00 | 3 | 50.00 | 9 | 20.45 |
| Papago | | 26 | 60 | 9 | 20.45 | 3 | 12.00 | 4 | 40.00 | 1 | 16.67 | 9 | 20.45 |
| YouTube | Entertainment | 25 | 58 | 8 | 18.18 | 4 | 16.00 | 2 | 20.00 | 2 | 33.33 | 9 | 20.45 |
| Netflix | | 16 | 37 | 5 | 11.63 | 4 | 16.00 | 2 | 20.00 | 0 | 0 | 5 | 11.36 |
| LingoDeer | | 3 | 7 | 2 | 4.55 | 1 | 4.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Memrise | | 2 | 5 | 1 | 2.27 | 1 | 4.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Duolingo | Language learning | 5 | 12 | 3 | 6.82 | 1 | 4.00 | 0 | 0 | 0 | 0 | 1 | 2.27 |
| Drops: Learn Korea | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sejong Korean app | | 3 | 7 | 1 | 2.27 | 2 | 8.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hello Talk | Interaction with native Koreans | 4 | 9 | 1 | 2.27 | 2 | 8.00 | 0 | 0 | 0 | 0 | 1 | 2.27 |
| Tandem | | 4 | 9 | 2 | 4.55 | 2 | 8.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Speaky | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal | | | | 44 | 100 | 25 | 100 | 10 | 100 | 6 | 100 | 44 | 100 |
| None | | 3 | 7 | 0 | | 0 | | 0 | | 0 | | 3 | |

*Note*. The respondents could choose one option or more. N stands for the total number of responses they had used the app. The percentage shows how many of them had used the app out of the total responses.

*A Small Number of Duolingo Korean Language Learners*

As shown in Table 8, only a small number of respondents had used Duolingo. One respondent in their 60s was Japanese, which appears to be unusual considering other 29 data from middle-aged or older Japanese learners. Other than this Japanese respondent, three Americans, one Dutch responded that they used Duolingo before. These learners can be classified as young Westerners in their 20s and 30s. Analyzing the open-ended responses from the Duolingo users revealed two main sentiments. They expressed with (1) positive response to the Duolingo features as a mobile app learning; and negative answers that (2) Duolingo is not a sufficient tool for studying Korean.

**Discussion**

First, as shown in Table 7, the younger generation in their 20s and 30s tried various kinds of apps in their Korean learning. This study examined the app preference among Korean learners covering a wide range of ages over 18. It is aligned with the result from the research conducted by Choi and Jang (2015) that the younger groups in their 20s and 30s enjoy different functions of mobile applications on a smartphone such as social media and gaming whereas those in their 50s and over prefer TVs over smartphones. It can be inferred that young people are more likely to use diverse functions and applications on mobile devices even for their language learning than older people.

Most of the respondents said that a major obstacle to learning Korean is a lack of communication with Korean natives. Previous studies about learners' perception on mobile learning was mainly administered in Korean language schools in Korea and China and featured respondents who were in their 20s and 30s. In such studies, the percentage of those who had difficulty in finding someone to practice Korean was the most commonly reported obstacle, but it accounted for 38.1% (Han & Kim, 2013). The result in this study shows a big difference as about 71 percent of the respondents who were in their 20s and 30s answered

they felt difficulty in finding opportunities to interact with native speakers. This can be explained by the characteristics of respondents in this study, which included learners who learnt Korean in a language school in Korea before or, notably, those who are learning in other countries. In addition, as the learners could participate in the survey through a mobile device, this result shows a wider range of learners' ages that had access to the survey link.

Secondly, it was found that many Korean language learners answered they had used Papago translator, YouTube, and Naver dictionary for their learning. Findings also showed that the respondents used the apps for interaction and language exchange with native Korean speakers less than other apps. Given the functions of translators and dictionary apps, this may suggest that mobile apps are most frequently used to address challenges in learning/using Korean vocabulary and grammar structures. Many participants in this study also reported using apps for entertainment, such as YouTube and Netflix. These findings suggest that the learners utilize appropriate apps for language learning, depending on their interests, and their current linguistic knowledge, which can be seen as reflecting the personalization feature of MALL (Lai & Zheng, 2018; Lee & Koo, 2018; Min, 2017; Park, 2013). As multimedia content and materials are available on mobile phones (Pegrum, 2014), the learners were able to choose and watch video content more easily.

