Practices and Perspectives on Heritage Language Maintenance with Digital Technology among Japanese Immigrant Families in the United Kingdom

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Abstract
This paper examines the level of engagement in heritage language (HL) maintenance using digital technology among Japanese immigrant families in the United Kingdom. It does so with reference to the theoretical concepts of Capacity Development, Opportunity Creation, and Desire. The data were drawn from semi-structured interviews and unstructured observations of eight pairs of nine to eleven-year-old Japanese immigrant children and their parents at their homes in London and Bristol. The findings demonstrate positive perceptions towards the usage of information communication technology (ICT) for HL maintenance among families, although this continues to be viewed as supplementary in nature. It also provides details on the use of informal and formal HL learning and the background to HL maintenance among those families. It also highlights the need for increased parental involvement and greater consideration of the challenges involved in encouraging children to engage with HL interaction, even in the presence of ICT. The discussion also addresses the importance of considering immigrants from different socioeconomic and ethnic backgrounds, quantitatively verifying the impact on HL learning with ICT with respect to its validity and user access, and encouraging the corresponding development of the IT, education, and animation industries.

Keywords: Heritage Language, ICT, Immigrants

1. Introduction

Immigration and settlement in a new society can be one of the most dynamic and complex processes in an individual's life. It has significant implications for heritage-language (HL) maintenance in the lives of immigrants, for whom the emergence of media technology is now impacting the interaction with HL and heritage culture. However, the topic of HL maintenance using technology among young Japanese immigrants at primary school level has not been addressed. Hence, this research addresses Japanese language maintenance through the use of information communication technology (ICT) at home, aiming to explore 'in what ways Japanese immigrant children's engagement with digital technologies supports the maintenance of their HL at home.'

2. Literature review

2.1. Immigrants in the UK and their 'heritage language'

Globalisation has led to more people having transnational lives, an increase in intercultural interaction, and the extinguishing of geographical borders. Such changes have also influenced policies and practices pertaining to language education, as an increasing number of people across the world are becoming multilingual (Singh, Zhang & Besmel, 2012). Their lifestyle in terms of culture and language is diverse. A significant number of children from immigrant families in the UK speak a language other than English. For those children, maintaining the language their parent(s) speak(s) at home is a complex and considerable undertaking. For the purposes of the subsequent discussion, the term 'heritage language' is specifically applied to describe the language that immigrants speak at home and in their community (Fishman, 1991).

2.2. HL maintenance and the challenges

To maintain their HL proficiency, immigrant children have to maintain robust contact with their HL, which cannot be achieved without continuous effort. In terms of life in the UK, HL maintenance is a challenge as their dominant language is English. Many immigrant children are likely to be encouraged to learn English due to pressure from school (Kouritzin, 1999) and a desire to merge with mainstream society (Kouritzin, 1999; Fillmore, 2000). Although proficiency in English is clearly important for success in the UK, it does not necessarily have to involve the loss of HL. Researchers claim that HL is a great resource that should be cherished and developed for a linguistically and culturally diverse world (Brecht & Ingold, 2002). Several have suggested there are possible negative consequences associated with loss of HL, from disjunctions in parentS-child relationships (Portes & Hao, 1998; Fillmore, 2000; Tseng & Fuligni, 2000) to isolation from immigrants' ethnic community (Imbens Bailey, 1996). Moreover, many HL studies conclude that maintaining HL for immigrant children is significant because it has a strong influence on their academic performance, ethnic identity, and unity with wider society (Hamers & Blanc, 1992; Lee, 2002; Guardado & Becker, 2014; Jang & Brutt-Griffler, 2019).

Although the importance of HL is clear, limited learning environments mean that parental involvement in children's HL maintenance is key (Guardado, 2002; Tannenbaum & Berkovich, 2005; Babaee, 2013). Given the need for support by

parents to encourage children's HL maintenance, studies have paid attention to the perception of HL maintenance and *literacy practices* among families (Hashimoto & Lee, 2011; Kwon, 2017; Liang, 2018).

The term *literacy practice* here refers to those events and activities immigrants engage in at home to support children's HL development. Hence, parental involvement and their perceptions are key for HL maintenance and immigrant children's HL literacy practice at home.

