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# Learning, Culture and Social Interaction

journal homepage: [www.elsevier.com/locate/lcsi](http://www.elsevier.com/locate/lcsi)

Full length article

## Parental perception and English Learners' mobile-assisted language learning: An ethnographic case study from a technology-based Funds of Knowledge approach

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### ARTICLE INFO

#### Keywords:

Parent perception  
 Mobile-assisted language learning  
 English Learners  
 Technology-based Funds of Knowledge  
 Ethnographic case study

### ABSTRACT

The purpose of this ethnographic case study is to examine the parents' perceptions regarding young English Learners' (ELs) mobile-assisted language learning (MALL) experiences from a technology-based Funds of Knowledge (FoK) approach. Six immigrant families in the United States from four countries (including China, Mexico, Japan, and Cambodia) were home-visited with in-depth semi-structured interviews. Participant observations, field notes, analytical memos, and a descriptive survey were used to triangulate the data. By centering on ELs' technological households' cultural sources, parents' perceptions of ELs' MALL experiences were explored through motivation, physical and material access, digital skills, and usage frequency and diversity of mobile applications. Results demonstrated that the parents were motivated to support ELs' language learning using mobile technology. Analysis revealed differences in technology access and appropriation based on diverse cultural backgrounds and socioeconomic status. Findings also indicated the inequity in the current digital divide and informed future studies on creating FoK-featured curricula to contribute to ELs' language education through mobile technology. This study extends the current MALL horizon from the front line of specific student-centered learning experiences to further examine the facilitating factors and barriers that hide within a multicultural learning environment.

### 1. Introduction

The current digital revolution occurring in education has greatly changed the learning experiences for digital learners. The use of mobile technology is influential to teaching and learning both inside and outside the classroom and has brought numerous opportunities as well as challenges for teachers in K-12 settings, including the rapidly increasing enrollment of English Learners (ELs) in the educational system of the United States. ELs, previously referred to as "limited English proficient" students, is defined as "a student who is in the process of acquiring English and whose native language is not English or who comes from a background where a language other than English is spoken" (O'Malley & Pierce, 1996, p. 238). ELs attending schools speak more than 400 languages. Among them, Spanish, Arabic, Chinese, Vietnamese, and English were the five most commonly reported home languages for EL students during 2014–2015 (National Center for Education Statistics, 2017). These culturally and linguistically diverse backgrounds

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<https://doi.org/10.1016/j.lcsi.2019.100325>

Received 9 October 2018; Accepted 19 June 2019

2210-6561/ Published by Elsevier Ltd.

reflect the emergent needs as well as challenges of improving their language proficiency in English for entering the mainstream classroom in a digital world.

Language serves a critical function in ELs' education. Mobile technology has been employed in English instruction to support young ELs' language development such as iPod/iPod touch, netbooks, tablets, personal digital assistants, and mobile applications both in Western and Eastern cultural backgrounds (Chen, Carger, & Smith, 2017; Billings & Mathison, 2012; Hwang & Chen, 2013; Lin & Wu, 2010; Liu, Navarrete, & Wivagg, 2014). These findings indicate the effectiveness of using mobile technology as teaching and learning tools to support language and content learning for differentiated instructional support, extend learning from formal classrooms to informal learning environments, and enhance students' learning motivation and engagement. Incorporating mobile technology into ELs' language classrooms is becoming an emergent research area within the interdisciplinary field of mobile-assisted language learning (MALL). MALL is gaining popularity among more educators and researchers, and language learning is proving to be one of the prime disciplines to see real benefits from the use of mobile technologies (Kukulska-Hulme, 2010). The unique features of MALL that have been explored are "portability, social interactivity, context sensitivity, connectivity, individuality, and immediacy" (Lan, Sung, & Chang, 2007, p. 131). The robust language support for mobile devices such as text entry, auto-correct, and spell check may open new perspectives for language learning (Godwin-Jones, 2008). However, computer technology is not a panacea for language learning (Warschauer & Meskill, 2000). Due to their varied cultural, socio-economic, ethnic backgrounds derived from their families' immigrant history, the enhancement and success of ELs' language education requires coordinated and collaborative efforts from schools, teachers, families, and communities throughout the entire educational system (van Roekel, 2008). Among them, parental involvement has been considered as one of the most important predictors to support ELs' educational success (Shim, 2013; Vera, Israel, Coyle, Cross, Knight-Lynn, Moallem, Bartucci, and Goldberger (2012); Wei & Zhou, 2012).