As mentioned, the present results show low tendency of using language exchange mobile apps, similarly reported at a mere 3% of respondents answered in the research by Rosell-Aguilar (2021). About 55 percent of younger generations in their 20s and 30s participated in the survey by Rosell-Aguilar (2021), and the result may be attributed to that the learners did not use the specific apps such as HelloTalk and Tandem. This also included interacting with people with other in alternative platforms such as Whatsapp, Line, Skype, FaceTime, Twitter, Instagram, and Pinterest. Korean language learners may be an active user of other apps for interaction even though they were not listed on the questionnaire such as

KakaoTalk messenger, Instagram, or YouTube for interaction as well as for entertainment.

The common use of entertainment apps might also have to do with the availability of content specifically for language learning. Many YouTube channels and video clips of learning not only Korean but many other languages are created. Language learners can easily access learning materials on YouTube. YouTube is the largest video platform where many language teachers including Korean upload video clips of their own lessons, sample lessons or their actual classroom instructions (Godwin-Jones, 2007). The biggest YouTube channels for learning Korean are Talk To Me in Korean, and Learn Korean with Korean Class 101. Both channels have 1.28 million and 1.24 million subscribers each (Talk to Me in Korean, 2009; Learn Korean with KoreanClass101.com, 2007). King Sejong Institute, a public Korean language education institution, also operates a YouTube channel to promote Korean language materials and institutions (King Sejong Institute, n.d.). As for the learners, it is easily accessible without time and location constraints, and users can get information simply by searching keywords and interests (J. Lee, 2020).

Similarly, Netflix has recently gained increasing popularity among language learners, and it is categorized as a video-film streaming platform rather than social networking. In research by Türkmen (2020), it was revealed that Netflix could help improve foreign language competence as it provides content with subtitles and/or captions, which prevents misunderstandings of audiences. It has been shown in several studies that video with captions, especially, enhanced the learner's vocabulary competence (Winke et al., 2010). This is because the learners recognized the words of captions matching in the video clips (Montero Perez et al., 2018). As students watched TV series or movies on Netflix, their incidental learning of vocabulary tends to increase, and they assessed their listening and pronunciation improved due to extensive watching (Fievez et al., 2021). Even though both apps, YouTube and Netflix, are not originally for the language learning, entertainment, they are popularly

used among the younger and even elderly Korean learners in this study. This study does not prove watching videos on Netflix enhances linguistic competence of learners. But it was found that language learners are interested in watching videos in the target language in general. This suggests further language learning activities and materials can be developed using movies and drama series.

It can be found out that Naver dictionary, Papago, and Google translators are more popular among Korean learners than any language learning apps such as Duolingo. In fact, the infrequent use of language learning apps among participants in this study was a surprising finding, especially compared to previous surveys of language learners (e.g., Rosell-Aguilar, 2016). The apps for providing linguistic knowledge, like dictionaries, seem to be more convenient as giving the learners a piece of knowledge instantly when they need it. It appears that these applications have higher accessibility to the learners than other language learning apps like Duolingo. According to Rosell-Aguilar (2016), he indicated that the main areas of language learning for the learners who used mobile apps were vocabulary (82.26%), and translation (66.13%). It showed the learners chose self-study language learning apps such as Duolingo, Babbel the most often (47.0%), which took largely up the total percentage of app usage other than Busuu. It was followed by the translation apps was 19.4%, and the dictionary apps (16.3%). He argued that learners preferred an all-in-one application where learners can find materials and resources at once. Considered that there was no Korean service available in Busuu, and not many of the respondents had used Duolingo, it can be inferred that current Korean language learners fulfill their lack of vocabulary and translation skills from different applications rather than all-in-one self-study apps like Duolingo. Since Duolingo has launched its Korean course in only two languages, English and beta service in Chinese, it can be unfamiliar with students whose first language are not English or Chinese. This study does not include the responses of students from China and Southeast Asian

countries. Considering more than half of the participants in this study were from Japan, the app Duolingo lacks access for Japanese learners who study Korean.

The very few participants in this study who had experience with Duolingo turned out to also be users of many other applications. Furthermore, participants were all intermediate learners. In other words, they possessed at least a foundational level of Korean proficiency and had tried many diverse applications for their language learning out of interest. The average number of the apps the five Duolingo users had used for Korean learning was 6.6, which was a higher number than the number of the apps the younger generation had used. Other applications they had used for Korean learning was YouTube (5 out of 5), Netflix (5), Google Translator (4), Naver dictionary (4), Papago translator (4), LingoDeer (2), Sejong Korean app (2), and Tandem (1).