2.3. Japanese immigrant families and their HL environment in the United Kingdom

Japanese parents are extremely interested in teaching HL and Japanese culture to their children, but it is very challenging. Kwon (2017) states that Japanese and Korean parents have a strong belief in passing down their HL to their children. Thus, Moreover, Hatano (1995) claims that, to be "regarded as a member of Japanese society" (p. 255), a high standard of Japanese literacy is essential in the Japanese community. Oriyama (2011) claims this is very important for Japanese immigrants, even outside Japan. The formal Japanese learning environment in the UK is comparatively accessible for immigrant children. There is one Japanese day school (*Nihonjin Gakko*) in London and eight Japanese Saturday supplement schools (*Hoshuko*) located across the UK. However, as Danjo (2015) points out, they are primarily for the children of future returnees; they are not schools that teach the Japanese language from scratch but schools with a standard Japanese curriculum for Japanese speakers. Nevertheless, large numbers of students in the UK, especially at *Hoshuko*, are permanent residents and often have difficulties keeping up with their studies. Thus, although Japanese overseas educational institutions are relatively available in the UK, there is an unignorable and unmet need for non-returnee children with current HL maintenance to study at those institutions.

2.4. Immigrant children and their use of technology in HL

Technology has not only transformed our lives and had an enormous impact in multiple contexts, but it has also changed immigrants' cultural access to their home countries in terms of mobility, information, and synchronous and asynchronous communication. For example, Immigrants can immediately obtain numerous different versions of the latest news and media products from the country of origin (Karim, 2003; Lam & Rosario-Ramos, 2009). Lam and Rosario-Ramos (2009) demonstrated how media and social network services (SNS) support social relationships among immigrant adolescents. As such, the use of technology is becoming a notable aspect in research on migration and this is also the case for HL maintenance. Consequently, several studies have found that the use of media technology is one of the most beneficial methods of HL maintenance. Kwon (2017) identified that using media and ICT can interact with immigrants' home culture and motivate learning HL. Szecsi and Szilagyi (2012) explored the potential of web-based technologies focusing on immigrant professionals and their families' perceptions of the roles of media in terms of building a sense of belonging and cultural identity for immigrant children. Following this research, Morgan and Peter (2014) studied the impact of web 2.0 technologies on the maintenance of HL among secondary and high school immigrant students.

Building on the existing research literature, present studies pay attention to the use of ICT among adolescent immigrants in terms of its inherent value. However, there has been little detail on the literacy practices, environment, and content of media in HL maintenance at a time when the use of technology is pervasive, even at younger ages. Moreover, given that children are especially likely to lose their HL in the early years of school, Fillmore (2000) argues there should be more research on HL maintenance under media interventions with younger children. Therefore, this research targets immigrant children at primary school level to explore current media use in relation to HL maintenance in conjunction with parental involvement.

2.5. Theoretical framework

To explore the influence of digital technologies on maintaining HL at home, I utilised a framework for examining the vitality of the language developed by Grin (1990, 2003) and Lo Bianco (2008, 2009). This consists of the three basic principles of Capacity Development, Opportunity Creation, and Desire (COD) that are required for language usage to happen. Capacity development refers to the development of a person's level of proficiency in the language through transmission of the language in formal and informal settings; Opportunity Creation refers to the development domains in which learners are encouraged to use the language in fruitful ways; and Desire is created by the reward and inherent motivation to acquire language proficiency, resulting in effort and investment in learning the language. While language knowledge in terms of Capacity Development is undoubtedly important, it is therefore necessary to have the opportunity to actually use the language in order to increase the desire to engage in such use (Lo Bianco & Peyton, 2013). The principal idea underlying this approach is to "distinguish between conditions that are necessary to foster language use in language revival contexts and those that are sufficient to produce increased language use" (p. 6). Efforts at language revival often focus on teaching and learning the language and making associated legal decisions and policies, while COD is "based on the clear understanding that all three elements must be co-present in any language revival activity" (Sherris & Peyton, 2019, p. 6). COD was devised as a tool to support communities and governments in revitalising the use of regional and minority languages (Lo Bianco & Peyton, 2013).