Parental involvement refers to "parent behaviours related to the child's school or schooling that can be observed as manifestations of their commitment to their child's educational affairs" (Bakker & Denessen, 2007, p. 189). Vera et al. (2012) pointed out that the most-reported parental involvement activities include monitoring children's homework activities and talking about students' school experiences. Common barriers that may affect parental involvement include limited language proficiency, unfamiliarity with the US educational system, a desire to avoid interfering with their children's education at school, and responsibilities associated with other obligations. These findings indicated the critical impact of parents' cultural backgrounds, educational experiences, and family's socioeconomic status on students' learning, which might cause challenges for EL teachers to adapt to the diverse characteristics and learning needs of ELs in their classrooms. When it comes to technology integration into ELs education, Bray, Brown, and Green (2004) reported that families' immigrant background and parents' perceptions of education have a strong impact on the way young ELs approach technology in the classroom (p. 4). Patrikakou (2016) addressed that rapid technological advances, including the expansion of mobile technology, have affected parental involvement and the relationship between parents and children. Selwyn, Banaji, Hadjithoma-Garstka, and Clark (2011) pointed out that parents can access information and resources relating to their children's education and ease the transfer of schoolwork into the home through the provided online learning environments from school. Parents might have more access to technology because the children could bring home the provided portable devices from school. Therefore, parents' perceptions of using mobile technology for ELs' language education could be reimaged within a technologically advanced learning context.

Therefore, the purpose of the study was to adopt an ethnographic case study as the scientific inquiry approach to examine six immigrated families in the United States, who were from China, Mexico, Japan, and Cambodia, and to explore the parents' perceptions with regard to their ELs' (aged 9–15 years) mobile-assisted language learning from a unique cultural lens of Funds of Knowledge (FoK) (González, Moll, & Amanti, 2005). The concept of FoK describes historically and culturally developed bodies of knowledge, skills, and strategies that are accumulated by individuals, families, and communities and form social relationships related to the households' functioning in society (Moll, 1992; Moll, Amanti, Neff, & González, 1992). It transfers the conceptualization of culture into the educational arena through connecting the community and school by centering on students' lived experiences and backgrounds, especially for the young emergent bilinguals who grow up in immigrant families (González et al., 2005; Wei, 2014). Additionally, the access to ICTs of the resources and appropriation theory of the diffusion, acceptance and adoption of new technologies was utilized to illustrate on the parents' perceptions of mobile technology from four aspects: motivation, physical access, digital skills, and different usage (van Dijk, 2005, 2012). The study sought to better understand the research question:

How do parents perceive the use of mobile technology in developing ELs' language skills through the Funds of Knowledge perspective?

## 2. Theoretical framework

### 2.1. Technology-based Funds of Knowledge

Conceptually grounded in Vygotsky's theories of cultural-historical psychology, FoK is a concept about "using students' knowledge and prior experiences as a scaffold for new learning" (González et al., 2005, p. 135). FoK provides an avenue of approach to empower pedagogy for culturally and linguistically diverse families (Becker, 2014; Burke & Hardware, 2015; González et al., 2005; Schwartz, 2015). Based on Hedges, Cullen, and Jordan's (2011) FoK categorization of family-based FoK connected with family members, center-based FoK focused on pedagogical relationships with peers and teachers, and community-based FoK occurred in social and cultural settings, the authors (2017) supplemented the domains with technology-based FoK linked to the specific activities or interactions related through the use of technology that the ELs participated in with their parents or other family members at home, or in the

community, or school experiences. Thence, through the lens of technology-based FoK, parents' perceptions were examined in the present study regarding young ELs' language learning experiences through mobile technology from different sociocultural backgrounds.