In sum, it was found that both Korean language learners most often used Papago translator, YouTube, Naver dictionary, Google translator, Netflix for their Korean learning across generations. Watching videos on YouTube and Nextflix was also commonly indicated among learners across generations. Even though language learning apps such as LingoDeer, Memrise, and Duolingo, and the language exchange/tutoring apps were not popular among Korean learners, the younger generation in their 20s and 30s used a relatively wider range of apps. None of the respondents who were in their 40s and 50s responded they had used any apps for language learning and language exchange/tutoring. The result shows only a small number of those who were in their 60s responded they used Duolingo and HelloTalk. Compared with the percentage of app uses of the younger generation between the 20s and 30s with the elderly group in their 60s and over, the elder group is more likely to rely on translator and dictionary apps for their studying. While previous studies focused on the perception of apps among the learners in their 20s, these findings show the learners who were 60s and over had a smaller obstacle to interacting with native Koreans rather than the

younger generations and prefer using the apps that provide simple pieces of linguistic information.

**Limitations and Future Directions**

The size of the collected data from the survey is small, which limits the generalizability of the results. In particular, Korean learners who have used Duolingo were extremely limited in number, so it is difficult to arrive at any conclusions about how learners of Korean perceive the app. As this survey was conducted through an online link, only the data from those who could access it through mobile devices could be included in the research. A larger data from different age groups and national backgrounds would be needed.

In this study, the percentage of young Korean learners who answered that it was difficult to interact with native speakers was significantly higher (71.43%) than that (38.1%) of the previous study (Han & Kim, 2013). The reason for this big difference in the response rate is not clear. It could be attributed to its mobile survey method for collecting data or the pandemic situation where they could not visit in Korea and attend an online class.

In future research, more studies using apps for elderly learners in a classroom could be investigated. Many language classrooms for the younger generation have already used MALL to give assignments and feedback. As it is revealed that the elderly learners prefer dictionaries and translator apps, teachers can opt for these apps or adopt other new technology in their classroom and find out the effects on motivation of the elderly learners. Elderly learners usually use these apps for self-study. If these apps or new apps are adopted in a classroom, it may influence their motivation negatively. Employing MALL with elderly Korean learners has never been studied in Korean language classrooms. If an app is utilized in a classroom, it would be useful to know what kinds of activities or tasks should be given, and to what extent the teacher has training for the app before the class should be discussed.

Watching videos for students' self-learning should be further investigated because

learners of all ages generally enjoy them. Teachers and app developers can utilize video content when they aim for students who are interested in the target language and cultures in general.

**Conclusion**

This study investigated their mobile app usage by ages, with results indicating that the learners usually used Papago translator, YouTube and Naver dictionary. The apps for entertainment such as YouTube and Netflix were adopted to study Korean across the younger and the group aged between in their 40s and above. YouTube and Netflix were much popular than that apps designed specifically for language learning. In fact, a surprising finding of this study was the lack of popularity of apps like Duolingo among Korean language learners.

Younger learners in their 20s and 30s more actively employed mobile applications as a learning method than those in their 40s or over, but they did not much choose the apps for language learning and language exchange for interaction with native Koreans. The younger group highly responded they felt difficulties in interacting with native Koreans compared to previous studies, and it is because the data was collected from the learners who had a mobile device to participate in the survey across the world, not the learners from one or two specific language schools. Compared to previous studies which mainly collected and analyzed the data of younger people in their 20s and 30s who attended a language school, a notable number of elderly adults who were in their 60s and over participated in this study. Although the number of older adult learners who study Korean has steadily existed, but there have been very few studies on finding out the characteristics of the learners and their use of mobile apps. This study presents some important characteristics of older Korean language learners who have until now been understudied. As such, this paper can contribute to better understanding the elderly adult learners who study Korean for lifelong learning.

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**Appendix A**

Questionnaire Item

Section 1

Learner Background

1. 성별이 무엇입니까? What gender do you identify as?

   남성 Male ② 여성 Female ③ 명시 안함 Prefer not to answer ④기타 Other

2. 태어난 연도가 어떻게 되십니까? What year were you born in?
   [Dropbox: Choose one from 1920 to 2003]

3. 국적이 무엇입니까? What is your nationality?
   [Dropbox: Choose one among 190 countries]

4. 지금 대학교나 어학당/학원에 다닙니까? Are you currently attending a language
   school?

   ① 예/Yes ② 아니요/No

5. 한국어를 왜 공부하나요? 한 개 이상 선택해주세요. Why are you learning Korean?
   You can select 1 or more.