2.6. Research questions

Drawing on COD as a theoretical lens through which to view language and literacy and employing a qualitative research method, this paper examines in what ways Japanese immigrant children's engagement with digital technologies supports the maintenance of their HL at home. The research questions are:

1. How do children in Japanese immigrant families engage with HL as language and literacy practice through ICTs at home? (COD)
2. How do families perceive the use of those ICTs? (CD)
3. How do parents support their children's ICT use for HL maintenance? (CO)

Through these questions, I aimed to investigate the role and use of ICTs in terms of the possibilities and challenges that arise in home settings, paying attention to what ICTs make possible for HL literacy [Capacity Development], how ICTs yield

experience of HL exposure [Opportunity Creation], and how ICTs can attract families to engage in HL interaction [Desire].

3: Methodology

3.1. Research method

I conducted face-to-face semi-structured interviews and unstructured observations with parents and their children at their homes. They were about one hour each. The data collected were primarily in Japanese but partially in English. The media technology in this research were ICT as hardware and software and the targeted devices were any electrical device that involves human-technology interaction in HL via the internet, such as mobile phones and tablets. The data obtained from the research were analysed using thematic analysis (Braun & Clarke, 2006).

3.2. Participants

The participants in this research comprised eight Japanese families consisting of parents and their children attending local schools at Key Stage 2 Years 4-6 (from nine to eleven years old) who have lived in the UK for more than five years. Family names were changed to pseudonyms to ensure confidentiality. All families were middle-class with highly educated parents who were enthusiastic about their children's maintenance of Japanese. All child participants had a better command of English than Japanese regardless of the length of their stay in the UK, yet all maintained certain levels of HL.

4: Findings

A. Informal HL learning with ICT as casual and leisure time (COD)
A1. Video calling with families and relatives

Online video calling was a popular way to use ICT and six families mentioned that they talked with relatives once every two weeks or so. It was carried out as a regular HL maintenance activity, except for the other two families whose close families and relatives in Japan were unavailable due to having passed away or other private issues. However, two participant children did not appear to enjoy speaking. This was because they had less ability in speaking than listening and some were shy and did not know what to say. Some participants mentioned that online conversation was very helpful; however, maintaining a periodical and smooth conversation with relatives in Japan can be difficult depending on the characteristics of the family.

A2. The utility of watching streaming content in Japanese

It was found that every child participant watches them on their computer and tablet and such informal learning use comprised the majority of their HL interaction with digital technology. In particular, Japanese animation, so-called *anime,* is extremely popular worldwide and this was the case among all the participant children. Children watched them nearly every week. Notably, two children mentioned that some of the Japanese animations were popular in the UK and that their British friends also watch them. For those participants, it seemed they naturally felt familiar with such

programmes through friends in the UK. Four children identified and enjoyed the difference between Japanese and other animation. They thought Japanese animation in Japanese was somehow different and more interesting. Because some kinds of humour are only conveyed in the Japanese language, it motivates children to watch the animations in Japanese. However, parental encouragement also influenced their actions.

A3. Assisted writing to redeem literacy level using technology

Writing Japanese was not very common among the participant children due to its inherent difficulty; nevertheless, it is worth highlighting as their comments also revealed the possibility of assisted writing in HL using ICT. In line with Fitzgerald and Debski's (2006) findings, participant children did not like to write Japanese and it was not usually customary for them to do so in their normal life in the UK other than in coursework for private classes. In the context of ICT use, 'writing' could be more accurately described as typing and inputting Japanese words and sentences with digital devices.

At the same time, the child's mistake was caused by difficulty in linking speaking Japanese to writing in Japanese. For example, in the case of 'soto ha samui,' 'suto' and 'soto' both sound similar. Similarly, 'ha (は)' is pronounced as 'wa (わ)' when speaking as it works as a Japanese particle (*joshi*) but it has to be written as 'ha.' It is understandably difficult for immigrant children who have less experience in writing Japanese. For such children, it seemed helpful to input the speech to a text function in HL.