## 2.2. Four successive kinds of access in the resources and appropriation theory

van Dijk's (2005) resources and appropriation theory of the diffusion, acceptance and adoption of new technology centered on the inequality phenomena that emerged through the digital divide within the context of contemporary socio-culture. van Dijk claimed that digital divide is "deepening where it has stopped widening" and it should not be just conceived as a technology issue but "a social and political problem" (pp. 2–3). In his resources and appropriation theory, van Dijk (2012) addressed the core concepts as the number of personal and positional categorical inequalities in society, the distribution of resources relevant to this type of inequality, access to ICTs, and fields of participation in society. Furthermore, van Dijk elaborated that the digital divide has turned to the inequality of skills and usage through the four successive kinds of access in the appropriation of digital technology: *motivation* to use the digital technology; *physical access* with possession of computers and Internet connections or permission to use them and their content; *digital skills* such as operational, informational, and strategic skills; and *different usage* such as number of diversity of applications and usage time (van Dijk, 2012). This framework of four successive kinds of access of mobile technology was used to construct the data coding process in the present study.

## 3. Methods

An ethnographic case study was chosen as the scientific inquiry approach to generate "explanations of how people think, believe, and behave - that are situated in local time and space" to understand parents' perceptions of ELs' language learning through MALL (LeCompte & Schensul, 2010, p. 12). Triangulated with the home-visits, in-depth semi-structured interviews, participant observations, field notes, analytical memos, and a complementary descriptive survey, the trustworthiness of the data was verified.

### 3.1. Participants

A group of six immigrant EL families (nine parents in total) in the Midwest US was randomly selected for conducting home-visits based on their willingness. The participating families were originally from China, Mexico, Japan, and Cambodia, with from one to four children living at home, and the range of the years of these families living in the US was from 10 months to 25 years. Among these families, one Chinese-American family had recently immigrated to the US because the EL's father had taken a faculty position in higher education. A second Chinese-American family had immigrated to the US 14 years ago and ran a Chinese restaurant in the local community. The two Mexican-American families had immigrated into the US about 20 years ago and had worked in construction, maintenance, or packing yogurt at local factories. The Cambodian-American family had immigrated to the US about five years ago. The father of this family ran a local dining business while the mother cared for her family as a homemaker. The Japanese-American family had immigrated into the US eight years ago. The mother of this family, a recent Ph.D. recipient, worked in a research institution, while the father worked for an international company and was conducting business abroad during the home-visit. All six home-visited families spoke both English and their native language at home. Besides the parents, three boys and three girls (age 9 to 15 years) were present during the home-visits. Table 1 summarizes demographic information for the participants.

### 3.2. Data collection

#### 3.2.1. Home-visit

Home plays a critical role in children's cultural and linguistic development, especially for diverse ethnic learners. Home-visits provide an opportunity for teachers and researchers to learn more about their students' families and cultures in which the students develop through conversations with the visited family members by asking questions purposefully (González et al., 2005; Wessels, 2013). To "learn the rope before playing the field" (Green, 2014) and to gain better insight into the social and cultural ways of

**Table 1**  
Demographic characteristic of the home-visited parents.

Parents' age	Marital status	Parents' place born	Years living in the US	Highest level of education	Number of children	Language use at home
36–40	Married	China	Less than 1 year	Ph.D.	1	Chinese/English
36–40	Married	China	Less than 1 year	M.S.	1	Chinese/English
36–40	Married	China	11–15	High school	3	Chinese/English
41–45	Married	Mexico	16–20	Middle school	4	Spanish/English
36–40	Married	Mexico	16–20	Elementary school	4	Spanish/English
31–35	Married	Mexico	21–25	High school	3	Spanish/English
36–40	Married	Cambodia	1–5	Ph.D.	2	Khmer/English
36–40	Married	Cambodia	1–5	High school	2	Khmer/English
36–40	Married	Japan	6–10	Ph.D.	1	Japanese/English

knowing are presented from the parents' perspective (Lin & Bates, 2010). During the home-visits, 20 semi-structured FoK-featured interview questions were asked within 60 min to engage the parents in narrating their family history, cultural backgrounds, educational experiences, professional careers, personal interests, community environments, educational expectations for their children, experience with technology, and opinions about their children's use of mobile technology. The participating ELs answered similar questions about their educational backgrounds, interests, educational expectations, and special needs at school. The interviews were tape-recorded.