   ① 대학교에 입학하기 위해 To get an admission from Korean universities ②

   고향에서 취직하기 위해 To get a job in your home country ③ 한국에서 취직하기

   위해 To get a job in Korea ④ 한국 문화를 즐기기 위해 To enjoy Korean culture ⑤

   To study for myself and enjoy as a hobby ⑥ 한국인 친구를 사귀기 위해 To make

   Korean friends ⑦ 한국어를 하는 가족이 있어서 To communicate with Korean-

   speaking family members ⑧ 이외에 다른 이유 Other

6. 귀하의 최종학력이 무엇입니까? (가장 최근의 교육 수준을 표시하세요.)What is
   the highest degree or level of education you have recently completed?
   ① 고등학교 졸업 High school graduate ② 직업교육훈련 Vocational training ③

   대학교 시작 Some college ④ 학사 (대학교 졸업) 3-4 year degree(B.A., B.S., etc.) ⑤

   대학원 시작 Some graduate school ⑥ 석사 졸업 Master's degree ⑦ 박사 혹은 그

   이상 Ph.D./M.D./J.D./Postdoctoral researcher ⑧ 다른 학위 Other

7. 귀하의 직업이 무엇입니까? What is your current employment status?
   ① 학생 ② Student ③ 정규직 Employed Full-Time ④ 계약직 Employed Part-Time

   ⑤ 자영업 Self-employed ⑥ 무직 Unemployed ⑦ 기타 Other

8. 귀하의 한국어 수준은 어느 정도 입니까? 당신의 한국어 말하기, 듣기, 쓰기,
   읽기 능력을 0부터 10 중에서 표시하세요: What is your Korean level? On a scale
   from 0 to 10, please select your level of proficiency in speaking, listening, writing, and
   reading Korean: [말하기 Speaking] [듣기 Listening] [읽기 Reading] [쓰기 Writing]

9. 현재 어학당에서 몇 급 수업을 듣고 계십니까? What level of Korean class are you taking now?

1급 / Level 1 2급 / Level 2 3급 / Level 3 4급 / Level 4 5급 / Level 5 6급 / Level 6 다른 경우 / Other

10. 한국에 몇 개월 동안 거주하셨습니까? How many months have you stayed in Korea? [Choose one among the options]

2주 미만 / Less than 2 weeks, 1달 / 1 month, 2달 / 2 months, 3달 / 3 months, 4달 / 4 months, 5달 / 5 months, 6달 / 6 months, 7달 / 7 months, 8달 / 8 months, 9달 / 9 months, 10달 / 10 months, 11달 / 11 months, 12달 / 12 months, 13달 / 13 months, 14달 / 14 months, 15달 / 15 months, 16달 / 16 months, 17달 / 17 months, 18달 / 18 months, 19달 / 19 months, 20달 / 20 months, 21달 / 21 months, 22달 / 22 months, 23달 / 23 months, 24달 / 24 months, 24달(2년) 이상 / More than 24 months (2years)

11. 평소에 한국어 공부를 어떻게 하시나요? 한 개 이상 선택해주세요. What is your usual method of learning Korean? You can select 1 or more.

① Having conversations with Korean friends ② 멀티미디어 활용(드라마, 영화, 음악, 유튜브 등) Utilizing different channels (drama, film, music, YouTube etc.) ③ 어학당 수업 참여 및 교과서 공부 Attending classes of language school and reading a textbook ④ 한국어 책 또는 잡지 읽기 Reading Korean books or magazines ⑤ 이외 다른 방법 Others

12. 한국어 학습 시 어려운 점이 무엇입니까? 한 개 이상 선택해주세요. What are the difficulties in learning Korean? You can select 1 or more.

① 원어민과의 상호작용이 없다 Lack of interaction with native speakers ② 어떤 자료가 도움이 되는지 선택하기 어렵다 Difficulty of choosing helpful materials ③ 질문이나 궁금증을 해결할 수 없다 Unable to resolve questions ④ 나에게 적절한 수준의 학습내용을 선택하기가 어렵다 Difficulty of choosing the appropriate learning materials on my level ⑤ 어떤 방법으로 공부해야 할지 모르겠다 Don't know how to study ⑥ 기타 Others

General use of language learning apps

13. 한국어를 공부하기 위해 아래의 어플리케이션을 사용해본 경험이 있나요? 한 개 이상 선택해주세요. Have you used any of the following mobile apps to learn Korean? You can choose 1 or more.