Although there are no data in Japanese, speech entry is said to be three times faster than typing (Ruan, Wobbrock, Liou, Ng & Landay, 2016). Thus, it is possible to infer that those participant children who take extra time typing in Japanese are more likely to appreciate such speech recognition as it makes inputting faster and smoother. Indeed, speech input using digital devices is becoming more popular these days, even among children (Sengupta & Garg, 2019) and this research showed that its ease of use was likely to enable children to output what they wanted to express in HL.

B. Practicality and inactivity in formal HL learning with ICT (COD)

Although it was not commonly used, this theme discusses cases where ICT was used as a formal HL learning tool through a subscribed tablet-based learning course and Japanese learning apps. Such learning materials are basically designed for Japanese students to cover the Japanese school curriculum relevant to the targeted school year. There was only one family among the participants who subscribed to the e-learning course, but they found it very valuable. They worked on the course two days a week and her daughter Sayaka showed me how she practices Japanese letters (Figure 1). Her frequent use of the app was manifested in her confident and accustomed manner.

Figure 1: Writing letters

Five families had installed drill practice apps in Japanese. There are many Japanese learning apps available and all seemed useful for HL maintenance. Ms Maeda pointed out the merits of these. *"I think it is good to have multiple gateways for learning. Whatever they learn, such as multiplication tables, Kanji and word books, they will learn differently and have different impressions when they learn from games."* She believes that learning apps are good because they provide an alternative form of stimulation that allows knowledge to be absorbed smoothly. Participants who actually used ICT for HL maintenance realised the advantages; however, three of the five participants who had downloaded free apps before said that they no longer used them due to issues with continuity. That is because some apps were downloadable only in certain countries because of targeted marketing. Moreover, because they are free, the contents are limited to trial use and non-subscribers.

C. The priority of and in HL maintenance (OD)
C1. Families' general approach to HL maintenance

All families expend certain efforts to maintain their children's Japanese and, as Kwon (2017) claimed, travel to Japan where formal 'offline' HL schooling seems to be the main method of HL maintenance among participants. Seven families travelled to Japan during the holidays every year and four children attended Japanese school almost every time to maintain their Japanese and interact with the Japanese culture. All parents mentioned the very powerful impact of HL maintenance using this approach. However, parents complained about the limitations regarding the period of stay, its cost, and a huge amount of labour involved. Therefore, except for Takeshi, all children had a routine schedule in which to learn Japanese in a Japanese language circle, attending *Hoshuko* on Saturdays, and a tutoring school (*juku*) which provides very high-level education. However, most parents confessed that it was difficult to encourage their children to work on formal learning. This is not only because of the strict formality involved, it also relates to children's position as immigrants. Moreover, they were busy with playdates and other lessons such as sports and music.

C2. Parents' avoidance of ICT based HL maintenance as the main learning resource

Following the findings in C1, in this section I focus on how HL maintenance with ICT is perceived if it is not the main channel. While several researchers (Szecsi & Szilagyi, 2012; Morgan & Peter, 2014; Kwon 2017) have reported the use of

technology as an effective approach to HL maintenance, this research showed that parents considered HL learning digital devices to be useful but not sufficient as educational material. They generally considered ICT to provide good opportunities to interact with Japanese people and Japanese culture, but no parents regarded media technology as the main source of HL learning. Participants' current maintenance of HL through travel to Japan and formal HL learning is not a perfect strategy. Given participants' priority regarding offline HL maintenance and that it was normally parents who decided their children's HL maintenance strategy, such views reflected an acceptance of ICT as a way to interact with HL [Opportunity Creation] but there was no strong passion towards making HL maintenance with ICT a primary choice [Desire].

D. Knowledge and opinions about ICT among parents
D1. Flexibility and optimisation of HL maintenance with ICT usage (OD)

Based on previous findings on HL maintenance and how families perceive ICT, this section addresses how ICT is used and why. Most participant children used ICT quite freely in terms of content but their use was limited to a short period of spare time when they did not have any other things to do, reflecting the busy schedules mentioned in C1. In addition, participant parents faced a dilemma in their approach to HL maintenance and felt ICT may help to solve this. This is that the inputting assistance offered by technology sounds very helpful yet might mean giving up mastering the HL. Regarding this issue, parents commented that they wanted their children's level of HL literacy to be as good as possible but, as permanent residents in an English-speaking country, many showed an understanding of their children's limited ability in HL.