### 3.2.2. Participant observation

The first researcher was actively involved in the international culture activities at the university and the local community activities (e.g. the celebration of Chinese Spring Festival and the *Cinco de Mayo* as well as the celebration of the ELs' birthday, graduations, and confirmations) to establish the researcher's positionality and develop an ability to engage in a stylized and improvisational method of participant observation. This procedure enabled the researcher to become involved with the ELs' families and community indirectly and develop an insider's view and understanding of their households' experiences within the contextualized research environment.

### 3.2.3. Field notes and analytical memos

The first researcher kept the field notes and analytical memos regularly to interpret and reflect on the indigenous meanings and concerns of the people and communities studied through the field of work responsively. Those detailed social and interaction moments helped the researcher to picture the participating parents' daily life and concerns using mobile technology for ELs' language and literacy education through coherent accounts (Emerson, Fretz, & Shaw, 2011).

### 3.2.4. A descriptive survey

To get more specific information about the parents' mobile technology use, a brief survey, developed from the Mobile Device Use Survey from the [California Digital Library Mobile Device User Research Project \(2015\)](#), was distributed to the nine home-visited parents. The survey included 11 questions about the parents and their children's daily use of electronic equipment, Internet-enabled mobile devices, mobile applications, and their perceptions about integrating mobile devices into their children's language learning at school.

## 4. Data analysis

The interview recordings were transcribed verbatim. Using NVivo 10 software, a top-down deductive coding process was employed to seek patterns both during and after the data collection based on the resources and appropriation theory of the diffusion, acceptance and adoption of new technologies (van Dijk, 2005, 2012), supplemented with the results of the descriptive survey from the home-visited parents. The coding procedure included two cycles: 1) the initial coding for the transcripts and field notes line-by-line to circle and highlight codable moments and provide a detailed inventory of the FoK sources and 2) pattern coding for grouping the initial FoK codes into focused themes and constructs based on their related properties and dimensions (Saldaña, 2015).

## 5. Results

The study presents the findings about the parental perceptions of young ELs' MALL education from the *four successive kinds of access in the resources and appropriation theory* of motivation, physical access, digital skills, and different usage (van Dijk, 2005, 2012) within the families originated from China, Mexico, Japan, and Cambodia.

### 5.1. Motivation

The parents in this study demonstrated their motivation to incorporate mobile technology into their children's learning and showed an understanding of MALL as specific m-Learning activities for language learning. They believed that the mobile devices were affordable, portable, lifelike, instant, highly efficient, and resource rich. These devices provided young ELs interactive learning opportunities at home, such as translation from English to their parents' native language, looking up online dictionaries, playing word/spelling games, and watching educational videos. These functions helped the children memorize new vocabulary. The parents expressed that technology can satisfy their children's curiosity for learning new materials. The audio, images, captions, and background music provided on the apps helped the children to understand the meaning of a word or reading. Interacting through mobile technology with their children at home was beneficial to building harmonious family relationships. Some parents also mentioned that their children were allowed to bring their devices to their school. The children wanted to share their devices with the children who did not have any. These experiences were helpful for the children to develop good communication skills and maintain good relationships with their peers. For example,

That [learning through MALL] will be great, especially it is beneficial for Dara. She grows up here and it is a natural process for her to grow up with the technology, especially in this country. It would be a great opportunity for her to keep up with her American classmates. Also, it can help entertain the children and can be a useful tool for learning. It can also be a tool that parents and children can use together and enjoy family time.