① 구글 번역기 Google Translator ② 네이버 사전 Naver Dictionary ③ 파파고 Papago ④ 유튜브 YouTube ⑤ 넷플릭스 Netflix ⑥ 링고디어 LingoDeer ⑦

멤라이즈 Memrise ⑧ 듀오링고 Duolingo ⑨ 드롭스 Drops: Learn Korean ⑩ 세종한국어 어플 Sejong Korean app, ⑪ 헬로우톡 Hello Talk ⑫ 탄뎀 Tandem ⑬ 스피키 Speaky ⑭ 아무것도 해당하지 않음 None

14. 해당 어플을 사용하는 이유가 무엇인가요? (10자 이상 작성해주세요.)Why do you use the apps? (Please explain it at least 10 letters.)

Section 2.

Whether to use Duolingo or not

15. 한국어를 배우기 위해 듀오링고 어플리케이션을 사용해본 적이 있습니까? Have you ever used Duolingo, the language learning mobile application, to learn Korean before? ① 예/Yes ② 아니요/No – Stop the survey

16. 지난 한 달동안 하루 평균 듀오링고 앱을 사용하신 시간이 대략 얼마나 되십니까? Within the past month, how much do you use Duolingo each day? ① 15분 이하 15 minutes or less ② 30분 이하 30 minutes or less ③ 1시간 이하 1 hour or less ④ 2 - 3 시간 2 - 3 hours ⑤ 3 시간 이상 More than 3 hours

17. 일주일에 듀오링고 앱을 얼마나 자주 사용하십니까? How often do you use the Duolingo app per week on average? ① 1 회 이하 1 time or less ② 2 - 4 회 2 - 4 times ③ 5 - 7 회 5 - 7 times ④ 8 - 10 회 8 - 10 times ⑤ 11회 이상 More than 11 times

18. 듀오링고를 사용한 이유가 무엇입니까? Why did you use the Duolingo app? ① 한국어 실력 향상 To improve Korean ability ② 오락 To entertain ③ 인간관계의 향상 To engage with people online ④ 시간을 보내기 To spend time ⑤ 기타 Others

Section 3
Duolingo experience

각 번호는 다음과 같은 의미를 지닙니다. Each number stands for

① 전혀 그렇지 않다(강한 반대 또는 강한 부정) Strongly disagree

② 그렇지 않다 (반대 또는 부정) Disagree

③ 보통이다(중간) Neutral

④ 그렇다 (찬성 또는 긍정) Agree

⑤ 매우 그렇다 (강한 찬성 또는 강한 긍정) Strongly agree

1. 듀오링고의 편재성에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에

체크하여 주십시오. The following questions are about the <u>ubiquity</u> of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 나는 듀오링고 앱을 통해 언제든지 필요한 학습 콘텐츠를 이용할 수 있다. I can access the learning content through the Duolingo app anytime I want. | ① | ② | ③ | ④ | ⑥ |
| 2 | 나는 내가 원할 때 듀오링고 앱을 즉시 사용할 수 없다. I cannot use the Duolingo app immediately whenever I want. | ① | ② | ③ | ④ | ⑤ |
| 3 | 나는 듀오링고 앱을 통해 어디서나 필요한 학습 콘텐츠를 이용할 수 있다. I can access the learning content through the Duolingo app anywhere I need. | ① | ② | ③ | ④ | ⑤ |
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

2. 듀오링고의 오락성에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the <u>entertainment</u> of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 듀오링고 앱을 사용하는 것은 재미있다. I have fun when using the Duolingo app | ① | ② | ③ | ④ | ⑤ |
| 2 | 듀오링고 앱을 사용하는 것은 불쾌하다. I feel unhappy when using the Duolingo app | ① | ② | ③ | ④ | ⑤ |
| 3 | 듀오링고 앱을 사용할 때 즐거움을 느낀다. I enjoy using Duolingo. | ① | ② | ③ | ④ | ⑤ |
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

3. 듀오링고의 개인성에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the personalization of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 듀오링고는 내 수준에 맞는 어휘를 제공하고 있다. Duolingo provides vocabulary suitable for my level. | ① | ② | ③ | ④ | ⑤ |
| 2 | 듀오링고는 내 수준에 맞는 문법 | ① | ② | ③ | ④ | ⑤ |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 내용을 제공하고 있다. Duolingo provides grammar suitable for my level | | | | | |
| 3 | 듀오링고는 내 수준에 맞는 표현을 제공하고 있다. Duolingo provides useful expressions suitable for my level. | ① | ② | ③ | ④ | ⑤ |

응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response.