Writing is a difficult aspect of literacy and typing Japanese makes it even more difficult for immigrant children who lack confidence. However, it seems that, due to the prevalence of assisted writing for everyone, parents might feel less pressure to ensure their children fully master writing Japanese and admit ICT usage is a realistic technique for coping with HL literacy.

D2. Confusion about adopting ICT as hardware and software (CO)

This sub-theme considers the issues parents encounter when they apply ICT for HL maintenance. Although parents made positive comments, ICT remains a supplement. This is because some parents experienced difficulties utilising the digital contents and digital devices due to their lack of IT literacy. This then deterred their children from using media technology. Still, no participant experienced actual inefficiency with digital devices yet one mother wondered about its effectiveness when hearing her friend's story.

Indeed, it might be less effective than paper-based and orthodox methods as some parents instinctively avoided it and Hanus and Fox (2015) found there to be lower outcomes with a gamified study than one that was non-gamified. In fact, as De Witte and Rogge (2014) pointed out, researchers' opinions on the effectiveness and efficiency of learning with ICT have been largely inconclusive. Therefore, it is understandable that doubts about its effectiveness remain among parents. However, for immigrant children who feel especially reluctant to study HL, gamified HL study

was valuable as one of the choices to encourage children, as Ms Smith continued. *"It might be alright (...), even with tablet and they do not fully learn."* From her comment, it seems that even if there is uncertainty, using ICT is considerably better than nothing when it comes to addressing the challenges of HL maintenance among immigrants.

E. Children and parents' behavioural patterns in HL maintenance
E1. Children's preference: simplicity and passivity (D)

Through my interviews, I noticed tendencies towards activity among participant children, signifying an easiness with the process. Although frequent conversation with relatives in Japan and the popularity of Japanese programmes was introduced in theme A, it is important to note that this was not always voluntary. *"If I let my daughter choose what to watch, it will be English ones. So instead I put on Japanese programmes for her. That is quite understandable as it is easier for her though…"* *(Ms Brown)*. Like Ms Brown, most parents mentioned that they intentionally put on Japanese programmes and encouraged their children to watch them. Because interacting with HL is not easy for children, several researchers (Guardado, 2002; Tannenbaum & Berkovich, 2005; Babaee, 2013) claim that the key in HL maintenance is parental support, which is a must even for leisure purpose with ICT. This involves taking initiatives such as putting on animation programmes in HL and setting up video calls to create further opportunities.

Although children like to watch Japanese animation, only two children mentioned that they read Japanese comic books in Japanese even though these have the same content. This was irrespective of their reading ability. Similarly, reading was less preferred by participant children if it was in Japanese. Nevertheless, because they enjoy watching animation more than reading comic books, viewing should be an easier and unlaboured activity for them as Robinson (1997) argues that reading requires more activity and work than watching. In terms of this inclination, this aligns with findings from Al Madi and Khan (2015) that showed audio-video multimedia can enable children to "recognise an overwhelming number of concepts easier" (p. 1). I surmise that this might be especially applicable to immigrant children who need to digest more from HL materials than non-immigrants.

E2. Limitations in home-based HL maintenance by parents (CO)

This section demonstrates how parents perceive difficulties and examines how ICT can help in HL maintenance under participants' existing efforts. As well as the physical limitations of paper books in HL, one mother analysed parents' limitations in terms of content and topics. By contrast, ICT alleviates such limitations as immigrants can access more materials in HL. There is no difference between printed books and e-books in cognition and comprehension (Rockinson-Szapkiw, Courduff, Carter & Bennett, 2013; Connell Bayliss & Farmer, 2012). Nevertheless, it was still uncommon to read books with digital devices and participants would rather read hardcopy books in spite of the quantitative limitation, which aligns with the findings of Rideout (2017). Rideout (2014) also notes parental scepticism and this, along with parents' tendency towards ICT avoidance discussed in D2, might be related to parental doubt and a lack of interest and knowledge in e-books.