[Interviewed parent - immigrant from Cambodia]

I will allow Sakura to use mobile devices because it has a lot educational advantages for kids in learning and playing. It is fun and convenient. In addition, my child, living in the 21st century, needs to learn how to use mobile devices appropriately and effectively. She cannot avoid living with mobile devices. That's reality.

[Interviewed parent - immigrant from Japan]

Well...for us it's good. Technology is really good because before they would have to go to the library to look for a lot of book for something and now just with one click...and the information comes up. It [is] good....We let them watch the programs that they want to watch like cartoons. Computers have really helped a lot because well it's not like before and need to look through many books.

[Interviewed parent - immigrant from Mexico]

However, the parents who did not receive adequate educational backgrounds showed their anxiety and technophobia in using mobile devices. For example, some parents from Mexican immigrant families needed their children to teach them how to download and use an app. They considered their children as a bridge to keep their families connected to the outside society. ELs taught their parents how to use the emerging technology skills to support their daily communication. For example,

I think that it's a little complicated. Well, the phones are the things that we've been most interested in because that's what we've always had with us. But I don't know how to use the computer nor the Chromebooks. My husband knows a little bit of how to use the computer, and, and, on the phone, I think Diego knows a little bit more than me.

[Interviewed parent - immigrant from Mexico]

Not like me... I even did not have email when I came here. I am so glad that Dara can know better than me. She teaches me a lot to play with her iPad. I will try to support her as long as in positive ways.

[Interviewed parent - immigrant from Cambodia]

## 5.2. Physical and material access

The physical and material access to mobile devices of the home-visited families showed similarities and differences based on the parents' education, ethnicity, and socioeconomic factors. In general, ELs in this study had the opportunity to get to know the advanced mobile technology at home. The post-descriptive survey completed by the parents showed that these families had laptops and mobile phones, digital cameras, printers, and MP3 players. The majority of the parents had Internet-enabled mobile devices such as iPhones, iPod Touch, iPads, and Blackberries. Except for one parent who did not use apps, the other parents had at least 7–9 mobile apps in use. Nearly all of the parents were thinking about buying different electronic equipment for their children, including netbooks, iPhones, iPod Touch, iPads, Blackberries, and Galaxy Note 10.1. The ELs used their devices for contacting family members, playing video games, or doing homework. A few of the ELs enjoyed having their own account and being a YouTuber. Some parents from the Mexican-American families did not have Internet service at home because they could not afford it, no Internet was provided in their living area, or they did not want their children to indulge in playing too many video games. However, the parents still bought their children tablets and mobile phones. For example,

Yuxing has already several many kinds of technology, computer, and iPads. Sometimes we do family games, for example, watch movies, reading books, draw together. Sometimes we play dart. I use internet-program for Yuxing's math, spelling, and some reading. Sometimes she uses iPad at school.

[Interviewed parent - immigrant from China]

Sakura just has a cell phone but not smart phone. She can just call or answer, text but no game. The phone does not have Japanese only in English. She contacts and text to her classmates by phone in English. She has the opportunities to use mobile devices in her school.

[Interviewed parent - immigrant from Japan]

We didn't have Internet the first year because we couldn't find a company to service this area. So what we did was to go to the library [to use the Internet]. It was ok in the summer, but in the winter it was really hard because it was always snowing. If you can't leave the house then you can't get there. So we decided it would be better to put Internet here, but in that respect we are a bit limited because we aren't at home all the time.

[Interviewed parent - immigrant from Mexico]

I didn't want to put Internet because it seems to me that it is a two-edged sword. I think that they shouldn't have so much access and also it's a waste of time for them. Because, well, most of the time they grabbed and started to play on the internet and to watch videos. It didn't seem like a good idea to me to put internet in the house.