4. 듀오링고의 자기주도적 학습에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the <u>self-study</u> of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 듀오링고 앱을 사용할 때 자신감을 가지고 있다. I feel confident when using the Duolingo app. | ① | ② | ③ | ④ | ⑤ |
| 2 | 스스로 듀오링고 앱에서 제시하는 학습내용을 인지하기 어렵다. I am well aware of learning content presented by the Duolingo app. | ① | ② | ③ | ④ | ⑤ |
| 3 | 듀오링고 앱에서 필요한 어휘, 문법, 표현을 찾아 실제 언어 생활에 활용할 수 있다. I can find | ① | ② | ③ | ④ | ⑤ |

| | useful vocabulary, grammar and expressions in the Duolingo app and actually use in the real life. | | | | | |
|---|---|---|---|---|---|---|
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

5. 듀오링고의 유용성에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the <u>effectiveness</u> of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 듀오링고에서 배운 내용을 통해 듣기 실력이 향상되었다. My listening skill is improved through the Duolingo app | ① | ② | ③ | ④ | ⑤ |
| 2 | 듀오링고에서 배운 내용을 통해 말하기 실력이 향상되었다. My speaking skill is improved through the Duolingo app. | ① | ② | ③ | ④ | ⑤ |
| 3 | 듀오링고에서 배운 내용을 통해 읽기 실력이 향상되었다. My reading skill is improved through the Duolingo app. | ① | ② | ③ | ④ | ⑤ |
| 4 | 듀오링고에서 배운 내용을 통해 쓰기 실력이 향상되었다. My writing skill is improved through the | ① | ② | ③ | ④ | ⑤ |

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| | Duolingo app. | | | | | |
| 5 | 듀오링고에서 배운 내용을 통해 문법 실력이 향상되었다. My grammar skill is improved through the Duolingo app. | ① | ② | ③ | ④ | ⑤ |
| 6 | 듀오링고는 충분한 양의 피드백이 제공한다. Duolingo provides sufficient feedback to students. | ① | ② | ③ | ④ | ⑤ |
| 7 | 듀오링고는 실제성이 높은 자료를 제공한다. Duolingo provides authentic materials. | ① | ② | ③ | ④ | ⑤ |
| 8 | 듀오링고는 전반적으로 나의 언어실력 향상에 도움을 주었다. Duolingo helps me improve my general language skills. | ① | ② | ③ | ④ | ⑤ |
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

6. 듀오링고의 사용자 만족도에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the user satisfaction of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 듀오링고를 사용하는데 만족한다. I am satisfied with using Duolingo | ① | ② | ③ | ④ | ⑤ |

| 2 | 언어를 배우기 위해 듀오링고는 좋은 방법이다. I think learning a language through Duolingo is a good choice | ① | ② | ③ | ④ | ⑤ |
|---|---|---|---|---|---|---|
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

7. 듀오링고의 지속적 사용의향에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the <u>willingness to continuously use</u> of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 듀오링고 앱 사용을 중지하지 않고 계속해서 사용할 것이다. I will continue to use Duolingo without stopping | ① | ② | ③ | ④ | ⑤ |
| 2 | 다른 언어 학습 앱보다 듀오링고 앱을 계속 사용할 것이다. I will continue to use Duolingo over other language learning apps. | ① | ② | ③ | ④ | ⑤ |
| 3 | 향후에 듀오링고 앱을 더 자주 사용하지 않을 것이다. I will not be using Duolingo more often. | ① | ② | ③ | ④ | ⑤ |
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

8. 듀오링고의 추천 의향에 관한 질문입니다. 귀하의 생각과 가장 일치되는 번호에 체크하여 주십시오. The following questions are about the <u>willingness to recommend</u> of which the characteristics of Duolingo. Please check the number that most closely matches your opinion.

| No | Item | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | 나는 듀오링고 앱을 주변 외국어를 공부하는 사람들에게 적극적으로 추천하고 싶다. I would like to strongly recommend Duolingo to language learners around me. | ① | ② | ③ | ④ | ⑤ |
| 2 | 나는 듀오링고 앱 사용 경험을 주변 사람들에게 긍정적으로 이야기할 것이다. I will tell my learning experience of Duolingo positively to the people around me. | ① | ② | ③ | ④ | ⑤ |
| 응답에 대한 이유를 간단히 작성해 주세요 Please briefly explain the reason for your response. | | | | | | |

설문에 참여해 주셔서 감사합니다. Thank you for participating in the survey.