Another parent referred to their limitation with regard to listening. She thought that a limited listening experience was not desirable for HL maintenance and that ICT can deal with this issue equally as well. *"As I want her to listen to a Japanese voice other than mine, I think (ICT) is beneficial to experience listening to another Japanese voice. " (Ms Brown).* Under life in a residential country, the number of HL speakers immigrant children usually meet is limited. As Swain claims, immigrant children's limited HL development is due to error-permissive family communication without any improvement motivation and opportunities for correction (as cited in Kim, 2001). ICT might therefore be able to provide more linguistic chances and stimulation as external but familiar HL speakers. Furthermore, when children display passive attitudes, an automatic soundstream inputs HL information continuously.

5. Conclusion

Overall, the findings show that participant children regularly use ICT in HL and complex family attitudes and perceptions of HL maintenance emerged. Overall, ICT is welcomed as a beneficial tool for enhancing HL capacity and increases opportunities to engage with HL among Japanese immigrant families. However, it remains supplementary despite its further possibilities. Answers to each of the research questions are as follows.

5.1.1. How do children in Japanese immigrant families engage with HL as language and literacy practice through ICTs at home? (COD)

The findings indicate that Japanese immigrant children often use ICT as a tool to interact with Japanese materials in Japanese and this enables those children to acquire Japanese as a HL. Within such language socialisation activities, [Capacity Development] and [Opportunity Creation] are observed, especially in relation to formal online HL learning, video calls to families in Japan, and watching Japanese programmes online. This is due to ICT's ability to promote the [Desire] of immigrant families. Furthermore, ICT can support deficient literacy levels through assisted writing, which serves further [Opportunity creation] with literacy practice and yields a [Desire] to use HL.

5.1.2. How do families perceive the use of ICT? (CD)

Japanese immigrant families regard ICT as fairly positive thanks to its entertaining and convenient functions, but they do not consider it their first choice for HL maintenance. This is because parents are aware of their limitations regarding their maintenance and ICT can help compensate for this through [Capacity Creation], motivating their children's HL maintenance during their spare time by increasing their [Desire], however, parents are concerned about the effect of HL [Capacity Creation] with ICT. Furthermore, the unintelligibility and difficulties involved in adopting ICT and ICT based HL maintenance inhibit them from taking further actions, which is reflected in a negative [Desire].

5.1.3. How do parents support their children's ICT use for HL maintenance? (CO)

To make effective use of ICT for HL maintenance, parental involvement is a must. Immigrant parents first need to collect information and pay attention to ICT and HL learning with ICT as it is normally parents who decide on ICT usage and a HL maintenance strategy. Even if ICT is entertaining, they often have to encourage and watch HL activities with their children who may find HL maintenance difficult due to their preferences and language ability. It is therefore important to identify engaging and useful content for their children for [Capacity Development], set up the initial conditions, and ensure their appropriate use as [Opportunity Creation].

5.2. Implications and recommendations

Although the active usage of ICT for HL maintenance is common among these immigrants, this could be extended through additional parental and industrial support so that a better HL maintenance environment can be created. Parents should be encouraged to acknowledge how much their children could learn HL with ICT, even if it is 'just for fun' using informal activities, and consider formal HL learning with ICT to cover HL maintenance as one of their choices. In addition, the IT industry needs to facilitate easier application of both hardware and software while the education industry needs to become more aware of the emerging needs of distance learning and overseas users in the current globalised society. Finally, the animation industry should note its power and impact in terms of its influence on language learning among children. These can be facilitated by further academic research, the results of which should be widely publicised to help parents and educators. Research on participants from diverse socioeconomic backgrounds should also broaden knowledge in this field. This research was conducted with middle-class Japanese immigrant families, which meant that all the parents were enthusiastic about their children's HL education. Hence, these Japanese immigrant children lived in an extraordinary environment with a large investment in HL maintenance and access to world famous animations in Japanese. Moreover, although this research referred to capacity development by ICT for HL maintenance in terms of subjective attitudes and perceptions, obtaining quantitative measurements of each HL maintenance activity will provide further persuasive support for the findings. Furthermore, the value, usability, and social acceptability of assisted writing among immigrant children should be explored to develop a wider understanding of HL maintenance. Although listening, speaking, and reading HL are already accessible through ICT; applying ICT to the hardest activity, writing, will provide a more effective environment in which to facilitate HL maintenance.

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