[Interviewed parent - immigrant from Mexico]

### 5.3. Digital skills

Digital skills are considered as instrumental skills for working with the hardware and software, which include the medium-related skills such as the operational and the formal skills; and the content-related skills such as the informational, communication, content-creation, and strategic skills (van Dijk, 2012). The parents mainly demonstrated their medium-related skills as well as information and communication skills through mobile technology, such as reading content, accessing email and text messages, searching for information, playing games, and watching videos. ELs used their tablets for playing games and searching for weather information and used their laptop and Google Chromebook for doing homework and communicating with their teachers and classmates through email.

Parents who worked in educational fields or had obtained high-level diplomas, displayed more advanced content-related digital skills to their children because of their career. The parents set a model for their children to acquire more content-related digital skills. For example, one EL father from a Chinese immigrant family encouraged his daughter to manage her daily learning plan through Google calendar, which demonstrated a strategic skill of using mobile apps for achieving particular personal goals. For example,

I use computer every day for my work. I download the exercise book for Yuxing to learn English and math. I asked her to manage her daily schedule through Google calendar because they use Google Chromebook at school. Every day before she go to bed, we will go through her next day's study plan together.

[Interviewed parent - immigrant from China]

However, parents from Mexican families mainly used their mobile phones for communication by texting or making phone calls. One parent mentioned that she even did not do text at work because she did not know how to spell the word correctly. Besides phone calls, she did not do too much with her phone because she was too busy with her daily work. However, she hoped to learn new vocabulary to communicate with more people.

### 5.4. Usage frequency and diversity of mobile applications

The parents were involved with their children's learning by using various technologies. Some parents checked the Internet every day to keep in touch with their family in the US and their home countries. A few ELs received the mobile phones or tablets as birthday gifts. One EL in the study enjoyed playing PBS kids with her parents. Her parents also used an online dictionary to help her study. Her mother mentioned that the EL has used the Internet a lot since they got their first computer. Besides learning English, the EL parents also downloaded Chinese or Cambodian songs and created CDs to put in their car. They hoped that their child would learn more about their family's native culture. However, parents from Mexican families did not have too many family activities after school because they were occupied with work every day. For example,

I don't like computer class. It is kind of hard for me. The assignment to type a program in 45 min. It is very hard to do that. Ruby's Daddy bought a computer for us and we just used it for watching videos.

[Interviewed parents immigrant from Mexico]

The parents took on the responsibility of supervising their children's use of technology at home. For example, the parents were concerned about the ill-effects of online pornography, the distraction from over-focusing on the technology, or the damage to their eyesight. Some of them thought that their children were too young to have mobile phones and the overuse of mobile devices would decrease their children's communication skills. The parents worried that their children would spend too much time on mobile devices, so they set security rules for when the children started to use mobile devices. Different opinions of using mobile technology by parents in the family also caused family conflicts some times. For example,

I watch how long time she spends on the Internet. In my case, I allow Yuxing to play the game, even the educational game. She can do that after finish her daily work and homework. She can do it at her free time. But only when she finishes her homework. Reading and diary. She has to do her daily work first. If she overuses them, she might have a difficulty in paying attention on her work....The only considerations is her eyesight is becoming poor.

[Interviewed parents - immigrant from China]

I am willing to support Sakura to use mobile devices but she is still too young to control her own time. On the other hand, I think laptop is good enough for her. Parents should not let children to overuse the mobile devices. If she spends too much time on mobile device. It might hurt her eyes. Also, I am worrying that the overuse of mobile devices will cause children to be lack of communicative skills. They might indulge themselves into the virtual world and stay far away from the real world.

[Interviewed parents - immigrant from Japan]

Through this ethnographic case study, the parents' perceptions of using mobile technology for their young ELs' language learning can be portrayed through van Dijk's (2012) framework of *four successive kinds of access in the appropriation of digital technology* (see Fig. 1).

## 6. Discussion

This ethnographic case study examined the parents' perceptions of young ELs' language learning using mobile technology through

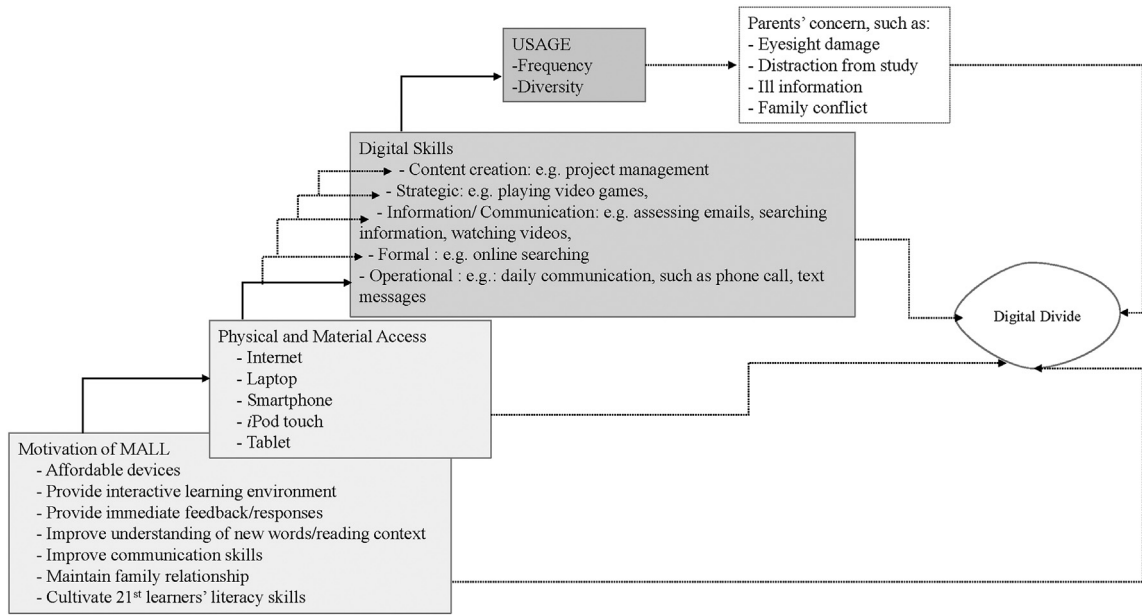


Fig. 1. EL parents' perceptions in the appropriation of mobile technology.

the FoK perspective. In-depth semi-structured interviews from doing home-visits formed a unique type of conversation protocol to establish the validation of the explored technological-based FoK emerged from the immigrant families (González et al., 2005). The findings showed that technology has infiltrated the young ELs' daily lives with the rapid development of social economy and has become one inseparable part of their daily lives. The parents' from different cultures and socioeconomic groups hold different beliefs about how technology being used in their daily life and their involvement and attitudes shaped the young ELs' learning interactions with technology at home. This involvement included supporting, interacting, supervising, and interfering with the ELs' daily use of technology at home. Some of the involvements were conscious, while others were unconscious. Some of them were direct, while others were indirect.

van Dijk's (2005, 2012) resource and appropriation theory, especially the four successive kinds of access in the appropriation of digital technology, was utilized to categorize the parents' perceptions from the four specific aspects of motivation, physical and material access, digital skills, and the usage frequency and diversity of mobile applications. The findings showed that the parents were motivated to support their children's language education through mobile technology because of the affordability, immediacy, interactivity, and connectivity provided by MALL, which concurs with the results from previous empirical studies about the advantages of using MALL (Lan et al., 2007). Technology can make learning faster and more attractive. The parents helped their children use mobile devices appropriately by providing tutoring and supervision. The ELs were willing to utilize mobile devices in their language learning or more subjects. Based on the parents' feedback, the children were already used to having technology in their daily lives and were quick learners. Through observing family members or joining in, the children learned about using technologies to communicate, shop online, and enrich leisure activities or work and study (Plowman, Stevenson, McPake, Stephen, & Adey, 2011). The students' curiosity and motivation were satisfied and enhanced through interactive MALL environment. However, similar to the findings from Tai and Ting (2011) and Calabrich (2016), the parents indicated their concerns about using mobile devices because they worried about their children's self-regulation abilities, time-management, communicative skills, and their eyesight if they overused these devices. The different opinions on their children's use of mobile devices may also cause family conflicts. Additionally, parents from Mexican families showed certain anxiety and technophobia due to a lack of adequate education.

The parents' attitudes toward and involvement in supporting ELs' language learning through MALL revealed a deepening digital divide among the diverse EL populations, which might impact their children's relationship with technology among different race/ethnic families (Bray et al., 2004; van Dijk, 2005). These different social stratifications in using mobile technology were constructed by the parents' diverse race/ethnicity, educational levels, socioeconomic status, and cultural backgrounds. In the present study, the immigrant parents from China, Japan, and Cambodia showed a relatively higher educational level and socioeconomic status and placed their digital skills in the level of information, communication, content-creation, and strategic skills. These content-related digital skills showed they could use technology for creative communication. While the parents from Mexican-American families placed their digital skills at the operational skill and formal skill levels, which often subjects individuals to the control of the technology. These technological differences portrayed the evolving digital divide within ELs' households and suggest that parents should model the use of technology at home to enhance the sense of ownership for ELs to use technology in their learning.

The findings from the present study indicate that technology-based FoK in the ELs' households reflected from the parents' perspective should be considered in formal technology-enriched learning. By bridging parents' beliefs and involvement in ELs' daily use of technology and "transforming students' diversities into pedagogical assets" (Moll & González, 1997, p. 89), technological-based

FoK provides relevant curricular connections for technology integration into the classroom in the digital world. Newly emerging mobile technology and this existence in young ELs' lives should help educators and researchers reimagine the concept of educational technology and incorporate young ELs' digital FoK to explore more approachable curriculum designs from a broader social and cultural perspective.

This study benefits the current MALL studies from a unique ethnographic perspective to contextualize mobile technology as well as its use in young ELs' language education from the parents' perception. However, it is important to note the limitations of this study. There were only six families home-visited and the findings are not applicable to a larger EL population. However, the diverse cultural and linguistic backgrounds of each EL's family enhanced the external validity to generalize the findings. Additionally, the participating immigrant families spoke two languages at home, English and their native language. The study was conducted in English for families from China, Japan, and Cambodia and in Spanish for families from Mexico. The participants' English proficiency might have affected the interview communication during the home-visits. To minimize these issues that impacted the internal validity of the present study, the employed participant observation methods enabled the researcher to become involved with the families and related community activities. The home-visits enabled the researchers to develop an insider's view and understanding for achieving a deeper conversation with the participating families.

## 7. Implications

The present study indicated that the parents were motivated to support the ELs' language learning using mobile technology. However, findings revealed different levels in the parents' physical and material access to mobile technology, digital skills, and the frequency and diversity of using mobile applications in view of the immigrant families' diverse race/ethnicity, educational background, and socioeconomic status. These findings indicated an inequity between Asian-American and Hispanic/Latinx ELs in the distribution of digital resources. This discrepancy may have reflected socio-economic or educational differences among the families of these ELs, but a more in-depth exploration of reasons for these differences might be investigated in future studies with larger sample sizes. Future studies might also focus on creating FoK-featured curriculum designs that could contribute to ELs' language education through mobile technology. As an additional benefit from the study, the current MALL study extends its horizon from the front line of specific student-centered learning experiences to further examine the facilitating factors and barriers that may be latent within a multicultural learning environment. Future studies could examine the relationship between parents' perceptions of MALL practices and their children's engagement with these practices. Additional studies in this area could help to inform the use of MALL to mediate educational inequalities and facilitate both the academic achievement of ELs and their transition to mainstream culture.

## Acknowledgements

The authors gratefully acknowledge the support of the Doctoral Dissertation Grant (2016–2017) from the International Research Foundation for English Language Education and the Graduate Student Mentored Proposal or Pilot Grant (2017–2018) from the Center for the Interdisciplinary Study of Language and Literacy at Northern Illinois University.

## Recognition

This research was recognized as the 2018 Qualitative Inquiry Award by the Association for Educational Communications & Technology.

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